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The business environment and its impacts on firm profitability- A country crises analysis

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CHAPTER 1
Introduction

1.1 - Introduction

This introductory chapter presents the overall framework of this thesis. It begins by providing a general overview of what is studied, where it is situated in the academic body of knowledge and, in this context, discusses important issues related to profits, investments, capital mobility and crises. It also addresses current challenges that researchers face to explain the interaction between firm profitability and crises. The statement of the problem specifies some issues in previous research, shows the dissatisfactions with current knowledge and identifies some gaps in the literature. The objectives section describes two actions that will be undertaken in order to achieve the aim of this thesis. Particular attention is given to main findings and contributions to existing theoretical and practical knowledge. In the final section, the organization of the thesis is presented.

1.2 – Context of the study

Profit is a key variable under a capitalist system. Minsky (1982) goes even further and asserts that profits are crucial for a capitalist economy. Profits generate positive cash flow which enable the payment of current debts and profit expectations help attract current and future investments. Profits affect some important microeconomic variables such as income distribution and the lack of profits is often the main determinant of firms' failure and bankruptcy, of available investment funds (through their effects on credit ratings), and of investment motivation (Sherman, 2001). As stressed by Stigler (1963), investors seek profitable industries and leave unprofitable industries as long as there are no significant barriers to these movements. Consequently, capital mobility is crucial to the efficiency and growth of any capitalist economy in a world of constant changes, e.g., production technology, types of products, and availability of various resources. Capital immobility would lead to "catastrophic inefficiency". Traditionally, international capital flows support long term investment and helps, consequently, the growth of nations. At the same time it promotes a better allocation of savings, which is a basic condition for any flow of capital, international capital flows can provide positive returns for investors.

Capital mobility has become a crucial tool for countries and firms to raise cheaper capital across nations. For many, capital allocation is a bridge between financial development and economic growth. However, the flow of international finance and its benefits, especially in developing countries, suffers from some natural drawbacks. For instance, the shift of investments to developing countries, mainly after the financial liberalization in the 1980s, has poured trillions of dollars into countries where the economic and political structures were not sufficiently mature and ready to handle this massive amount of money. As a result, although significant economic growth was reached, in several cases, bubbles were created and burst, triggering crises that hugely impacted investors, firms, governments and citizens. Nevertheless, the occurrence of crises and their consequences on investments are not restricted to developing countries. A long-run analysis of firm profitability will certainly raise the necessity to understand the impact of business cycles, financial crises, and changes in economic fundamentals on firms' performance in developed and developing countries. Most economic agents, e.g., investors, firms' senior management, and banks were not, and continue not to be, able to properly foresee bubbles and, most importantly, do not have a deep understanding of the impacts of crises on firms and, consequently, on their investments.

This study is situated in the academic field of strategic management. Considered a practical field by Hoskisson et al. (1999), a primary focus of this field is to analyse the business environment and its relationship with a firm, by looking inside the firm. As discussed in Herrmann (2005), current developments of the field search for answers to how firms learn to acquire sustainable competitive advantage and how they improve their knowledge. Most importantly, the author calls for "tighter responsiveness to interactive developments in practice". Similarly, Hoskisson et al. (1999) brought to the surface the necessity of strategic research to respond to frequent and discontinuous changes in the environment, to give answers to new problems faced by executives, and to educate future executives. In addition, due to the practical nature of this field, it calls for the usage of a wide variety of theoretical perspectives and methodologies from other fields. This study adopts this approach by using methods from the finance and economic theories, as an attempt to better understand the real effects of business environmental uncertainty, dynamism, and complexity over firm profitability. This thesis thus looks for integration

with economics[1], and particularly investigates the importance of crises on firm profitability.

1.3 –Statement of the problem

Since the studies of Bain (1951, 1956), the determinants of firm profitability have been under constant scrutiny by academia. Their earliest works represented a school of thought where market structure was considered a vital component of industry profitability. Later, this line of thought was improved and gave more importance to government intervention and competition to explain industry profitability. Among a few others, Stigler (1963), and Demsetz (1973) were the main authors of this "new" school. At that time, firms' differences were not considered as an important factor of profitability and were seen as random noise. More recently, the seminal work of Schmalensee (1985), followed by Wernerfelt and Montgomery (1988) and Powell (1996), tried to decompose the variance of firm profitability into industry and firms' components as a way to emphasise the importance of one over the other. All these authors distinguished the importance of industry in the variance of firm profits. Although, at that time, firms' components were relegated to subsidiary importance in variance decomposition studies, the importance of firms' variables was not completely out of the focus of researchers. Firms' differences were also considered as important factors to explain firm profitability in scattered studies that started to be developed in the 1970s. The "academic push" of new studies about the importance of firms' capabilities for firm profitability was a counterpoint made by Rumelt (1991) on Schmalensee (1985). Rumelt (1991) supported the view that firm factors were more important than industries' factors to explain firm profitability. Then, firms' variables became instrumental to account for differences in profitability in several studies, inter alia, McDonald (1999), Goddard et al. (2005), Nunes et al. (2009), and Asimakopoulos et al. (2009). Variables such as firm size, leverage, and productivity helped enhance the predicting power of these new models. In parallel, studies focusing on long-run time series analysis about firm profitability were confronted with the necessity to understand the impact of changes in countries' economic fundamentals over firms' performance, and emphasized the importance of the environment where firms compete. This idea was originally developed by, among a few others, Rajan and Zingales

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[1] From the field of economics, business cycles as well as financial crises are important to understand the business environment.

(1998) to explain differences in growth between industries among countries. Then, studies dedicated to understand firm profitability during economic cycles (e.g., Larrain, 2005, Braun and Larrain, 2005, Eaton et al., 2010, and Varum and Rocha, 2011) started to develop and academia realized the importance of recessions to understand profits. It was understood that recessions were not the only disturbance that affect performance but there were also other types of business disturbance that could produce similar damages, such as banking crises (Dell'Ariccia et al., 2008) and currency crises (Desai et al., 2008, Forbes, 2002). However, the greatest boost in understanding the relationship between crises and profits came after the 2008-09 Financial Crisis. Authors like Kolasa et al., (2010), Békés et al. (2011), Clarke et al. (2012), Tan (2012), Paunov (2012), Bruni et al. (2014), and many others performed thorough analyses in several countries as an attempt to better know how this crisis affected the real economy and people's live with such intensity.

In this study, the business environment is defined as the major external factor influencing firms' performance[2] that is beyond firms' control, and that is not dependent on firms' actions towards competition in an open market. In this regard, crises are the true materialization of constraints originated from changes in the business environment. Although the importance of crises for profits is well understood in the field of strategic management, is it really clear in the literature that the business environment may have different configurations? More precisely, it depends for instance on the type of crisis that is occurring, on the occurrence of several crises at the same time, on a period of crises' absence, or even on different crisis intensities over the years. In this matter, it is necessary to clarify that different crises produce different effects on the real economy. Crises are, in their essence, different in their causes and also in their consequences. For instance, bailouts are, in most cases, the immediate government response to banking crises (Laeven and Valencia, 2008, Reinhart and Rogoff, 2009 and 2013), and they increase government expenses and, consequently, increase governments' fiscal deficit, which is the financed via sovereign indebtedness. Concomitantly, the crisis itself decreases government income through a decline in tax revenues (Reinhart and Rogoff, 2009 and 2013). Moreover, the possibility of government default would lead to more currency depreciation once investors run out of the local currency, which makes imported goods more expensive,

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[2] Firm performance is a broader concept that may involves firm profitability but certainly involves other non-financial performances, such as market, product, and operational.

boosting inflation. There is ample evidence that currency crises worsen inflation (Dornbusch et al., 1995), recessions (Calvo and Reinhart, 2000, Dornbusch et al., 1995, and Krugman et al., 1999) and aggravate existing problems in financial system (Dornbusch et al., 1995). Banks, firms and countries that borrowed in foreign currency suffer losses due to currency mismatches, increasing the probabilities of a massive wave of domestic and foreign defaults (Reinhart, 2002). Very importantl is unemployment (Dornbusch et al, 1995 and Obstfeld and Rogoff, 1995), which is a negative consequence that works against governments, due to its social costs, and is a powerful instrument of pressure for changes in exchange rate regimes. In the case of a debt crisis, as stated by Reinhart and Rogoff, (2009) and Eaton and Gersovitz (1981), countries will have no easier access to international capital markets, cutting off possibilities to finance short-term difficulties (like bad harvest), borrow for long-term projects (e.g. loans for infrastructure), and will face higher interest rates (Reinhart et al., 2003). So, country crises can be the result of a malfunctioning financial sector that interacts with the real economy through common adverse manifestations as output losses[3], unemployment, inflation, and decrease in investment, industrial production and consumption.

After demonstrating different types of damage produced by different crises on the real economy and the competitive environment where firms do business, the question arises to determine whether these differences were considered in previous studies related to firm profitability and firm profitability in times of crises. Was the business environment properly considered in these studies? Do they consider all the relevant external conditions? It seems that this is an important gap in the literature. Even the pioneering work of Bain (1951) assumed stable environments when testing the importance of industries' concentration and entry barriers for firm profitability. He considered the period 1936-1940 as a stable period in the US but, in fact, the country had a boom period between March 1933 to May 1937, which was followed by a recession from then until June 1938 (NBER, 2015). The subsequent period, another boom period, lasted until February 1945 (NBER, 2015). So, his analyses were set in a mixing period, possibly compromising final results given that external factors were not controlled for (e.g. Great Depression and WWII). Analogously, the classic work from Schmalensee (1985) used data from US firms in 1975 but did not consider a recession ended in March of that year

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[3] Business cycle recessions can be seen as a pre-condition to several financial crises and may occur without any other crisis. However, financial crises tend to worse recession periods.

and that the subsequent boom encompassed nine more months in his sample (NBER, 2015). Ravenscraft (1983) analysed the same year to undertake a similar experiment but considered 1975 as a recession year in US. Still, Scott and Pascoe (1986) utilized US firms' data to explain the concept of line of business profitability between 1974 and 1976, but fail to recognize 1974 as a recession year in US (NBER, 2015). A more intriguing misperception of the actual business environment was found in Narayan and Sharma (2011). Here, the authors used US firms' data from 2000 to 2008 and considered this period as a non-turbulent period in the US business environment. Following NBER (2015) US economy was in recession in 2001, the US dollar suffered a sharp devaluation in 2004 (against sterling pound and a basket of currencies), and 2008 was a remarkable year where a banking crisis occurred together with a recession period that ended in 2009 (Laeven and Valencia, 2018 and NBER, 2015). Still considering the US business environment, but now with more emphasis on firm characteristics, some other authors also failed to properly take into account and/or control for the business environment with its crises. Rumelt (1991), which counterbalances Schmalensee (1985)'s analysis, used the same sample and, consequently, committed the same imprecision as the latter. McGahan and Porter (1997) and McGahan (1999) tried to enhance Rumelt's work with more data and a longer time series (1981 to 1994) but did not acknowledge that the US had a recession between 1981 and 1982 (NBER, 2015), a banking crisis in 1988 (Laeven and Valencia, 2018), and another recession year in 1990 (NBER, 2015). Nunes et al. (2009) when studying the Portuguese service industries ignored changes in the business environment occurring from 1999 to 2003, in particular, a recession in Portugal in 2002 and 2003 (OECD, 2015). A similar problem related to the lack of proper identification of recessions was found in Asimakopoulos et al. (2009). The sample used Greek firms' data from 1995 to 2003 where the years of 1998, 1999, and 2001 were considered recession years by the OECD (2015). Similarly, Stierwald (2009) investigated the importance of productivity in Australian's firms and used data from 1995 to 2005 and, again, ignored the changes in business environment, namely, they did not take into account the two currency crises in the years of 1998 and 2001. Still in the Australian business environment, McDonald (1999) studied the determinants of manufacturing firm profitability and found a dynamic profitability pattern over business cycles. He used data from 1984 to 1993 and, although understanding the importance of recessions, which actually occurred from 1990 to 1991, he did not consider currency crises in 1985 and 1993. Using more countries in the sample when trying to understand abnormal profits in

the EU, Goddard et al. (2005) understood the period from 1993 to 2001 as a stable period in Belgium, France, Italy, and UK and did not recognize recession periods (OECD, 2015) in Belgium (1995, 1996, 1998, 2000, and 2001), France (1993), Italy (1993), and UK (2001). Possibly, the most impressive misperception was found in Rajan and Zingales (1998). The authors used data from 43 countries from 1980 to 1990 and did not control for all the different countries' macro-environment turbulences in the sample. These turbulences originated from several crises in this decade, which is considered an unstable period in the global economy. The following table better describes this scenario in a sub-sample of countries.

Table 1.1 – Rajan and Zingales (1998) – Countries, crises and years in sample

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
US	r	r	r	n	n	n	n	n	b	n	r
Turkey	c,d,r	c,d	b,c,d,r	b,c	b,c,r	c,r	c,d	c	c,r	c,d	c
Chile	n	b,r	b,r	b,c,d	b,c,d,r	b,c,d,r	b,c,d	d	d	d,r	d,r
Brazil	n	c,r	c,r	c,d,r	c,d	c,d	c,d	c,d,r	c,d	c,d	b,c,d,r
India	n	n	n	c	c	n	n	n	n	n	n
Mexico	n	b,c,r	b,c,d,r	b,c,d,r	b,c,d	b,c,d	b,c,d,r	b,c,d	b,c,d	d,r	d
Belgium	r	r	c,r	c	r	r	r	n	n	n	r
Germany	r	r	r	n	c	n	n	n	n	n	n
Italy	r	c,r	c,r	c	n	n	n	n	n	n	n
Netherl.	r	r	r	n	c	n	r	n	n	n	n
Spain	b,r	b,c,r	b,c,r	b,c,r	b	b	n	n	n	n	n
Japan	n	n	n	n	n	n	n	n	n	n	n
France	r	c	c,r	c,r	r	n	n	n	n	n	n
South	n	n	c,r	n	c,r	c,d,r	d	d	d	d,r	r
Norway	r	r	c,r	c	c	n	n	r	r	n	n
Canada	n	r	r	n	n	n	n	n	n	n	r
Australia	n	n	r	r	n	c	n	n	n	n	r
UK	r	r	r	n	n	c	n	n	n	n	r
Singapore					n	r	n	n	r	r	n
Sweden	r	c,r	c,r	c,r	n	n	n	n	n	n	r

"b" - Banking Crises, "c" - Currency Crises, "d" - Debt Crises, "r" - Recessions, and "n" - non crises period.

Source: Author, based on data in Rajan and Zingales (1998)

In this sub-sample of 20 countries and 11 years it is possible to see that, agreeing with the authors, non-crisis period ("n") appeared 101 times (47%) while crises[4] periods ("b", "c", "d", or "r") appeared 115 times, in a clear disagreement with the authors. So, the authors did not use enough country variables to control for the entire effects of the environment

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[4] As will be presented, crises were calculated (currency crises), set based on studies from authors (Laeven and Valencia for banking crises and Beers and Nadeau for debt crises) or institutions (e.g. NBER for recessions in US, OECD for recessions in some European countries).

over their dependent variables, something that may compromise final results. Another strong example of inconsistency came from Forbes (2002) when trying to understand the impacts of currency crises on firms' performance in 42 countries between 1997 and 1999. Having Brazil and South Africa as a sub-sample for comparison, she identified a currency crisis in Brazil in 1999 but assumed 1997 and 1998 were tranquil years when, in fact, Brazil faced a banking crisis in 1997 (Laeven and Valencia, 2018) and a banking crisis with a recession in 1998 (Laeven and Valencia, 2018 and ECRI, 2016). With regard to South Africa, the identified currency crisis year was 1998 but the country faced, at that time, not only a currency crisis but also a recession that had been lingering since 1997 (ECRI, 2016). Similar mis evaluation of the business environment was made in Eaton et al. (2010) who classified 2008-09 Financial Crisis as a recession in 22 countries. For these two years, they were correct in classifying Canada (ECRI, 2016), Japan (ECRI, 2016), and Poland (OECD, 2015) in pure recession periods. However, other countries presented a mix of different impacts of this global crisis that went beyond a simple recession, namely, France, Italy, Sweden, and Germany (a recession with banking crisis in 2008 and a banking crisis in 2009[5]), Mexico (a recession in 2008 but a recession with a currency crisis in 2009[6]), Spain, UK, and US (the two years in recession with a banking crisis[7]). Others, such as China and India did not face even a recession period during 2008 and 2009 (ECRI, 2016). Similar mis evaluation about the business environment and the 2008-09 Financial Crisis was seen in Claessens et al. (2011), Paunov (2012), and Békés et al. (2011) with the difference that their studies were vague about the composition of this crisis (recession, banking crises, etc.) in the same countries mentioned in Eaton et al. (2010) and in some others (e.g., Australia and Brazil, which had no crises). Even a reference study performed by Bruni et al. (2014) was imprecise when assessing the business environment in Italy between 2004 and 2012. They mentioned the period 2004 to 2007 as tranquil and this study agrees with them, but they fail to consider that Italy had a recession with a banking crisis in 2008 (OECD, 2015 and Laeven and Valencia, 2018), a banking crisis in 2009 (Laeven and Valencia, 2018), a crisis free year in 2010, and the two following (2011 and 2012) years in recession (OECD, 2015).

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[5] Source: Laeven and Valencia (2018) and OECD (2015).
[6] Source: Laeven and Valencia (2018) and ECRI (2016).
[7] Source: For Spain and UK Laeven and Valencia (2018) and OECD (2015), and for US Laeven and Valencia (2018) and NBER (2015).

As observed, a big gap in current knowledge about firm profitability and, particularly, about the interaction of firm profitability and crises, is that previous authors partially or completely ignored the different conditions in which the business was carried on by firms. Their quantitative models are developed mostly for either tranquil times or disturbance times. This approach may lead to poor outcomes in coefficients of determination (R^2)[8] and variables' significance if there is data from different business environments. When performing statistical tests, the lack of understanding about the environment where the tests were made and when samples were collected may have contributed to misleading variables to better explain firm profitability. The agreement in explanatory variables is low and their dispersion is high when trying to better understand firm profitability. In this arena, an issue that has received limited or almost non-existent attention in the strategic management field is, then, instability in prediction models. Despite common external macroeconomic and financial constraints that all firms are exposed to, the response of each firm is rather diverse. As seen, econometric models have been created in an attempt to capture this diversity in responses from firms and most studies consider stable prediction models in which the coefficients do not change over time. Following the increasing development in modelling tools, viz., statistical and computational capacity, doubts relating to the assumed stability in firm profitability have grown dramatically in the last years, especially after the world's financial crisis of 2008-09. No previous empirical study has filled this gap in the strategic management literature. For instance, studies using prediction models of stock market returns have shown that the biggest sign of instability of parameters in regressions comes from their poor performance in out-of-sample tests. This leads to a low rate of practical application of these models in investment decisions. The reasons to suspect parameter instability come from structural factors, as pointed out by Paye and Timmermann (2006), "on theoretical grounds breaks or discrete changes in the parameters that relate security returns to state variables could arise from a number of factors, such as major changes in market sentiments or regime switches in monetary policies (e.g. from money supply targeting to inflation targeting)". Crises can be framed in these ground breaks cited by Paye and Timmermann (2006) and can be

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[8] The majority of the studies centred focus only to signs and significance of regressors' coefficients. It is interesting to notice that R²s were not properly commented and sometimes not even presented, giving room to various interpretation about the existence of other possible significant variables not included or questioning the explanatory power of the model, therefore limiting researchers' interest. For instance, the paper from Claessens et al. (2011) showed a regression with R²s of 0.008, 0.005 and 0.001 to explain the impacts of a crisis on firm profitability.

clustered in regimes. Crises are different from each other, produce different economic damage, and these differences lead to different effects on firms' performance. As pointed out by Forbes (2004), impacts on firms around the world varies across crises episodes and phases, reflecting different answers for regressions' tests made with the same set of variables in two different crises. Forbes (2004) corroborated parameters instabilities' studies and concluded that "the relative importance of the various firm characteristics varies across crises and it is unlikely that a single model can capture how shocks are propagated during all crises". As will be shown in Chapter 3 it was not possible to identify in the literature review a regime changing model that perfectly fits the business environment, whether in times of crises or in times of non-crisis. Models adapted to tranquil times, although recognizing that disturbances in the business environment exist and are endogenous, have to provide solid foundations for drawing conclusions based on the assumption of a stable environment, even though this assumption does not hold all the time. On the other hand, models adapted to disturbance times just look at data and information in times of crises, ignoring the misapplication and misconnection of these models to tranquil business environment times.

1.4 – Objectives of the study

If crises do make a difference in firm profitability, it is thus important to understand the interaction between types of crises, either combined or not, and firm profitability. If one could systematically demonstrate all damages provoked by different types of crises to the real economy, it would be quite intriguing to know how these damages differently affect firm profitability. The identification of parameters that would help predict the impacts of country crises on firms is captivating, theoretically possible, and would help pave an additional direction to the strategic management field. If an event of similar nature happens in the future, *ex-ante* identification of those firms that would be most vulnerable is, hence, viable. A previous recognition of forces that destabilise the business environment as well as the identification of firms and industries more prone to be affected by changes in the business environment, ultimately manifested in one of its extremes as a country crisis, would provide more precision about, for instance, the size of investments losses in the case of an adverse event, a problem faced by investors, investees, financial intermediaries, and executives. This is the aim of this research.

Signs of instability can be found in firms' data and the primary objective of this thesis is to capture it in dynamic models of firm profitability. More specifically, to the best of my knowledge, no previous study explored the set of firm and industry indicators that would best explain firm profitability in times of non-crisis and compare the same indicators in times of crises to see if they remain statistically significant. In order to determine variables' behaviour (strength and significance) across regimes, it is necessary to have a classification of years per type of crises' occurrence (combined or not) or, on the other side, to identify a total absence of crises in some specific years. It is expected that individual regression coefficients vary in accordance with the occurrence of a country crisis and the classification of regimes; some regressors losing their significance and others increasing their significance, some of them helping to explain profitability (R^2) and others not helping to explain profitability. What it is not expected are changes in coefficient signs (positive or negative) of the same independent variables. In the end, this thesis provides a test showing how country constraints (economic, financial, political, and etc.) originating from country crises could influence firm profitability and investment behaviour. The secondary objective of this thesis is to identify country crises in a broader sense, allowing the emergence of combined crises that are understood as more than a simple sum of single crises. It is increasingly important to assess the effects of different types of crises on the real economy, evaluating if their effects vary across industries and firms. This would be the first study to address these issues using consistent and exhaustive information on individual firms and industries' characteristics before, throughout, and after country crises.

So, based on identified gaps in the literature and the major objectives presented before, one specific objective of this research is to investigate if there exists a set of firms' independent variables that better explain firm profitability in times of non-crisis as well as to investigate if there exists a set of firms' independent variables that better explain firm profitability in times of crises. Moreover, this research intends to verify if the impact of country crises on firm profitability can be explained by a set of firm characteristics and if these sets of characteristics behave differently in times of non-crisis. Similar specific objectives are applicable to industries' independent variables instead of firms' independent variables. Finally, another specific objective of this research is to observe if different types of crises require different sets of firm and industry variables to better

explain their effects on firm profitability and if different types of crises affect firm and industry profitability differently in severity.

1.4.1 – Research questions

Research questions are built to give precision about, in this thesis, how crises provoke instability in firm and industry's parameters related to firm profitability. In order to do so and based on the literature review, two sets of firm and industry's independent variables were chosen to be tested in one single model. The first set is composed of those variables that better explain firm profitability in times of non-crisis, while the second set is composed of those variables that better explain firm profitability in times of crises. The instability in independent variables is evidenced when the model outcome is compared across regimes, groups of countries, and periods of time. So, the following set of specific questions will be explored in this thesis:

1. Are lagged dependent, leverage, size, liquidity, age, productivity, market share, and diversification significant to explain firm profitability in times of non-crisis?
2. Are leverage, size, age, productivity, ownership, and external dependence significant to explain firm profitability in times of crises?
3. Do any independent variables common to models of crises and non-crisis (leverage, size, age, and productivity) improve or decrease their significance between the two models (thus presenting difference in relevance to profitability)?
4. Which set of firm and industry variables better explain the impacts of crises on firm profit? Are they the same in times of non-crisis?
5. Do different types of crises call for a different set of independent variables to explain firm profit?
6. Do different types of crisis produce different outcomes on firm and industry profitability? Is there a type of crisis that harms the most firm and industry profitability? Does a combined crisis hit harder firm profitability than a single crisis? If yes, which combinations?

1.5 – Main findings and contribution to existing knowledge

This study is intended to contribute to the existing literature of strategic management by revisiting the effects of crises on firm profitability, using a broader scope of countries,

types of crises and a continuous period of time. Moreover, it will control industry and country effects that impact on firm profit, and that have been neglected in previous econometric models. The importance of the industry variables to firm profitability is highlighted in theory and such variables will be included in empirical models as controls. Furthermore, crisis combinations will be seen as a genuinely distinct crisis, rather than the sum of two crises. For instance, a debt crisis together with a banking crisis is not a sum of individual crises, but a different and unique type of crisis. Finally, this study will present an alternative methodology to test the effects of crises on firm and industry profitability, based on regime changing models mirroring studies performed on stock market return and economic cycles. The usage of models to firm profitability where parameters need to be constantly reassured and new variables tested, especially after the occurrence of a structural break in the business environment, approximates them to the true uncertain nature of profit, once the source of uncertainty is a changing world. An intention of this study is to bring to surface statistically significant firm and industry variables that would help to identify those firms and industries more prone to be hit by a country crisis.

Our results indicate that it is not possible to have a single model that would be able to encompass several factors that influence firm profitability in times of crises and in times of non-crisis. Differences in independent variables coefficients related to their significance, strength, and signs are remarkable between groups of countries (Developing I, Developing II, and Developed), periods of time (Phase I and Phase II), and type of dependent variable (ROE, ROS, SMR, or FCF). Nevertheless, some variables can be interpreted as generally significant to profitability, e.g., lagged profitability, external dependence, and productivity. On the other hand, market share, diversification and concentration, variables widely interpreted as important to profitability, do not perform as expected. They are found weak to explain profitability consistently. Ultimately, it is understood that the impacts of the business environment on firm profitability should be analysed crisis by crisis and country by country.

On a practical level, the outcome of the study may help investors and top management to build signalling models, by recognizing which firms are most vulnerable if another crisis of a similar nature and characteristics arrives, and to focus on a set of firms' parameters that would impact their return in the medium and long term. It may help them to achieve

more predictable and stable returns, supporting investor's wake-up call effect, characterized by the reassessment of risks in one country originated by similarities (e.g. macroeconomic fundamentals and corporate-governance systems) of another one in crisis, or discovered to be susceptible to a crisis. So, signalling models push managers and stakeholders to the reassessment of projects' fundamentals and the obtainment of more information about the invested country in an attempt to minimize surprises, mitigating risks involved. Once information asymmetry between stakeholders and managers is reduced, this acquired additional information can either amplify or reduce the perceived risk, changing the firm's cost of capital and, consequently, firm profit. In addition, when looking at groups of firms that performed better in times of crises and understanding the main and common set of characteristics that explain their performance, a comparison would be helpful to list policy responses and corporate actions that can be implemented in the midst of the crisis, where limited information is available about the size of the damage and the length of the crisis. It would, consequently, help pave the best and fastest way to develop adequate post-crisis recovery measures to re-establish a firm's profitability. Finally, for institutional investors and banks, findings of this research may help foster a better understanding and measurement of possible losses caused by the business environment of the invested country. This better understanding about losses in foreign direct investment can also be exported to enhance the understanding about losses in credit risk analysis, a practical contribution that goes beyond strategic management field but very important to the banking industry. The credit modelling process could improve if the business environment is better understood and samples are organized accordingly, being possible to have a credit model for times of crises and other for times of non-crisis, where independent variables could be different and also have different weights.

1.6 – Structure of the thesis

This thesis is organized into eight chapters. Chapter 2 surveys the literature on country crises, detailing each type of crises used in this thesis; banking crises, currency crises, debt crises and growth crises (recession periods), embracing their history, causes, and consequences to the business environment and to firms. It will also introduce some previous research where combined crises were a topic under discussion. Chapter 3 provides an extensive literature review about the theoretical framework of firm

profitability, and highlight their strengths and weaknesses. Chapter 3 also develops a joint theory on firm profitability and country crises. Chapter 4 is dedicated to the methodology which will be instrumental to test hypotheses and address the research questions. Parameter instability and regime changing models are at the core of the methodology. This chapter also details all variables utilized in the models and the way country crises are identified. Data sources are presented and this chapter ends by presenting the econometric models to be applied in subsequent chapter. The first empirical chapter is Chapter 5. On a country-by-country analysis, all types of crises are identified using available data and results are compared with other authors as a sanity check. This procedure constitutes the core of the thesis and represents a meaningful pillar for future findings. Continuing with empirical chapters, Chapter 6 models the determinants of industry profitability while Chapter 7 models the determinants of firm profitability. These two empirical chapters are where econometric investigations are run and results are analysed to address research questions. The final chapter, Chapter 8 concludes the thesis, providing a summary of finding and comparing results with current knowledge. It also shows contributions to the knowledge, exposes limitations, and speculates about recommendations.

CHAPTER 2
Literature Review Part I – Country Crises

2.1 - Introduction

More than ever, the beginning of the 21st century has shown an increasing linkage among nations. This increased connection is represented by more and more intense trade of good and services between countries as well as cross country investments, and has created a global economy, a turbulent place that sometimes can change so rapidly that policymakers and business leaders are unable to properly respond to the new demands. A world with fewer barriers to factors of production (capital and labour), and fast communication through the internet is consequently a world where abundant information is a reality. However, as mentioned by Bouchet et al. (2003) "too much information and knowledge lead to mounting uncertainty". Money flows around the world faster than ever and information can be misleading. Time thus becomes a key and essential variable but, at the same time, scarce to decision makers. As recently seen in 2008, this turbulent and connected place sometimes faces a disruption in its patterns and crises appear, hurting governments, firms and citizens in the speed of this new world. Crises are "extreme manifestations of the interactions between the financial sector and the real economy" (Claessens and Kose, 2013). Consequently, crises are understood as an abrupt change in some economic, financial, political or social indicators, viewed as parameters of normality, in a specific time window, usually having a start, a peak, and end phases. Most importantly, a narrow focus on one crisis may not capture interlinks between crises. These multi-dimensional crises, where different types of crises occur simultaneously, affect differently the business environment and have become more prevalent since the 90's.

The aim of this chapter is not to provide an exhaustive review of the vast literature related to country crises. The focus is on what these studies reveal about the causes and impacts of country crises on the business environment and, consequently, on firms and industry profitability.

2.2 – Country Crises

Crises are neither easy to predict and identify nor they are exclusively a contemporaneous subject. A classic model proposed by Minsky (1976), and developed in Kindleberger and Aliber (2005) helps to identify financial crises, giving a clear idea of how they start and how they end. It is based on pro-cyclical changes in the supply of credit as a response to economic phases; booms and slowdowns. The model gives great importance to the behaviour of heavily indebted borrowers that seek short-term capital gains, investing their borrowed money in assets like real estate, stocks or commodities. These indebted investors predict a constant increase in asset price (opening possibilities to anticipate gains) at a rate that would exceed the cost of borrowed money, which is cheaper than usual due to economic booming. It is well known that this "strategy" works as long as there is market confidence that asset prices will continually increase in the future. In contrast, if there is -and there always is- a loss in confidence occasioned by exogenous events that slow economic conditions, assets will lose their value, credit will be become more expensive. Consequently, heavily indebted borrowers will end up with liabilities bigger than their assets, suffer a capital loss and become distressed sellers, thereby starting the crisis. So, shifts in credit supply fuel optimism and lead to fragility in financial arrangements, increasing the likelihood of financial crises. Kindleberger and Aliber (2005) argue that this expansion and contraction in credit supply is rooted in human behaviour, and is hard to predict and forecast, which leads to excessive optimism or pessimism in forecast economic scenarios. Kindleberger and Aliber (2005) classify this human state of spirit as "mania", a loss of touch with rationality, and it is triggered by good news such as an upcoming good harvest, the end of a war, the opening of a new market, the discovery of a new source of raw-material supply, the financial liberalisation of a country, a deregulation of industries, and possibilities brought by innovations. Similarly, Reinhart and Rogoff (2009), a well-grounded book based on a massive historical data set, maintain that the root of a vast range of crises is excessive debt accumulation by any of one of these economic actors: governments, banks, firms or consumers. Infusion of cash can give a false impression that expenditures and profitability are long lived, usually far beyond long-run sustainable levels. Nevertheless, the most important aspect regarding crises is not debt amounts, but confidence. Indeed, confidence implicitly appeared to sustain Minsky's model and optimism/pessimism forecasts in Kindleberger and Aliber's work. Confidence is a fickle and volatile human sentiment that roots investment behaviour and anchors all country crises; one of the reasons why it has been so difficult to predict the exact time a crisis takes place. For instance, without

confidence about the future of an economy or a firm it is virtually impossible to refinance constantly their short-term debts. When confidence collapses, lenders disappear, interrupting the practice of rolling out short-term debt. In emerging markets and developing economies, long-term debt markets are usually very shallow, and it is usually cheaper to refinance short-term term (Reinhart and Rogoff 2009, amongst others). When investors' confidence disappears, a crisis is inducted. In addition to human nature, governments, banks, firms, and consumers usually take excessive debt in good economic times and suffer the consequences of the lack of appropriate risk assessment in times of inevitable recessions, something that always comes. Mauldin and Tepper (2011) argue that low interest rates induce a false sense of confidence, where it is possible to take more and more debt at lower coupons, building debt that soon people are unable to pay. Nonetheless, confidence is not all. Kindleberger and Aliber (2005) understand financial crises as the result of the implosion of bubbles or from sharp depreciations of national currency, being sometimes foreign exchanges crises triggering bank crises and vice versa. These crises are systematically related to rapid changes in the economic environment.

Yet, the expression "crisis" alone does not say too much by itself. Apart from being hard and subjective, the identification of types of crisis, its concepts and components is a necessary exercise to be done. Otherwise, inconsistent, generalising, and misleading conclusions would be reached. Each crisis also has its unique individual features – the nature of the shock, the object of speculation, the form of credit expansion, the ingenuity of the swindlers (Kindleberger and Aliber, 2005). For this research, crises are understood as abrupt changes in economic indicators where standardised scores are used most of the time to identify crisis periods. The most important is to understand the multidimensionality of a crisis such as, for instance, banking crisis and its connections to others types of crises, e.g. currency or debt crises. Sometimes one crisis is able to predict, to correlate, to trigger, or to be a consequence of another one. Alternatively, it may cluster and overlap another one in an odd way. In accordance with Reinhart and Rogoff (2009), "different varieties of crises tend to fall in clusters, suggesting that it may be possible, in principle, to have systemic definitions of crises".

Finally, there is no unique accepted taxonomy to all possible types of crises the world has experienced until today. Nevertheless, this study chooses three types of crisis and the economic cycle to be analysed individually and in combination; they are: 1) banking

crisis, 2) currency crisis, 3) debt crisis, 4) recessions (growth rate crisis), and 5) combined crisis. The sub sections below will analyse each one in more detail.

2.2.1 – Banking Crises

Financial intermediaries play an important role in financial systems and banks are the main specialised institutions responsible for capital allocation. As Mishkin (1996) pointed out "[b]anks play the most important role in financial systems throughout the world because they are so well suited to reducing adverse selection and moral hazard problems in financial markets". Banks' existence is related to a financial market's necessity to reduce problems related to asymmetric information but, in essence, banks are also firms that seek profitability and returns to their shareholders. However, unlike non-financial firms, banks are heavily leveraged -debts can represent 10 times the size of equity (or much more)- and are illiquid firms that put other's people investments at risk. This set of characteristics becomes crucial when a crisis hits this industry. In fact, banks' main activity is to channel money from savers to funding seekers. In turn, investment projects made by firms and/or countries supported by these funds are vital to the development of an economy. Consequently, banking crises should be seen as a powerful event that heavily lowers a country's normal economic activity, reason enough to be a regulated industry. As the main bank activity is to channel money from savers to fund seekers, banks' main role is maturity transformation, i.e., the transformation of short-term deposits from savers into long-term loans and securities. This unique characteristic makes them uniquely illiquid and vulnerable to bank runs. Bank runs happen when depositors lose confidence in the bank's viability and withdraw their money in amounts that are bigger than the reserves banks hold for any surge in deposit withdrawal. Conceptually, banking crises are those that happen when a significant part of a nation's bank system becomes insolvent[9] after banks face heavy investment losses and/or banking panics, with the ensuing liquidity problems. Moreover, Demirgüç-Kunt et al. (2000) conceptualised banking crises as a period in which a significant segment of the banking system becomes illiquid or insolvent. However and by definition, banking crises are characterised by an event "when one or

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[9] Insolvency is understood as a situation where a bank has its assets value lower than its liabilities and shareholders' equity values. It can be caused by a liquidity problem when assets are sold at "firesale" prices and insolvency can cause flight by depositors, deepening even more liquidity problems, a circle that can validate the initially overestimated fears that motivated the bank run, self-fulfilling an expectation.

more banks collectively … experiences a decline in asset quality that impairs their capital to such an extent, that a significant number effectively become insolvent, thereby limiting their capacity to function" (Golin and Delhaise, 2013).

The causes of banking crises can be divided into two groups; idiosyncratic and systemic. The former relates to individual banks in the banking system and is rooted in poor bank management and weak or incompetent corporate governance. The latter is related to the adverse macroeconomic environment, government policies or regulation deficiencies, and international phenomena or events that affect the global banking system as a whole. Gavin and Hausmann (1998) claim that any banking system in any country in the world is vulnerable to macroeconomic shocks, no matters how sound a country's regulatory mechanisms are and how well managed banks are. In case of extreme macroeconomic distress, e.g. a major recession, banking crises may occur. Demirgüç-Kunt and Detragiache (1997) also revealed evidence that deteriorated macroeconomic environment is associated with banking crises. In addition, Laeven and Valencia (2008) pointed out that "the role of macroeconomic fundamentals has evolved across generations of crisis", saying that crises in Russia in 1998 and Argentina in 2001 were caused mainly by large macroeconomic imbalances best represented by unsustainable fiscal policies, whereas East Asia crisis was more related to maturity and composition of debt and foreign exchange exposures. In their sample of banking crises, negative fiscal balance, current account deficit[10], and high inflation were macroeconomic conditions preceding a crisis. Being more specific about macroeconomic causes of banking crises, Mishkin (1996) pointed out increases in interest rate as one of their main causes[11], amending previous studies performed by Stiglitz and Weiss (1981). As explained by Demirgüç-Kunt and Detragiache (1997), the increase in short-term rates pressurises banks to increase interest rate owed to depositors without necessarily having the counterpart in banks' assets, usually consisting of loans of longer maturity at fixed interest rates. Kaminsky and Reinhart (1999) identified a pattern of high real interest rates prior to banking and twin crises that may have different causes, ranging from a reaction to an increased risk-taking position by banks and a tight monetary policy, but deeply associated with financial liberalisation. Still, Bernanke (1983) argues that a banking crisis helped "convert the

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[10] Corroborated by Reinhart and Rogoff (2013) when analysing the influence of capital flow "bonanzas" in surge of banking crises.
[11] The others are increases in uncertainty, asset market effects on balance sheets, and bank panics.

severe but not unprecedented downturn of 1929 - 30 into a protracted depression", amending the previous explanation proposed by Friedman and Schwartz (1963), which suggested the rapid fall in the supply of money as one of the main reasons for an economic downturn.

In summary, common macroeconomic factors cited as being important to develop a proper environment for banking crises are fiscal deficit, low GDP growth, high inflation, high interest rates and external imbalances. Moreover, macroeconomic shocks are seen as sparks that trigger banking crises. The literature has pointed out shocks such as cyclical output downturns, deteriorations in terms of trade, adverse domestic money demand or international capital flows, and declines in asset prices (Gorton, 1988; Caprio and Klingebiel, 1996b; Gavin and Hausmann, 1998; and Kaminsky and Reinhart, 1999).

In contrast with the importance of macroeconomic factors in banking crises, Diamond and Dybvig (1983) suggest that bank runs are the main factor in banking crises, and that they are caused by a shift in expectations, in connection with the allegedly irrational behaviour of depositors running on banks. For instance, Demirgüç-Kunt and Detragiache (1997) evidenced the presence of an explicit deposit insurance scheme[12] and the effectiveness of the legal system as important banking industry related variables to explain banking crises. Deposit insurance schemes have long been viewed as sources of moral hazard, generating an impunity sentiment among managers (see for instance Akerlof et al. 1993). As seen in Kindleberger and Aliber (2005) and in Minsky (1976), credit supply is one of the most important elements of banks' activity and has a prominent role in banking crises. Nevertheless, it is true that credit availability and growth are a natural and a desirable consequence of a favourable macroeconomic environment when a country is experiencing an economic boom. Reinhart and Rogoff (2013) found that banking crises are usually preceded by asset price bubbles, large capital inflows and credit booms. As Caprio and Klingebiel (1996a) argued, "real credit growth of one to two times GDP growth might be expected in normal times". Laeven and Valencia (2008) identified a credit boom preceding a banking crisis. Moreover, Allen and Gale (2000) and also Mishkin (1996) examined the issue of asset bubbles through the lenses of asymmetric

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[12] As explained by the authors, "[w]hile deposit insurance should reduce bank fragility by eliminating the possibility of self-fulfilling panics, it is well-known that it creates incentives for excessive risk-taking by bank managers (moral hazard)".

information but in connection with a credit boom. They found that this phenomenon can be rooted in risk shifting theory, where investors use the money borrowed from banks to invest in risky assets. Allen and Gale (2000) concluded that "[t]he essential feature of the model that explains the existence of bubbles is the risky shifting problem resulting from the inability of lenders to observe how risky borrowers' investments are". It is a weakness inside the banking industry/system. The credit growth issue was also addressed in Gavin and Hausmann (1998). They argued that lending booms are responsible for bank system vulnerability and consequent crises. Similarly, Caprio and Klingebiel (1996a) also agree that times of abundant capital inflows create subsequent credit booms that, not occasionally, end in financial crises as banking crises. Credit booms have the power to trigger asset prices' increases (especially in real estate) to the point where bubbles can be created. Reinhart and Rogoff (2013) stated that housing price boom/bust cycles play a central role in banking crises.

To summarise, excessive credit growth, poor risk assessment, asymmetric information, speculative bubbles, and overall uncertainty about robustness of the banking system are commonly cited factors for a banking crisis in a loose regulatory environment. In addition to country endogenous factors related to banking system/industry that help to trigger banking crises, literature has increasingly mentioned financial liberalizations as a cause of bank insolvency (Gavin and Hausmann, 1988; Demirgüç-Kunt and Detragiache, 1997; Goldfajn and Valdés, 1997; Laeven and Valencia, 2008; and Reinhart and Rogoff, 2009). As pointed out in Reinhart and Rogoff (2013), there is a high historical correlation between banking crises and freer capital mobility.

Finally, the literature evidences important economic consequences of banking crises that allow the forecast of impacts on non-financial firms. First and most importantly, bailout measures are, in most cases, the immediate government response to banking crises in the form of deposit insurance schemes, nationalisations, and recapitalisation of banks (Laeven and Valencia, 2008, Reinhart and Rogoff, 2009 and 2013). These fiscal stimulus packages increase government expenditures, whist the crisis itself decreases government income through a decline in tax revenues (Reinhart and Rogoff, 2009 and 2013). Consequently, there is an increase in governments' fiscal deficits, which are eventually financed through sovereign indebtedness. Secondly, the supply of money falls. Banking crises unleash deflationary forces of deleveraging and falling monetary velocity that, in

turn, reduce the capacity of individuals, government and firms to honour their debts, resulting in more defaults. Should central government default either on internal or external debt, the immediate consequences would be more profound. As evidenced mostly in emerging markets during the 1980s Latin American debt crisis, the 1994 Mexican crisis and the 1997 Asian Crisis, *inter alia*, government default would worsen currency depreciation as investors would run out of local currency. Countries with pegged or fixed exchange rates may suffer speculative attacks against their currencies (Demirgüç-Kunt and Detragiache, 1998). Moreover, crises affect the well-functioning of the national payments system "and, by undermining confidence in domestic financial institutions, they may cause a decline in domestic savings and/or a large-scale capital outflow" (Demirgüç-Kunt and Detragiache, 1998). Connected to previous disruptions caused by banking crises, (Demirgüç-Kunt et al. (2000) show that currency devaluations last for at least three subsequent years after the end of the banking crisis. In 30% of cases on average a banking crisis leads to a currency crisis, the so-called "twin crisis" phenomenon.

A depreciation of local currency makes imported goods more expensive, boosting inflation in the medium to long-run. Although the impact of a banking crisis in its immediate aftermath is a deflationary spiral, currency depreciations, money injections, and increase in government spending, understood as a necessary countermeasure to revive the financial system in the economy, and counterbalance the deflationary pressures triggered by banking crises, may lead to high inflation or even hyperinflation[13](Demirgüç-Kunt and Detragiache, 1998). In this volatile macroeconomic environment, an emerging economy subject to a banking crisis often finds itself oscillating between harmful deflationary and then inflationary pressures. Equally important for firms, there is a reduction in GDP due to disruption of the monetary system, a reduction of investment and consumption that possibly forces viable firms to bankruptcy (Reinhart and Rogoff 2009, 2013).

Different patterns of GDP contraction usually arise in developed and mature economies, as evidenced in Reinhart and Rogoff (2013). Their data showed that developed economies' recovery was slower than that of developing economies but the severity of banking crises in developing economies tended to be worse than in developed economies.

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[13] This is a monetarist explanation to recession, the one that comes from the lack of enough money supply to the market. See Friedman and Schwartz, 1963.

Macroeconomic imbalances then lead to microeconomic effects. Loan recall measures accompanied by credit constraints and higher interest rates are placed by banks, hampering productive investments. In addition, some usually adopted measures to smooth the consequences of banking crises are an object of critics and can influence firms' performance. Literature pointed out that bailouts allow inefficient banks to remain in the business and create expectations of other future bailouts, reducing incentives to a proper risk assessment and management from banks (Demirgüç-Kunt and Detragiache, 1998).

In conclusion, banking crises are not random events and tend to occur in times of low economic growth, following cyclical economic patterns. In practical terms, they occur when there is a joint movement with rising banks' liabilities and declining banks' assets which affects the liquidity and solvency of the whole banking system, and is a result of the liquidity transforming structure of their balance sheets. Due to the importance of banks in the economy, government policy interventions are more than ever an important tool to prevent banking crises and stabilise the financial system in their aftermath. The theory stipulates that banking crises are not only an endogenous causal mechanism for country recession and other economic downturns. They may also be the consequence of an adverse shock resulting from wars, political crises, and social disturbances. These events change the economic environment, triggering loans default waves and provoking loss of savers' confidence. In turn, this scenario deepens the economic downturn and causes a spiral effect of more loan defaults and bank failures. However, it is correct to state that severe banking crises have been associated with deep and prolonged recession episodes throughout history, but causality effects between the two are still the subject of further research.

2.2.2 – Currency Crises

The exchange rate has been the main driver of international capital flows in the last 150 years. The exchange rate regime adopted by most of the countries during a period of time dictates the intensity of international trade and finance. As mentioned by Obstfeld and Taylor (2005), in an open economy, the exchange rate is the most important price and "… the exchange rate is, in most of the world's economies, a key instrument or target for monetary policy… it is a prime policy indicator". With regard to the traditional approaches to understanding currency crisis, the so-called "First Generation" model

(Krugman, 1979) posits a pre-crisis analysis of economic fundamentals and sometimes similar analysis in post-crisis periods. In the "Second Generation" models, self-fulfilling crises and the role of speculators took prominence over economic fundamentals. Recently, the question of international capital flows provoking crises arises stronger than ever due to Asian Crisis in 1997 and the Global Financial Crisis in 2008. These recent studies attempt to condense, among other factors, economic fundamentals, political motivations, and market participants' actions in the vibrant arena of the international business world, where different players have different goals but are all playing on the same field. As an example of the First Generation approach, Eichengreen et al. (1996) identified a severe foreign reserve loss and a decrease in the rate of exports more or less in a quarter of the year preceding currency crises but both with a strong recovery in the following year. A similar pattern applied to current account deficits, with a less severe drop close to crises but with longer recovery time. On the other hand, imports tended to rise one and a half years before crises, losing strength also one and a half years after crises. Government budget deficit was held constant with the peak happening around six months before crises. There was a recovery that brought the number close to zero in the following second semester of crises but worsening to a more severe deficit in the following months. There was a movement of interest rate increase close to crises that remains constant throughout the following months. Inflation steadily increased in the period after crises as well as real output growth. Frankel and Rose (1996) examined a variety of potential causes of currency crises in emerging markets and found that countries that experienced currency crises tend to have most of their debt lent by commercial banks -as opposed to concessional, multilateral organizations, and public sector- usually in short maturities and based on variable interest rate terms. Still, in a sensitivity analysis, results confirmed the general inferences, associating low FDI flows, high domestic credit growth, low output growth and high foreign interest rates with currency crises. Dornbusch et al. (1995) focused their explanation about currency crises on the role of the real exchange rate[14]. A protracted overvaluation of domestic currency hurts exports and helps increase the deficit in current account. The pillar sustaining a real exchange rate appreciation is the traditional measure adopted by government authorities to use the nominal exchange rate as a tool to fight inflation. If this temporary remedy to inflation does not hold, mainly due to lack of credibility of government's policies, a crisis may

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[14] To reach these observations, four cases of currency crises were considered: Chile 1978-82, Mexico 1978-82, Finland 1988-92, and Mexico 1990-94.

take years to happen, but it will occur. A deterioration of the external environment, e.g. increase in interest rates or world recession, could also contribute to a domestic problem related to the usage of the nominal exchange rate as an anchor.

Regarding currency crisis models and speculative attacks, Krugman (1979) argued that currency crises often have their roots in government's unwillingness to adopt fiscal and monetary policies consistent with maintaining a fixed exchange rate, such as non-expansionary policy, when nation's foreign exchange reserves run out. At the time speculators realise that the government is going to run out of foreign reserves needed to hold the currency, they will anticipate and move out of the currency, saving an eventual loss and provoking a certain currency crash. As Krugman (1979) shows, speculative attacks are an important factor to understand currency crises and this work is considered the classic theoretical model, called First Generation model of currency crises as a result of speculative attacks. Similarly, Obstfeld (1994) built a framework where currency crises built on speculative attacks in a circular dynamic movement fuelled by market expectations over government responses. For instance, if market actors expect a devaluation, possibly an increase in domestic interest rate may occur[15], creating an economic fundament for a currency depreciation under interest rate parity assumption[16]. In turn, the expectation for devaluation may be assimilated in today's contracts and wage demands, pushing the government to devaluate. Then, if economic agents expect a currency crisis, it might happen in a self-fulfilling movement that would not have to take place if it considered only economic fundamentals for the crisis. So, governments' concern about the adverse economic outcomes (mainly unemployment due to an increase in interest rates) originating from their measures to protect the currency can be interpreted as the changing point in a speculative attack strategy as market sentiment can change overnight. Consequently, self-fulfilling attacks occur when speculators lose confidence in a government's will –or capacity- to defend the currency, a prime political component to currency crises that arises in this equation. This political understanding about currency

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[15] Preventing speculators to go short against the currency. Investors borrow domestic currency at a lower interest rate, then buy foreign currency (decreasing foreign reserves) and wait for the devaluation to perform the inverse way; sell foreign currency at a depreciated exchange rate, pay the loan and reap the speculative gains.
[16] An increase in foreign interest rate also pushes an increase in domestic interest rates if government wants to keep fixed/pegged exchange rate regime. Some other consequences of a domestic interest rate increase are higher financing costs to government indebtedness and a weaker banking system (that can cause a banking crisis and a necessity of bailout), both finishing in larger government fiscal constraints.

crises was proposed by Bordo et al. (2001) as one of the main causes for a currency crisis. Together with capital mobility, democratization occurring in the last decades in developing countries was an important factor to undermine fixed exchange rate regimes. To the authors, governments weakened their power to credibly commit to exchange rate stabilization due to the impossibility to subordinate all other policy goals to the maintenance of an exchange rate regime, something that may damage politicians' ambitions. Still, as pointed out by Eichengreen et al. (1996), speculative attacks should always be considered as a real possibility when deciding which exchange rate system to be implemented. Exchange rates are, and will always be, destabilized by speculative attacks, except naturally in the case of pure floating exchange rate systems[17], which are immune to them. These attacks are not always a consequence of policymakers' mistakes or imbalances in economic fundamentals, they can occur even in the absence of endogenous factors motivating them, reinforcing "the notion that some attacks are of the purely self-fulfilling variety" (Eichengreen et al., 1996). In this scenario of no apparent reason for an attack, the question is to defend or not to defend the currency. Apart from using foreign reserves, countermeasures to sustain fixed, pegged or targeted exchange rate systems include reducing monetary base, imposing exchange controls, and drawing on swap-line agreements with other central banks. All countermeasures have costs associated such as unemployment, decrease in output, budget deficit, decrease in investments, and pressure on the banking system. So, countermeasures' evaluation of effectiveness and success should be made taking into account these costs.

In a late and more complete work, Krugman et al. (1999) condensed these ideas and identified the causes of currency crises under the two classic models; Canonical currency crises model (First Generation) and Second Generation crises model that acknowledges that central governments have other ways to protect domestic currencies from attacks other than exchange market interventions, mainly through a tight domestic monetary policy. In the end, "the defence of an exchange rate is a matter of trade-offs rather than a simple matter of selling foreign exchange until the money is gone" (Krugman et al., 1999). To the authors, not only weak fundamentals are enough to promote a currency

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[17] Pure floating exchange rate systems do not actually exist. The closest form of pure floating exchange rate system is the "managed float" regime, where the country's central bank intervenes to maintain the rate with pre-defined (and usually undisclosed) boundaries. See https://www.imf.org/external/np/mfd/er/2004/eng/0604.htm for a classification of exchange rate regimes around the world.

crisis, some other scenarios have the power to trigger a crisis. First, the self-fulfilling crisis is about investors' optimism or pessimism of the future of domestic currency. In the case of optimism, the foreign currency will remain stable in the country and this optimism may attract more foreign reserves, eliminating the possibility of a crisis. On the other hand, a pessimistic projected scenario about the domestic currency will push many individual investors to pull out of a foreign country, materializing the currency crisis. Second, investors' "herd behaviour" is a denial of the assumption of rationality adopted in previous First and Second Generation models. It is understood that foreign exchange markets are full of anomalies that justify herd behaviour such as waves of selling, independently of the causes, which magnifies imitation of each other's behaviour, and that leads to a stampede out of the domestic currency, starting a currency crisis. Lastly, it is the possibility of contagion, based on real linkages among countries' economies or contagion between countries that "are perceived as a group with some common but imperfectly observed characteristics" (Krugman et al., 1999). Notwithstanding contagion always being a possibility irrespective of the type of crisis, a devaluation or a currency crisis in a neighbouring country can lead its trading partners to devalue in order to avoid a loss of competitiveness, inducing speculative attacks (Eichengreen et al., 1996 and Kaminsky et al., 1998). Alternatively, domestic institutional investors, playing against their private information, may follow the crowd in herding effects (Park and Sabourian, 2011) due to a political commitment to a fixed exchange rate. Not occasionally, policymakers are concerned about the destabilising power of herding effects due their impacts on the health of financial systems (Bikhchandani and Sharma, 2000). Again, the political factor seems to be in evidence when trying to explain currency crises. An extensive work performed by Eichengreen et al. (1996) highlights the political instability as a pre-condition for a currency crisis, in a set of political and economic conditions that are linked to speculative attacks. A study performed by Alesina and Tabellini (1989) suggested that left-wing governments may be more inclined than their right-wing counterparts to abandon fixed/pegged exchange rate systems as well as impose capital restrictions, in response to, respectively, the inflow of speculative and rising unemployment, as well as skewed income distributions and capital outflows. As argued before, there is a strong theory connecting international flows of capital and economic growth, but, "capital inflows are not an unmitigated blessing" (Reinhart et al. 1994). As evidenced in banking crises, financial liberalisation and international capital inflows pose potential problems to domestic currencies, especially the most recent wave that occurred

in the 90s. By far, the worst type of capital inflow is the one in search of short-term speculative gains (hot money) and that threatens the stability of financial system owing to the fact that reversals in expectations lead to abrupt changes in the flow of money in the opposite way, leaving behind burst market bubbles and a domestic currency and banking system under pressure (Frankel and Rose 1996). This type of capital is attracted to weak or fragmented domestic policies, such as not fully credible trade liberalisations, price stabilisation programmes, and tariff cuts under downward price rigidity (Reinhart et al., 1994). Similarly, Obstfeld and Rogoff (1995) concluded their work saying that the global capital market "magnifies any weaknesses in a country's commitment to a fixed rate and leave little room for manoeuver". Finally, Krugman et al. (1999) supported the idea that currency crises may have the same causes, but their consequences may vary from country to country. For instance, the aftermath of the Latin American currency crises of 1994-95 was a deep recession while in the UK the 1992-93 Exchange Rate Mechanism of the European Monetary System crisis resulted in a fast drop in unemployment rate without any rise in inflation. According to these authors, the reason of such discrepancy in crises' outputs rests on a market belief that, for instance, the Bank of England would continue to be worried about inflation and, consequently, that investment in the UK would continue to be a good bet. The opposite happened in Mexico in 1995 when concerns about a backlash against reforms took over the country, promoting capital flight and deepening the crisis. It is the political factor influencing the decisions and the directions of economic actors.

After reviewing the literature about the cause of currency crises, it is possible to point out some noteworthy consequences to the business environment and firms. First, banks, non-financial firms and countries that borrowed in foreign currency would suffer losses due to currency mismatches, increasing the probability of a massive wave of domestic and foreign defaults (Reinhart, 2002). Currency crises also have the power to worsen inflation (Dornbusch et al., 1995), recessions (Calvo and Reinhart, 2000, Dornbusch et al., 1995, and Krugman et al., 1999) and aggravate problems in financial system (Dornbusch et al., 1995). Capital flight is also a common phenomenon as economic agents with means seek to preserve the value of their domestic currency assets before devaluation further erodes their value (Golin and Delhaise, 2013). Very important is unemployment (Dornbusch et al, 1995 and Obstfeld and Rogoff, 1995), which is a negative consequence that works against governments and is a powerful instrument of pressure for changes in exchange

rate regimes. In addition, currency crises may undervalue the nominal exchange rate beyond economic fundamentals (Goldfajn and Gupta, 1999) and provoke current account surpluses (Calvo and Reinhart, 2000). Contrasting with potential problems brought by capital inflow in a pre-crisis period, a sudden stop of capital inflows due to the loss of access to the international market (as a consequence of a currency crisis) implies that adjustments have to be made, either by reducing current account deficit, by reserve losses, or both. As pointed out by Calvo and Reinhart (2000), "larger adjustment in the current account may be the outcome of EMs [emerging markets] involuntary loss of access to international capital markets in the wake of currency crises". A forced contraction in current account deficit may lead to lower output and higher unemployment and losses in foreign reserves induce financial vulnerability. The authors argued that the root cause of the loss of access to the international market is based on lack of credibility over emerging markets, a pre-step to capital inflows' cessation. This fact can be evidenced by the movement of sovereign credit ratings during currency crisis episodes (Calvo and Reinhart, 2000).

In conclusion, currency crises are historically strongly correlated with episodes of high inflation that, in turn, result from mismanagement and abuse of a government monopoly in currency issuance (broken only by the acceptance/indexation to a hard currency, so-called "dollarization"). However, financial liberalisation plays an important role in the crisis. Consequently, some academics argue that the only way to prevent a currency crisis would be through the adoption of capital controls (Krugman et al., 1999), something hard to imagine in present times, where the theory of international capital flows being able to promote economic growth and foreign reserve accumulation is strong. Krugman et al. (1999) stated, in light of the Second Generation model, that the cause of a currency crisis "is not so much what you are actually doing, as what the financial markets suspect you might want to do". The trade-off between costs and benefits will be always on scrutiny judgement of market actors. First and Second Generation models seem to be in tune when trying to explain currency crises. Results in Esquivel and Larraín (1998) prove so, affirming "that the insights developed by second-generation models complement srather than substitute the explanation provided by first-generation models". However, neither of the two are able to explain the whole story about currency crises but they have improved considerably the overall understanding of a phenomenon that is far from objective. As seen above, exchange rates are highly influenced by monetary and nonmonetary factors.

Speculative attacks performed by market players are the major concern of public authorities and it is a powerful event that can start a currency crisis. The problems seeding the speculative attacks are inside the economic fundamentals of the country but the market's interpretation of government actions towards the protection of currency has the power to overcome stable fundamentals. Yet, not only these factors have accounted for a crisis. Currency crises are also highly influenced by expectations and perceptions about future events of an economy. Hence, market participants play A decisive role in currency crises, since they are the actors that carry over these expectations and feelings about the future of an economy and its currency. This subjective factor makes predictions about the time and severity of currency crises highly imprecise. In fact, governments have constantly played against market expectations with actions that sometimes have purely the intention to fight against feelings towards government capacity to defend its currency. It is a psychological game with no prediction of success. These sets of subjective and objective characteristics help to explain why currency crises do not follow the same pattern each time they occur but share some of them irrespective of the episode.

2.2.3 – Debt Crises

As evidenced by Eichengreen (1991), large scale lending transactions across countries can be traced back to, at least, the Medici[18] bank of the 15th century. Lending transactions across countries take the general form of sovereign debt, which is the focus instrument for debt crises. These crises happen when there is a sovereign debt default. Sovereign debt can take the form of loans from domestic or foreign commercial banks or bonds issued in foreign capital markets. Domestic debt default is usually less likely and hence less problematic because most sovereigns may print money to fulfil their debt obligations. However, the recent Eurozone sovereign debt crisis of 2010-2012 shows that domestic debt defaults are becoming increasingly destabilising. As a consequence of the 2008 Financial Crisis, the governments of Greece, Italy, and Portugal struggled to honour their debt commitments or to bail out over-indebted domestic banks, and, unable to issue

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[18] The Medici Bank was an Italian financial institution considered the largest and most respected bank in Europe between 1397 and 1494, managing great fortunes in the European world and it was able to issue a well-accepted currency, the florin, utilized to do business, to commerce and to trade. The reasons for bankruptcy of Medici Bank were connected to non-performing loans, where the beginning of the end was a default by Edward IV (King of England), unable to pay the loans after the War of Roses from 1455 to 1485 (Eichengreen, 1991).

currency to do so, were on the verge of default. A rescue package had to be negotiated with the European Union and the IMF (von Hagen et al. 2010, Zettelmeyer et al. 2014 and IMF 2013).

Although not mutually exclusive, there were periods of time where bank loans predominated over bond issuance, and vice-versa, depending on international environment circumstances. Although sovereigns do not offer collateral to guarantee the value of a loan and there is no international court to force a sovereign government to honour its debts, trade and financial sanctions may apply and they can hurt the domestic economic environment of a debtor country in case of a default, which makes the willingness to pay an important factor in the defaulting or not defaulting equation.

It is a fact that the frequency of default or restructuring programs on external sovereign debt is disproportionality lower for developed than for developing economies (Reinhart and Rogoff, 2013). Moreover, when comparing the length of time of debt crises to banking crises and currency crises, on average, debt crises are much more longer lasting than these other two crises. The reason is that country defaults disrupt the economy in several ways and lead to large recoveries plans headed by multilateral institutions and should take into account social impacts and necessary economic (and sometimes also political) reforms that usually come after bailouts. An additional characteristic that allows longer periods of recovery, and the most important one, is that countries do not go bankrupt as firms and banks do. Although it is not possible to conceive insolvency of a country as it is possible for firms and banks, the concept of an insolvent country is seen in the literature. Manasse and Roubini (2005) and Manasse et al. (2003) argue that if the country bears more debt than it can hold (e.g. as a ratio of GDP), a solvency problem exists. So, it is connected to the stock of debt that a country holds at a certain point in time. However, the term illiquidity is applicable and it is one of the main causes of debt crises, "[j]ust as for domestic banks, sovereigns may face liquidity crises - the equivalent of bank runs - when creditors rush to exit" (Kumar et al., 2000). Cole and Kehoe (1996) connected episodes of illiquidity and solvency to a model of a self-fulfilling debt crisis that starts when there is a general feeling in the market that a country will not be able to honour its commitments on bonds coming due. As a consequence, investors do not purchase new bonds and the proceeds of the sale of these new bonds that would be utilised to pay old bonds, rolling over the liability, did not come. Once these new sales do not

materialise, governments are forced into a position where sovereign default seems the evident exit to a liquidity crisis that is coming, confirming market expectations that the country would be unable to honour its commitments on bonds. It is interesting to notice that fiscal imbalances were not mentioned in this paper. A study performed by Detragiache and Spilimbergo (2001) improved this relationship between illiquidity and crises, unlike previous studies that circumscribed their variables on short-term debt and reserves to infer about the severity of illiquidity in debt crises. The results showed all liquidity variables (named short-term debt[19], debt repayment due[20], and foreign reserves) as significant and with the expected sign (positive, positive, and negative, respectively). In addition to liquidity and solvency problems that may occur with a country just as they do occur with firms and banks, the causes of debt crises are also attributed to a variety of other factors, including weak macroeconomic fundamentals (internal factors), changes in the global economy (external factors), and willingness to pay (or lack thereof).

When trying to identify the causes of debt crises in light of country macroeconomic weaknesses, the traditional, shortest and simplest way to understand debt crises goes through an analysis of country fiscal and current account situations. If in permanent deficits and if there is no political will to fix internal causes to zero these deficits, the easiest way to close the balance is to finance the shortfall by borrowing from external creditors. However, there will be a point where the accumulation of debt will be inconsistent with intertemporal deficits and primary fiscal surplus and trade surpluses are necessary to avoid insolvency. Consequently, GDP growth, terms of trade and exchange rate regimes are the most obvious variables to be looked at when assessing causes of debt crises. Eichengreen (1991) affirmed that countries that raise taxes and cut government expenditures respond better to debt crises than those countries that opt to allow large budget deficits to persist[21]. In a previous work (Eichengreen and Portes, 1985) he supported a model where debt default was associated with "a vector of national characteristics proxying for its costs and benefits". The authors connected debt defaults to economic and political conditions of a country. They also correlated debt default and debt-to-income ratio (measuring the burden of the debt), and debt default and the

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[19] Defined as a debt with an original maturity of less than one year.
[20] Defined as payments including principal maturing in the year and interest payments on debt with original maturity of more than one year.
[21] David Felix, in his 1987 article "Alternative Outcomes of the Latin American Debt Crisis: Lessons from the Past", also supported this theory.

magnitude of terms of trade deterioration (measuring the impact of external shocks), thereby including political factors as a variable that should be considered when analysing debt default. Fiscal deficit and monetary policy did not prove to be statistically significant. The result goes against the notion that developing countries had the option not to default during the Great Depression. For this group of countries, it was not a matter of measuring cost and benefits, but the magnitude of external shocks and the severity of debt burden that made countries default. Manasse et al. (2003) pointed out that countries with a high surplus in the current account, high real GDP growth, and open economies have a reduced probability of entering into a debt crisis. It is interesting to note that they defined indebtedness levels greater than 50% of the country's GDP as an indicator that increased the likelihood of a debt crisis. However, even in the absence of high indebtedness levels, a risk of default remains high if the country shows liquidity problems, which may also be boosted by tight international capital, political uncertainty, fiscal mismanagement, and when the exchange rate is overvalued. Analogously, Manasse and Roubini (2005) tried to understand economic and political conditions that foster the occurrence of debt crises, creating thresholds for vulnerability indicators. Using a methodology that looked to identify common characteristics of defaulters, their main findings show that there are few common causes of defaults. Some of them are motivated by government solvency problems, others due to government liquidity problems, and some because of macroeconomic weaknesses. Catão and Sutton (2002) also include measures of volatility in their model and they argued that "theory of sovereign debts also postulates a key role for second moments, or volatility, of macroeconomic aggregates". In general, higher macroeconomic volatility increases default risk (a positive association[22]). However, the authors correctly identified that volatility is positively or negatively related to default risk depending on the relative balance between willingness to pay and ability to pay.

External shocks, such as the first and second oil shocks in the 1970s, were also a source of debt crises. Eichengreen and Portes (1985) saw problems of debt defaults in the 1930s and in the 1980s linked to disturbances in the world economy. Notwithstanding domestic economic weaknesses[23] and political problems, real interest rate shocks, commodity price fluctuation, and protectionism and recession in developed countries were pointed to as

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[22] Eaton and Gersovitz's (1981) model postulates a negative association, as will be seen.
[23] Including particular primary commodity endowments, domestic economic policies, and the uses to which borrowed funds were put.

the main reasons for both episodes of debt crises. The tightness of international liquidity effects as a precursor of debt crises was also found to be a significant variable in the model tested by Manasse et al. (2003). Dornbusch (1989) focused more on external variables to explain debt defaults in the 1980s debt crises and emphasized that indebted countries that defaulted in this period showed a non-financing current account deficit that was being financed by foreign borrowings until the crisis in 1982. To the author, the gap between non-financing current account and interest payment are chief in debt crises. Grossman and Van Huyck (1988) understood sovereign debt default as a bad outcome contingent on a certain state of the world. Then, following this theory, lenders are able to differentiate defaults with excusable origins (e.g. related to the misfortune of sovereigns due to the bad shape of the world economy) from those with unjustifiable and inexcusable origins. In this case, debt repudiation is motivated by an unwillingness to pay and due to the fact that sovereigns are not subject to external enforcement. With regard to willingness to pay, debt default is not always a direct consequence of a country's absence of foreign reserves or overall macroeconomic imbalances. As pointed out by Reinhart and Rogoff (2009), "most countries' defaults happen long before a nation literally runs out of resources". It is much more about willingness to pay than a country's capacity to pay, where political disunity is seen as a key driver in determining sovereign debt default. An article from Eaton and Gersovitz (1981) well establishes the reasons that "push" (the so-called "carrots on sticks") countries to pay their debts. The main reason is the access to international capital markets, or as mentioned by the authors, the "exclusion from future borrowing"[24]. The decision to repay stands for a trade-off between costs and benefits in a utility equation done by borrower countries (if the net marginal utility of default is positive, a country may default).

Moving on to the effects of debt crises on countries' business environment, it is possible to foresee some problems to firms when looking at some macroeconomic and political consequences evidenced in the literature. First, as stated by Reinhart and Rogoff (2009) and Eaton and Gersovitz (1981), in case of a default, countries will have no easier access to international capital markets, cutting off possibilities to finance short-term difficulties (like bad harvest) and borrowing for long-term projects (e.g. loans for infrastructure). Yet, this point is not unanimous among researchers. The assumption that countries that

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[24] Excluding the possibility of existing "one-time borrower" country.

defaulted on their foreign debt had, consequently, destroyed their ability to borrow while those that kept servicing their debt enjoyed continued access to the international market was found difficult to be reconciled with historical evidence. In practice, general punishment for defaulting countries is a worsening of the terms and conditions on which the country will borrow again, instead of denial of credit. For instance, Eichengreen (1989) supports these findings, saying that defaulters carried the legacy of past defaults with a higher interest rate but that the amounts borrowed were not different from those of non-defaulters[25], although a correlation between the two prevailed in all cases and at all times. Another work performed by Eichengreen (1991) supported these findings with data from the 1929 crisis. When there was no evidence that a country was able to obtain new portfolio capital from abroad, "[d]efaulters and nondefaulters suffered alike as the international capital market shut down". However, the legacy of debt default might increase interest rates for future borrowings, something that empirically does not appear to happen regarding the volume and number of transactions[26]. In this sense, Reinhart et al. (2003) showed that countries that defaulted several times in the past have lower credit ratings and, consequently, face higher interest rates (spreads are higher due to higher credit risk). Conversely, they agreed that there exists a "debt intolerance" phenomenon for those countries that defaulted in the past, where their ability to sustain levels of external indebtedness (to GDP) is considerably lower if compared to more recent non-defaulting countries with similar macroeconomic fundamentals. Internal reforms towards better policies consistent with sustained income and export growth can help the recovery of creditworthiness for defaulting countries in the medium run. This can explain the possibility but not the certainty of an increase in future interest rates to be demanded by creditors. Nowadays, the best sign provided by debtors to investors is the conclusion of reform agreements with IMF (Reinhart and Rogoff, 2009).

Important changes in debtors countries' macroeconomic policies may take place. Budget deficits are cut and devaluation of domestic currency occurs in an attempt to reverse current account deficits. In Latin America after the 1980s debt crises, some changes in the political arena happened, generating more political instability in a region marked by

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[25] Considering a positively-sloped supply curve of external funds.
[26] For a deeper understanding, refer to Peter H. Lindert, 1989 - "Response to the Debt Crisis: What is Different about the 1980s?", Sule Ozler, 1988 - "Have Commercial Banks Ignored History?", and Barry Eichengreen, 1989 - "The U.S. Capital Market and Foreign Lending. 1920–1955".

severe income inequality. Political conflicts surged when there was a necessity to a fiscal adjustment, contrary to the will of those highly mobilised groups who politically benefit from more public spending (Sachs, 1989). In turn, currency devaluation helped exports grow smoothly and, in some countries[27], export policies were implemented. They were stimulated by central governments using some traditional instruments such as investment in exporting sectors (usually driven by government subsidies) and financial incentives for exporters.

Once the net capital inflow stops, net capital outflow starts to be a new reality. Governments may not be able to generate either a fiscal surplus in the short-term by decreasing expenses and increasing revenues, or enough current account surplus to meet the demand for foreign payments. In these cases, the solution becomes either to print money or increase domestic indebtedness to make up for the deficiency in foreign lending. The adjustments made after the debt crisis in the 1980s produced six years of high inflation in Latin American countries, with an average of 150% per year (Sachs, 1989). They had also increased real interest rates due to the necessity to attract new investors to their new domestic bonds and due to high expected future inflation, which lead to higher nominal interest rates. Consequently, inflation produces a high degree of future uncertainty to firms, forcing them to postpone or to abandon investment projects (Reinhart and Rogoff, 2009) and the interest cost of indebtedness increas. This scenario deteriorates even more the fiscal position, leading to a decrease in public investments that are necessary, for instance, to support exports firms and export infrastructure.

Trade links may break and/or trade orientation may change. Trade can be hampered by the absence of trade credits provided by banks. Although it is possible to be replaced by governmental foreign reserves, trade credits provided by banks are better priced and better monitored than those provided by government technocrats (Reinhart and Rogoff, 2009 and Eichengreen, 1991). Moreover, sovereign default may affect FDI once borders are closed not only for capital and trade but also to knowledge and technology transfers (Reinhart and Rogoff, 2009). In addition, trade orientation also may change from inward to outward orientation boosting the production of tradable goods relative to import-competing (non-tradable) goods (Sachs, 1989).

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[27] South Korea, Indonesia, and Turkey after debt crises in the 80's.

A common situation after a debt crisis is a sharp fall in the national investment rate since it is believed that at least part of the capital inflow was designated to productive investments instead of consumption. A fall in investment "was bound to have deleterious effects on future growth prospects" (Sachs, 1989). In turn, although it is definitely agreed that debt crises damage economic growth, the pace to recovery may be different. For instance, countries that defaulted may be able to redirect resources, previously directed abroad to serve the debt, to domestic uses and relax the restrictive "monetary and fiscal policies required to limit commodity imports and to free up domestic goods for export". Hence, those same countries may have had more scope for rapid growth subsequently simply by putting underutilised resources back to productive use. As pointed out by Eichengreen (1991), in order to mobilise foreign money to service its debts, a country would be forced to squeeze domestic public and private spending, and raise taxes, whilst the loss of foreign reserves would reduce the money supply. On the contrary, a country facing foreign debt service difficulties but which "opts" to continue servicing its debt, may face negative consequences for the domestic economy.

Finally, a banking crisis may occur if sovereign debt is held mostly by the banking system. This was the case of the Latin America debt crisis in the 1980s but it was not in the 1930s, where the majority of sovereign debts were due to bondholders. In addition, banking systems without proper currency matching also suffer from debt crises. As Sachs (1989) pointed out "[i]n many cases, the domestic commercial banks had borrowed internationally and then relent the borrowed funds in dollar-denominated loans in the domestic capital markets to firms in the non-tradable sector". In turn, these firms in the non-tradable industry have seen their activity decreased considerably, giving space to tradable goods industry, being forced to not serve their foreign currency debts. A failure in the bank system may require bailouts and/or nationalization procedures, putting even more pressure on the fiscal position.

In conclusion, debt crises can be seen as consequences of liquidity problems, internal macroeconomic imbalances, worldwide disturbances or politically motivated actions towards a non-payment option. Although every case can be considered unique, common causes of a debt default are related to the excess of countries' borrowing in good times without proper domestic preparation to inevitable downturns, as any business cycle

demands. Independently of the causes, sovereign debt default cases are viewed as a rite of passage for every country from developing to a developed country and can take centuries to be concluded (Reinhart and Rogoff, 2009). Debt crises can occur if a country is liquid and/or solvent as well as if it is presenting stable macroeconomic fundamentals. The way debt crises' consequences hit countries are not linear and do not follow patterns. Sometimes countries have productive idle capacity, they required infrastructure, and they need a better political environment to recover, while others countries do not, being necessary successive back and forward economic movements of adjustment to reach an economic recovery. A default decision is a complex cost-benefit equation make by sovereign governments that take into consideration social, political, economic, and financial aspects.

2.2.4 – Business Economic Cycles

The Business Cycle Dating Committee from National Bureau of Economic Research (NBER) understands business cycles following Burns and Mitchell's[28] concept as "expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions and revivals which merge into the expansion phase of the next cycle" (The Conference Board, 2001). Although the word "cycle" appears to characterise alternating economic stages in a country during a period of time, business cycles do not follow a regular or a predictable pattern. Despite having in common the disturbance in some major variables (output, income, demand, investments, profits, inventories, employment, etc.), business cycles are not all alike. They vary in size, scope, and duration, implying that, for example, the previous business cycle is not a parameter for the next one. Business cycles are also persistent. Expansions tend to be larger in length of time than recessions but changes in output tend to be much sharper during recessions than during expansions. Regularly, most industries participate in business cycles but some, like agriculture, do not due to its high dependence on the weather conditions. On the other hand, durables and consumer goods act in conformity, presenting large shifts in production, employment and inventories. In this matter, for the purpose of this thesis, it is important to emphasise an observation made by Zarnowitz (1992), "[b]usiness profits show very high conformity and much greater amplitude of

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[28] Burns and Mitchell, 1946 – "Measuring Business Cycles" (page 21).

cyclical movements than wages and salaries, dividends, net interest, and rental income".
Another interesting fact related to business cycles is that they have changed over time.
Data suggested that post-war recessions have moderate length, showing that recessions
are less frequent than they were in a pre-war period. Moreover, the components of GDP
behave differently than the GDP itself. For instance, Romer (2012) showed that
investments are highly volatile and change more than output during recession periods.
Consumption and net exports also behave differently but not at the same level as
investments. On the other hand, government purchases are stable and change much less
than output. Hence, investments are considered a procyclical activity in the economy,
playing a "crucial role in initiating and propagating business cycles" (Knoop, 2010).

A classic and strong contra-cyclical indicator in economic cycles is unemployment.
Changes in employment are much more severe in recessions than other production inputs.
However, declines in employment are generally smaller than reductions in output. The
consequence is a decline in productivity during recessions[29]. This relationship between
changes in output and employment rate is known as Okun's Law[30]. In accordance with
this law, "a shortfall in GDP of 3 percent relative to normal growth produces a 1
percentage-point rise in the unemployment rate; a more accurate description of the current
relationship is 2 to 1" (Romer, 2012). Together with investments, the labour market
should play, then, a prominent role in any business cycle theory. Analogously, Hodrick
and Prescott (1997) found out that economic growth is characterised by a corresponding
growth of output per capita, investment, consumption, output per hour (productivity) and
capital stock. However, hours of employment showed little change. On the other hand,
variations in output arose as a result of changes in cyclical hours of employment and there
was no influence of cyclical productivity or capital stock. One of the most cited articles
about economic growth/recession was written by Acemoglu et al. (2002). The authors
tried to find out reasons why some countries passed through more macroeconomic
volatility than others and experienced more output collapses and slow economic growth
during the post-war period. Signs of poor macroeconomic policies as high inflation, large
budget deficit, and misaligned exchange rate are a common set of variables usually

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[29] A recent (2014) article from Ellen R. McGrattan and Edward C. Prescott - "Theory and Measurement
of Intangible Capital: A Reassessment of Real Business Cycle" challenges this assumption for 2008
Financial Crisis.
[30] Arthur M. Okun, 1962 – "Potential GNP: Its Measurement and Significance".

observed for those countries with lower economic development. However, the authors did not stop at these more obvious variables. They went deeper into the analysis, looking for answers outside the macroeconomic environment that would help to better understand the phenomena. They concluded that these countries may also have "weak institutions, including political institutions that do not constrain politicians and political elites, ineffective enforcement of property rights for investors, widespread corruption, and a high degree of political instability". In addition, the only macroeconomic variable important to explain this volatility is overvaluation of the real exchange rate. In the end, bad macroeconomic outcomes are important factors but they reflect economic instability generated by weak institutions. So, the root of economic problems passes through politicians and elites seeking to remain in power and enrich themselves. These authors and others are currently debating if political crises play an important role in business cycles, without having a definite conclusion about the subject. In the same way, endogenous economic elements or exogenous factors/events causing business cycles is one of the main discussions in the field. With regard to it, a conclusion made by Zarnowitz (1992) helps to synthesise current belief. The author found out that "[a]lthough the economy is always exposed to and affected by a variety of external disturbances, its major fluctuations are not simply aberrations due to these random shocks, instead, they are to a large extent of endogenous nature". This argument was initially posited and supported a long time ago by the research of Wesley Clair Mitchell[31]. To this author, favourable or unfavourable events outside economic arena would impact, but not cause, economic recessions and booms. Like Mitchell (1913), Zarnowitz (1992) understood that exogenous forces have a secondary role, acting to disturb internal economic processes and having the power to "accelerate, retard, interrupt, or reverse the endogenous movement of the economic system" (Zarnowitz, 1992). Examples of exogenous factors listed were wars, changes in population and technology, government spending, tax laws, and even weather conditions. These factors were understood as persistent and serially correlated to shifts in economic cycles, having the power to affect cyclical behaviour. In addition to these persistent and correlated factors, Zernowitz (1992) also mentioned the occurrence of random shocks, seen as "uncorrelated disturbances of various kinds which impinge upon the structure of economic relationships". Although not clearly mentioned,

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[31] Wesley Clair Mitchell, 1913 – "Business Cycles and Their Causes".

country financial crises can be interpreted as such shocks due to their nature and impacts on economic cycles.

Hence, there is a general agreement among specialists that endogenous factors mostly generate business cycles. However, the agreement stops here and it is limited. As will be seen, persistent and correlated exogenous factors mentioned above started to increase in importance during the last century. In this way, since the 18th century, the literature about business cycles has not been able to identify a single cause or to create a unique model that covers and explains all observed cycles until present times. Neither there is a dominant hypothesis about the origins of downturns and contractions, as well as upturns and expansions in an economy. A book from Knoop (2010) well synthetises main business cycle theories as Classical, Keynes, Keynesians, Monetarists, Rational Expectations, Real Business Cycles, and New Keynesians. From these theories it is possible to realise that business cycles mix unique and common characteristics, which makes them hard to predict and forecast. Business economic cycles are repeated sequences of alternating phases of economic recessions and economic expansions, marked by the occurrence of peaks and troughs at turning points. The two most common ways to measure the fluctuation between expansion and contraction in the economic activity are conceptualised as "classical cycles" and "growth cycles". Both identify cycles in the economy using only one variable that best captures aggregate economic activity in a time series analysis; usually they use real GDP frequency as the best variable. However, the classical methodology measures fluctuations in the level of economic activity in terms of volume (absolute level) of production and growth methodology measures fluctuations in the economic activity around the long-run potential level (or trend) being related to the rate of production growth instead of the volume of production. When comparing these two methodologies it is interesting to notice that in a growing economy, high-rates phases must coincide with expansion phases in the classical cycle methodology, something that does not occur if a country is in a low-rate phase, where it may be associated with expansion or contraction phases in classical cycle methodology. On the contrary, classical contraction phases (low production volume) must be associated with low-rate phases in the growth cycle methodology.

A question that is necessary to be answered is "whether the use of the data available of a single series such as real GDP is the most appropriate series to provide a proxy for the

business cycle" (Boehm, 1998). Some authors argue against the usage of real GDP as the variable to represent aggregate economic activity. Their main reason for not relying solely on this variable is due to the uncertainty in the measurement of GDP, caused by frequent revision performed of this index in the years that follow its publication. On the other hand, the usage of multiple indicators to serve as a proxy for the business cycle increases the probability of having true signs about where the cycle was at the time of the assessment. In addition, the use of these so-called "composed indexes" reduces the problems related to measurement and it is believed to represent and to indicate more precisely the overall state and stage of economic activity. However, the usage of multiple indicators to date economic cycles is not immune to critics. As said before, there is no single cause, neither single hypothesis to explain the appearance of business cycle. It can be said that the same is applicable to the existence of unique and rigid sets of indexes that work to identify (beginning and end of cycles – peaks and troughs) and presage (economic symptoms) business cycles. For instance, some indicators can be most useful and appropriate to predict recession periods in one set of conditions and others in a different set of conditions and countries. Immutability in economic indexes should be avoided all the time. The most prominent institution that utilizes a multi-variable methodology to define business cycles is the National Bureau of Economic Research (NBER). In accordance with Zernowitz (1992), the work done by NBER is highly influenced by Mitchell´s work. Mitchell understood business cycles as a complex phenomenon, embracing a plurality of causes but "notably of the differential responses in the price system, the lag of selling prices behind buying prices or costs, and the effects of the consequent changes in profit margins … on investment and business activity in general" (Zernowitz, 1992). The author amended including other variables of importance as induced expenditures, investments, banking system, monetary system (these two resulting in cost and availability of credit), and expectations about the economy, among others. Hence, this variety of variables and the complexity in understanding business cycles support the utilization of composed indexes in dating business cycles.

The Conference Board (2001) identifies the United States of America´s business cycles through cyclical indicators[32], divided into three categories; leading, coincident and lagging indicators. Leading indicators tend to provide us with the shift in direction of the

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[32] Series of economic indicators designated to monitor, signal and confirm turning points, serving to the purpose of being systemic and comprehensively related to business cycles.

business cycle. They represent variables related to flow and price, are highly volatile, and are sensitive to overall cyclical influences. Coincident indicators measure the aggregate economic activity and define in which period of the business cycle we currently are; recession or expansion. They are a more stable set of indicators and run smoother than leading indicators. Lastly, the lagging indicators warn of structural imbalances in the economy that happen late in the expansion, represented by rising costs of doing business, and indicate that the cycle moves to an economic contraction. It includes vast stock variables, extremely smooth and moving much less cyclically than the other indicators. These composite indexes methodology utilized by NBER tend to work more clearly, more convincingly and in a better and precise way than the observation of a single component of the economy, as growth and classic cycles' procedures produce with GDP. Then, it is expected that more adherence of economic cycles´ effects on microeconomic data is to be utilized in this research. On the other hand, some authors argue that this methodology to identify economic turning points is neither transparent nor reproducible as the decision represents a consensus among economists who can differ in techniques and perceptions about when turning points occur. In addition, some critics about complexity and analytically demanding identification of turning points are also registered.

In conclusion, business cycles are still a subject that demands more reconciliation between theory and evidence. The effects on the real economy[33] originating from governments' activities and policies should be better understood. As discussed in Minsky (1982), instability is an observed characteristic of an economy and a good economic theory should be able to understand and show how instability is generated. A useful model to guide policies towards business cycles must capture sources of instability in order to be able to generate instability. Current knowledge seems to be far from it. However, it is notable the progress made since the later 19th century with studies from Jevons and his Sunspot Theory[34]. With reservations, it is true and would be fair to say that some consensus can be delimited among economists about general causes of business cycles. First, as postulated by New Keynesians, both aggregate demand and supply shocks are important and deserve a close look since they alternate as the main cause in several cases of recession periods observed in more than a century of studies and observations. Second,

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[33] Understood in this thesis as the part of the economy that produces goods and services, rather than the part that belongs to financial services, stock markets, and similar.
[34] William Stanley Jevons, 1884 – "Investigations in currency and finance".

expectations about the future and people´s beliefs play an important play in driving business cycles. Third, the natural rate hypothesis and monetary policy are crucial to understand this phenomenon. Perhaps one of the most interesting conclusions came from the work done by Zernowitz (1992). The author pointed out that it is possible to a market-oriented economy achieve stable growth, implying that economic contractions can be avoided and must not, necessarily, recur with any frequency. Countries with strong growth trends may suffer retardations of real growth instead of economic recessions that, if occurring, may be shorter and milder.

2.2.5 – Combined crises

This thesis will analyse the effects of financial crises on firm profitability and the relationship between different types of crises is an interesting subject to be reviewed. Considering financial crises as a generic term for banking crises, currency crises or debt crises, having recessions (in business cycles) as another type of crisis (some call growth rate crisis), and also considering that these crises combined (in 2, 3 or maximum 4 concomitant crises) should be seen as a different type of crisis, then eleven types of combined crises are possible, as demonstrated in Table 2.1:

Table 2.1 – Nomenclature of regimes - Possible combination of crises

		Banking Crisis	Currency Crisis	Debt Crisis	Recession	Type
Single	Banking Crisis	X				*S1*
	Currency Crisis		X			*S2*
	Debt Crisis			X		*S3*
	Recession				X	*S4*
Double	Banking Crisis	X	X			*S5*
	Banking Crisis	X		X		*S6*
	Banking Crisis	X			X	*S7*
	Currency Crisis		X	X		*S8*
	Currency Crisis		X		X	*S9*
	Debt Crisis			X	X	*S10*
Triple	Banking Crisis	X	X	X		*S11*
	Banking Crisis	X	X		X	*S12*
	Currency Crisis		X	X	X	*S13*
	Debt Crisis	X		X	X	*S14*
All	Banking Crisis	X	X	X	X	*S15*
	No crisis					*S16*

Source: Author

The last column called "Type" refers to a label given to crises combinations (or not) that will be used in regression models in order to make their identification easier when regimes' notations are required. So, for instance, when S9 appears, it refers to an environment where there exists a currency crisis together with a recession period. Analogously, when S16 appears, it means an environment without any crisis.

Although there is some consensus that some combined crises produce different outcomes than those outcomes produced by a simple sum of two single crises, the literature about double crises is not complete, so it cannot be generalised. In addition, the literature about triple crises is hard to be seen, and the literature about quadruple crises is virtually non-existent. On this matter, Ishihara (2005) pointed out that currency crises usually trigger other types of crises and they are present in 85% of combined (two or more types of crises) crises episodes between 1980 and 2002. Debt crises and recessions follow with, respectively, 46% and 47% of all combined crises in the sample. As seen before, recession periods and country financial crises have a strong and close relationship and are well covered in the literature. For instance, Bordo et al. (2001) measured the impacts of financial crisis(es) combined with recessions on GDP and found out that recession with crises are always worse for GDP (the same apply for GDP recovery) than recessions without crises. This literature usually measures the impact of a crisis in a country's economy using GDP or GDP per head as the dependent variable. Authors like Demirgüç-Kunt and Detragiache (1997), Kaminsky and Reinhart (1999), Gorton (1988), Caprio and Klingebiel (1996b), and Laeven and Valencia (2008) evidenced the power of a weak macroeconomic environment favouring the occurrence of banking crises. Gavin and Hausmann (1998) also stressed the importance of macroeconomic factors, being responsible to put stress over a country´s banking system and enabling weak banks to fail in case of a shock (a recession, for instance), something that can lead to sequential bank failures. Moreover, macroeconomic weaknesses are also associated with currency and debt crises. For instance, Eichengreen et al. (1996) concluded their work pointing out that realignments of fixed exchange rates are preceded by fiscal and current account deficits, fast growth of money and prices, and political instability. Their study is a political-economic fundamentals weaknesses analysis linked to speculative attacks as a factor that could lead to currency devaluations[35]. They stressed the weak government position to

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[35] Stressing that speculative attacks occur even in the absence of imbalances in macroeconomic fundamentals.

protect the currency during recession periods (as opposed to during economic expansions), saying that successful speculative attacks "take place in the context of a significantly weaker economy … [u]nemployment rates are higher and employment and output growth are lower before attacks that succeed". In turn, Eichengreen and Portes (1987) showed that macroeconomic instability is the prime source of economic shocks that would lead to financial crises. The danger lies in malfunction of the real economy and, following the authors, one of the most important policies to be adopted by authorities to prevent financial crises would be "to provide a stable – and, in an increasingly interdependent world, internationally coordinated - macroeconomic environment", emphasizing the necessity to increase an international macroeconomic policy cooperation among nations. Clearly, this is a utopia. Nevertheless, results indicate bidirectional causality; some crises are consequences of recessions and others can aggravate recession periods, but it is not clear that there is a genuine causal inference of crises on recessions.

Moving to another type of crises combination, Reinhart and Rogoff (2013) found a high association between banking crises and sovereign defaults on external debt. In accordance with the authors, banking crises in developed economies drag down world growth and commodity prices. The resulting lower trade activity and decrease in commodities' price reduce exports in amounts and in value, substantially reducing the availability of foreign currency to serve developing countries external debts. In addition, financial centres' banking crises dry out lending activities to developing countries, worsening even more their economic activity, and putting more pressure on declining developing countries' governmental resources. Bordo and Meissner (2016) blamed the advent of government guarantees (e.g. deposit insurance), mainly during the Great Depression, for the increased connection between banking crises and debt crises. To these authors, panics from the banking system started to be resolved by fiscal bailouts, creating a link between the government's balance sheet and the banking system. Bernanke (1983) connected banking crisis in US in 1930 as a result, among others factors, of deflation added to a series of defaults caused by the large expansion of inside debt in early 1920s. Again, excess of indebtedness was in the root of the problem. As presented before (currency crises and recessions), the political factor seems to be present and it is determinant in banking and debt crises.

Beck et al. (2003) and Caprio and Klingebiel (1999) [36] demonstrate that banking crises often occur at the same time as currency crises in emerging markets (in Desai et al., 2008). This type of combined crisis is certainly the most explored combined crisis in literature; the so-called "twin crises". Laeven and Valencia (2008) and Glick and Hutchison (1999) defined a twin crisis in year t as a banking crisis in year *t*, combined with a currency crisis during the period [*t*-1, *t*+1]. Following this definition, banking crises are centred and implicitly lead to currency crises. In Laeven and Valencia's sample of 42 banking crises, in 55% of the cases, there was also a currency crisis and only in 7% of the cases, there was a debt crisis. In turn, in Glick and Hutchison's study, 37 out of 90 banking crises were twins (41%). The authors stressed that "banking crises tend to be a contemporaneous and/or leading, rather than lagging, indicator of currency crises", helping even to predict future foreign exchange instability or currency crises, something that does not apply in the opposite way. Similarly, Kaminsky and Reinhart (1999) pointed out that banking crises typically precede currency crises that, in turn, will deepens banking crises in a spiral of problems (when banking crises hit their peak). They technically classified twin crises as episodes in which the beginning of a banking crisis is followed by a currency crisis within 48 months. In fact, the authors also pointed out that the causes of both crises are common and similar; recession/low economic growth, overvalued exchange rate, and the rising cost of credit, stressing that the one that surfaces first is a matter of circumstance. Together with weak or deteriorated economic fundamentals of a country, Kaminsky and Reinhart (1999) and Goldfajn and Valdés (1997) attached the increased intensity of twin crises in recent decades to liberalization of financial markets across many parts of the world, arguing that the access of international markets fuels the boom phase of an economy, increasing financial vulnerability of banking systems. Nevertheless, even after the financial market liberalization in the 1980s, it is hard to see crises in countries with solid economic fundamentals. For many, a combination of a bank run, consequent government bailout and fixed exchange rate regime are the root causes for a speculative currency attack that could lead to currency crises. Golin and Delhaise (2013) support that after financial liberalization in the 90´s, a period of easing capital account restrictions, banking crises "most often began before currency crises". Smoothing the effects of banking crises on currency crises, Demirgüç-Kunt and Detragiache (1997) estimated the probability of a banking crisis using a multivariate logit model composed by

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[36] Beck et al. 2003 – "Bank Concentration and Crises" and Caprio and Klingebiel, 1999 – "Episodes of Systematic and Borderline Financial Distress".

macroeconomic, financial, and institutional variables and found no evidence of exchange rate effect on banking crises if inflation and terms of trade changes are controlled. However, when inflation is excluded from the regression, the rate of depreciation's coefficient becomes significant and negative. On the other hand, Gavin and Hausmann (1998) are sympathetic to currency crises as a source of banking crises. They highlighted the necessity of having some exchange-rate flexibility in order to reduce the possibility of a currency crisis being transposed to a fragile banking system, leading to a banking crisis. They argued that the exchange policy regime in place when a macroeconomic shock occurs is important to predict the consequences to the banking system. Flexible exchange regimes protect banks from external shocks while under fixed exchange rate regimes adverse external shocks affect banks position in a way that could lead into a banking crisis. As commented by Obstfeld (1994), in a fragile banking system any increase in interest rate as a measure to defend the currency may lead to a banking crisis. Goldfajn and Valdés (1997) pointed out the adverse effects on banking systems derived from expectations of an exchange rate collapse, where investment returns in foreign currency units reduce in the event of bank runs, amplifying the initial adverse shock that fuelled changes in expectations. Interestingly, they support their whole theory in the opposite direction, where undermined financial intermediates trigger currency crises due to large cycles in international capital flow. Although being a different phenomenon, banking crises and currency crises are related and eventually appear together, especially in developing countries. The major point of doubt in literature is to find out what is the causation mechanism, but it is relatively secure to affirm that the two crises feed off each other in a mutually reinforcing way. Reinhart (2002) sustained that, in developing countries, about 85% of sovereign debt defaults are linked to currency crises[37]. However, the opposite it is not true. Less than 50% of currency crises are associated with sovereign debt defaults. Bail-out measures performed by the international community towards countries that recently experienced a currency crisis helped to avoid some sovereign debt defaults[38]. The author also associated currency crises to collapse in sovereign credit ratings, leading to credit crises and loss of access to the international capital market, as indicated by Calvo and Reinhart (2000). As stressed by Manasse and Roubini (2005), "variables that are well-suited for predicting currency crisis should also have some

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[37] Currency crises increase the probability of default but it cannot be understood that currency crises are equal to sovereign debt default.
[38] Countries like Mexico, South Korea, Thailand, and Turkey in the 1990s.

explanatory power in models for sovereign default". As pointed out by Eichengreen and Portes (1987), there is a link between debt servicing difficulties and disturbances in exchange markets. Misalignments in a country exchange rate cause pressure for protectionist acts on trade policies by the central government, something that restricts the ability of debtor countries to accumulate foreign currencies from export surpluses they require.

Finally, in accordance with Kaminsky and Reinhart (1999) and Laeven and Valencia (2013), the effects of twin crises are not as the effects of a simple sum of effects of a banking crisis plus effects of a currency crisis (as suggested in this thesis). Twin crises produce effects far worse than each crisis in isolation and the reason lies in the worst economic fundamentals, considerably weaker when compared to economic fundamentals that allow individual crises. This understanding was corroborated by an analysis made in Bordo et al. (2001) where the authors calculated the depth of crises and found out that twin crises hit GDPs much harder than an individual crisis in recent years. This information is a valuable source of sustainability for this thesis, since one of its pillars is set on differences in firm profitability derived from the business environments, translated in possible different combinations of crises in the same country over the years.

2.3 – Identifying country crises

Pro-cyclical changes in the supply of credit are at the core of the determinants of financial crises in a classic model made by Minsky (in Kindleberger and Aliber, 2005). Booms and slowdowns are economic phases that model the intensity and availability of credit. Heavily indebted borrowers seeking short-term capital gains through a constant increase in asset prices[39] are responsible to trigger crises when there is a loss in confidence and assets lose their value. Once they borrow money from the market to invest in these distressed assets, they end up with a liability bigger than their assets, becoming distressed sellers with massive capital loss. Likewise, Reinhart and Rogoff (2009) go beyond and assign responsibility for financial crises not only in heavily indebted investors, but also to governments, banks, firms, and consumers. Although precise in pointing out the roots

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[39] Real state, stocks, fixed income, and commodities

of crises, the taxonomy utilized by these authors (i.e. financial crises) does not help to identify main observed crises, about their occurrences, their beginnings, and their ends. For instance, currency crises can occur due to a large devaluation of a country's currency or a speculative attack that increases the threat of such devaluation and can result in losses of funds from the central bank. Typically, devaluations occur due to a general collapse in market confidence about a country's currency. The simpler way to identify a currency crisis is just measuring the change in the nominal exchange rate between two currencies in distinct points in time. If more than a subjective threshold, a currency crisis is identified. Some set this threshold at least in 25%[40] cumulative over a 12-month period (Frankel and Rose, 1996), others as at least 15% (Reinhart and Rogoff, 2009). Conversely, Esquivel and Larraín (1998) consider an episode of currency crisis when there is an abrupt change in the nominal exchange rate, removing those episodes of large nominal depreciations that tend to occur during high-inflation episodes. Still, they argue that unsuccessful currency attacks are not considered in the identification of a currency crisis. Furthermore, Ishihara (2005) conceptualized currency crises as an abrupt depreciation of the currency (2 standard deviations from the trend) and Kaminsky and Reinhart (1999) utilized a methodology to produce an index called "index of currency market turbulence" that joins devaluation/floatation of domestic currency and foreign exchange reserve changes (as a response to speculative attacks) to determine the date of a currency crisis.

Similarly, debt crises are those crises related to sovereign debt defaults. It occurs when a government fails to meet timely payments of its internal and/or external debt obligations, including interest and principal. A wider definition was made by Manasse et al. (2003) including "not only cases of outright default or coercive restructuring but those in which such near-default was avoided through the provision of large-scale official financing by the IMF". Technically speaking, debt restructuring is the immediate consequence of a failure in the debt payment schedule, where an agreement between creditor and debtor is made towards reinstalling debt service capacity of the debt holder. Among the most usual forms of restructuring are; 1) rescheduling of the debt, where there is a deferring in debt service payment in longer maturity but with no changes in the amount due, and 2) decrease in the overall debt burden (debt relief, debt forgiveness, or debt reduction[41]),

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[40] Which is also at least 10% greater than the devaluation in the preceding 12-month period.
[41] For instance, the Brady Plan.

where there is a reduction in the amounts due and it is seen as an ultimate measure to reinstall debt service payment or at least to recover part of the principal.

With regard to banking crises, it is important to emphasize the fact that banks are highly leveraged firms, as very often their debt to capital ratio is higher than 10. And more, they are very illiquid because they transform short-term deposits into long-term securities. These two basic banks' characteristics are at the center of theoretical discussion about banking crises. Hence, banking crises typically happen when there are problems with their solvency or with their liquidity. Solvency problems may occur when banks have their assets priced at a lower value than their liabilities and shareholders' equity. Problems of this nature usually happen when assets are hit by adverse economic or business conditions, losing their market value in a very short period of time. Liquidity problems may occur due to flight by depositors, called bank runs. Bank panics happen when depositors withdraw their money from the bank due to loss of confidence in the bank's solvency. Laeven and Valencia (2008) identified that, in their sample, in 62% of banking crises there were bank runs as a common feature, having the largest drop in the ratio of deposits of 26.7% (of GDP) in one case and an average of 11.2%. Nevertheless, to configure a banking crisis in a country, it is necessary that a significant part of banking system become illiquid or insolvent (Demirgüç-Kunt et al., 2000), limiting their capacity to function (Golin and Delhaise, 2013) since banks are exposed to each other through the interbank market. It is a systemic failure, rather than a problem in an individual bank.

As this thesis will handle four types of crisis at the same time (three typical plus economic recession), overlap crises periods will occur and they are considered natural, since multidimensionality is a remarkable aspect of recent crises. Nevertheless, this study is interested in understanding the impacts of crises on firm profitability and maybe the search for the causes of these impacts will result to identify a set of economic fundamentals located in a combined crisis that would be different from the sets of economic fundamentals located in a simple sum of single crises. So, a combination or an overlap of crises will be considered another type of crisis. Previous studies where crises are identified using different criteria will be used as a way to provide robustness to this study (allowing the identification of abnormal results – a sanity check), once it is understood that determining the time and length of each crisis is crucial and does not admit any expressive differences among crises' start, peak and ending phases between

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different criteria. Reconciliation is a possible outcome to unify identification and dating of crises.

2.4 – Concluding remarks about countries' crises

Apart from the differences in their nature and origins, country crises[42] are, at certain levels, the result of malfunctioning in the financial sector's interaction with the real economy through common adverse manifestations such as output losses[43], unemployment, and decrease in investment, industrial production and consumption. In this sense, Kaminsky and Reinhart (1999) concluded their work with some intriguing conclusions about currency crises, banking crises and twin crises. To the authors, crises should not be understood as a simple story of monetary expansion, credit boom and overvalued exchange rates. Rather, it is all about macroeconomic and financial environment weaknesses that support the appearance of crises. These crises can be inferred by looking at some indicators that signal an upcoming crisis in a horizon of 12 to 18 months prior to crises.

Furthermore, a common characteristic that seems to be present in all types of financial crises is a country financial liberalisation to international capital. As stated in Obstfeld and Taylor (2005), "for many developing countries, the costs and benefits would appear to be delicately balanced". High-income developing countries with better and stronger institutions (able to perform domestic reforms that limited the risks and raise productivity) have a more favourable environment to receive and benefit more from financial opening than poorer countries, where institutional failure is widespread and a risky environment is more present. On top of it, developed and industrialized countries are net beneficiaries. Their superior institutions, sophisticated financial markets, and extensive social safety nets allow them to take advantage of international capital mobility, justifying their uniform progress, while other countries show it in a more limited and uneven way (Obstfeld and Taylor, 2005). Still, the political aspect is highly commented upon as one of the most important elements for financial crises, especially currency and debt crises.

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[42] Here and finally this term would be easily replaced to the term "country financial crises", representing any considered crises; banking, currency, or debt crises.

[43] Business cycle recessions can be seen as a pre-condition to several financial crises and may occur without any other crisis. However, financial crises tend to worsen recession periods.

Hence, a political crisis is something that deserves closer attention for its impacts on the business environment and firm profitability.

Finally, the classic work done by Minsky (1976) identifies crises based on pro-cyclical changes in the supply of credit as a response to business cycles; expansions and slowdowns. So, it is a response to the state of the economy rather than a cause to dictate economic activity. For Reinhart and Rogoff (2009), crises are a result of over expending financed by over leverage and they are rooted in changes of human confidence. For them, a crisis today is not so much different from a crisis from yesterday and, almost for sure, it will be similar to another one in the near future. So, crises cannot be prevented. On the other side, Obstfeld and Taylor (2005) argue that crises are not unavoidable, saying that "their prevalence has varied across different political economy regimes, and appears to depend systematically on the ways in which policymakers have either solved – or denied – the trilemma[44]". However, the most plausible and abstract cause for crises may be found in a quote in Caprio and Klingebiel (1996a), referencing a classic work from Kindleberger (1978):

"In part this [weaker microeconomic level incentives for prudent risk taking in the banking systems] may be due to Kindleberger's (1978) warning that each generation needs its own follies - bankers who survive recessions or the bursting of speculative bubbles remember the lessons and become more conservative, but each new generation of bankers has to relearn them."

They pointed out that there was an increase in the number of banking systems after WWII, and, together with relatively low capital requirements, there were more new banks than skilled bankers and regulators in the market, a "good recipe for insolvency". In the above quote, the authors succeeded in identifying excess of confidence and lack of prudence as important factors in triggering banking crises and were happy to attach it to an evolutionary human characteristic that is always lost, namely, professional experience. It probably does not explain all types of crises but helps explain what makes crises unpredictable and recurrent events. To conclude, combined crises hit economies and firm profits differently from a simple sum of individual crisis' effects. This is one of the main issues to be assessed in this thesis, as it will start to be developed in the following chapters.

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[44] A country where there exists free capital flow (open capital account), a fixed exchange rate regime and monetary autonomy (domestically oriented monetary policy).

CHAPTER 3
Literature Review Part II – Firm profitability

3.1 - Introduction

Firm profitability is an issue well studied in the field of strategic management. The primary mission of this field of study is, according to Levinthal (1995), the analysis of diversity of performance among firms, and "[t]he notion that firms are fundamentally heterogeneous, in terms of their resources and internal capabilities, has long been at the heart of the field of strategic management" (Peteraf, 1993). The field is firmly grounded in management practices and it is connected to studies of choices that firms have to make in order to survive; selection of objectives, products and services to provide, design and configuration of policies and markets to compete. Traditionally, academic research was driven towards case studies of actual situations, producing generalisations through inductions. However, during the last 40 years, the strategic management field has experienced a considerable change in the way it approaches solutions to explain heterogeneity among firms. Strategy scholars have started to use economic theories to better formalise central problems of the field, building and blending new theories that help explain and foresee the success and failure of firms. Although economics can and did help in the development of the strategic management literature, economic theories are not readily applicable to the study of strategy. While economics is concerned with the allocation and coordination of resources within the market, strategic management is concerned with coordination and resource allocation inside the firm.

3.2 – Theories about firm profitability

Two prominent theories dominate the strategic management literature, Industrial Organization (IO) Theory and Resource-Based Theory (RBT). As a brief definition of these theories, IO can be described as emphasising influences of the industry's environment on a firm. IO posits that the survival of a firm is influenced by the structure of the industry in which this firm competes. So, firm characteristics (e.g. strategy, human resources, and intangible assets) are assumed to be fairly similar among competitors. On the other hand, RBT attributes firms' performance to the ability of firms to manage their valuable and rare resources, which are not subject to perfect imitation, and each resource

creating and sustaining the firm's competitive advantage against its competitors. So, it focuses on individual firms rather than the environment in which it competes, although it considers industry environment's influence as an important aspect. In addition to these two traditional perspectives, another one, called Contingency Theory (CT), has emerged more recently. It represents the middle point between IO and RBT theories, viewing firms as the joint outcome of industry/environmental forces and firms' best strategies to handle and manage their resources. In theory, firms' resources can be relocated to other industries if in a more favourable business environment.

3.2.1 - Industrial Organization Theory (IO)

Industrial Organization studies the functioning of the market, a central concept in microeconomics (Tirole 1988). It is also a study of business behaviour and its implications for market structures and for public policies towards it. In essence, market structure determines industries' characteristics, e.g., pricing procedures and investments, and industries' performance. So, the number of competitors, product differentiation, and integration to suppliers influence firm profitability and strategy within an industry. Focusing mainly on aggregated data from a specific industry, IO also tries to explain how industry equilibrium between prices and production is determined, whilst considering the effect of time in changes in either supply or demand conditions.

It can be said that IO theory had two theoretical waves of knowledge. The first, called the "Harvard tradition", started with studies by Joe Bain and Edward Mason and it was characterised by more empirical work and sometimes rested on loose theories and/or scarce data (Tirole, 1988). Here, the market structure is viewed as exogenous and stable. In his first well-known work, Bain (1951) emphasized the importance of industry concentration to firm profits. He found a correlation coefficient of 0.28 between firms' rates of return and industry concentration and that the most concentrated industries (from 70% to 100% having 11.8% as average rate of return) showed a slightly higher average rate of return than less concentrated industries (0% to 30% having 11.7% as average rate of return) and much higher rate of return than middle concentrated industries (31% to 69% having 6.4% as average rate of return). In his second study, Bain (1956) added the importance of entry barriers to industry concentration as a necessary way to allow firms to produce excess profits in long-run equilibrium. Inter-industry studies seek tools to

make predictions about real markets based on relatively stable and observable market structure variables. These variables are divided into two sets; intrinsic structural variable and derived variables Schmalensee (1989). The first is determined by the nature of the product and available technologies for production and marketing. The second relates to other variables reflecting business strategies, government policies, and even accidents of history. Schmalensee (1989) listed structural variables usually used as seller concentration, conditions to entry, buyer concentration, and product differentiation.

Apart from some weaknesses related to sample and data utilized[45], and consequently results achieved, Bain's works served as basis for several other studies (Schmalensee, 1985, Brozen, 1970[46], 1971, Mueller, 1977, Claver et al., 2002, Stierwald, 2009, and Goddard et al., 2005) and it is believed to be a pioneer analysis of industry influence over firm profitability under IO theory. Following this tradition, industries are characterised by having a market power that is shared among their participants. Market power is considered an intangible asset a firm holds and it is measured proportionally to its sales. This market power interferes competition (raising entry barriers), it allows firms' collusion and it is manifested as above normal persistence of profits.

The second wave is called the "Chicago tradition", having as exponents Aaron Director, George Stigler, and Harold Demsetz, was an offshoot of the antitrust analysis in the Harvard tradition, and it emphasized more rigorous theoretical studies. Government intervention was an important fact to promote competition through antitrust actions, and this was considered in the econometric models of the Chicago School. Contrary to the Harvard school, here market structure is viewed as dynamic and constantly evolving. For Stigler (1963), different rates of investments mirror different rates of returns of different industries occasioned by industries' "impinging forces" (costs and demand). This is the fundamental mechanism by which investors move their capital from where it is less needed to where it is more needed. However, "rates of return have no persistent tendency to remain in a fixed industrial pattern", suggesting that "over a period of years the differences among industries in the (marginal) demand for capital are eliminated"

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[45] A later study performed by Brozen (1971) complemented the missing data after World War II and found out that "a high proportion of profit rates in his unconcentrated industries was below the long-run equilibrium. In his concentrated group, a high proportion was above the equilibrium".
[46] Yale Brozen, 1970 – "The Antitrust Task Force Deconcentration Recommendation".

(Stigler, 1963). This is a Schumpeterian[47] perspective, the "process of creative destruction" where entrepreneurs "create" innovation that creates temporary monopolies and high profits. This provisional situation of abnormal profits serves as an incentive for imitators to step in this new market, driving profits down to a level considered normal for this new industry. This new level of profits, brought by competition, will only be interrupted by a new wave of innovation that would repeat the cycle. This is a main tenet of the classical economic theory, according to which under a competitive business environment, there is a tendency for the rates of return on investments to equalise. Therefore, time is an important variable in this movement to equalise returns in various industries. This theory is based on a long-term equilibrium hypothesis that does not count short-term disturbances, typical of a changing world where events are not fully or perfectly anticipated. Departures from equality may occur and they would be mainly due to imperfect knowledge of returns on alternative investments, or due to unexpected developments/events which call for a movement of resources that require time to be completed (as economic cycles and war). In addition to the importance of time to equalise rates of returns among industries, the variable risk should also be considered. A fundamental principle of decision making under risk is that the higher the risk, the higher would be the return. This rule is fully applicable and regulates the movement of rates of return of all firms within an industry towards an average. So, the riskier the industry, the higher would be the rate of return requested by investors. Does an investment in a mature industry bear the same risk as, for example, a newly born industry? Obviously, it does not. This was well captured in Porter's (1980) analysis of industry evolution[48]. In this line of thought, persistent high profits are a proof of the lack of competitiveness of an industry.

Demsetz (1973), which introduced the superior firm hypothesis, is considered a pioneer study in challenging reigning IO paradigm and set in the research agenda the necessity to look at firm characteristics when trying to predict firm profitability. To the author, superior performance may arise from correct decisions taken by top management in the recent past that will last until eroded by competitive imitation. Given that success (higher returns on stock prices) is always measured *ex-post* facto, the author attributes superior performance "to the combination of great uncertainty plus luck or atypical insight by the management of a firm" (Demsetz, 1973). According to this theory, concentration and

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[47] Schumpeter (1934, 1950).
[48] Porter (1980), Chapter 8.

monopoly power can be a result of firms' efficiencies to adapt and to respond to customers' demands and, so, it should not be destroyed through regulation, "removing the incentives for progress" and promoting inefficiencies. This is different from concentration and monopoly power obtained through collusion of competing firms, searching to obtain advantages by restricting new entrants, and the absence of price rivalry. In this scenario, government intervention should be imposed to retain mergers and market concentration. Although it is difficult to test what is at work (efficiency or market power) at the time the sample is collected, it would be possible to identify firms' efficiencies as the cause of industry concentration when "large firms in concentrated industries earn higher rates of return than small firms" (Demsetz, 1973) or collusion when there is a positive correlation between the rate of return of small firms and industry concentration[49]. The author's tests, performed on a sample of firms in 95 US industries in 1963, failed to show beneficial rates of returns to small firms, not supporting the hypothesis that concentration and collusion are related. In the end, Demsetz (1973) challenged the market power theory of the Harvard tradition by finding that the profits of smaller firms are not higher in concentrated industries than they are in non-concentrated ones, suggesting that profits of larger firms are due to greater efficiency and not to market power. So, industry concentration helps only larger firms due to their superior capacity. Moreover, Stierwald (2009) argued that the superior firm hypothesis established a positive relationship between productivity and firm profitability. In the same line, a previous work done by Jovanovic (1982) had already made the connection between firms' efficiency and survivorship, with a "theory of selection". Following this author, efficient firms grow and survive, inefficient firms decline and fail. Efficiency induces firms to grow larger, conquer market share and sustain profitability. In the very end, efficiency is related to firms' good management of their costs.

More recently, it seems that the last "wave" of knowledge has arrived. Mainly after the 1980s, academics in strategic management, armed with new tools and theories together with powerful computers and statistical methods more able to handle large databases, have started to properly address one of the main issues in their field of study, viz., the diversity of performance among firms and their profitability. In this line, the most important and influential work was done by Porter (1980), whose approach to firms'

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[49] Assuming that larger firms increasing prices would benefit small firms if all firms are able to produce at the same costs.

issues is quite different from most of his colleagues in economics since Porter's background was mostly in Business Studies, and focused his research on management but had formal training in economics. Porter (1980) brought to the surface the importance of the industry to firm profitability in a practical way, an elucidative approach of industries' elements and market competition. The structural analysis of industries performed by the author claims that the state of an industry competition determines the profit potential in the industry. In turn, the state of competition depends on five competitive forces, namely, threat of potential new entrants, industry competitors (rivalry among existing firms), threat of substitute products or services, bargaining power of suppliers, and bargaining power of buyers. In different industries, different forces take prominence, and different eventual profit potential arises. However, industries' potential profits should not be misunderstood as the market force that pushes firm profit to converge towards an industry the long-run profit. In fact, firms within an industry experience different rates of return with considerable variance and persistence. A firm's strategy and its characteristics allow different earnings. Potential profits of an industry can be understood as the "competitive floor rate of return on invested capital"[50]. Together, they can drive investments (usually in the form of new assets and/or new players) from and to an industry, following investors' perceptions and appetite about risks involved.

In addition, there are also other important aspects to be considered in the structural analysis of industries, which is the transient environment where industries compete. The transient environment comprises short-run factors that affect competition and, consequently, industry profitability. These short-run factors can encompass social, economic and political forces and include, among others, economic conditions and fluctuations over the business cycles, strikes, supply and demand issues and will hit nearly all industries and firms alike. These transient effects were also commented in Rumelt (1991), suggesting that some of the error term variance in regressions might reflect the transient effects of firm-level factors. It can be said that Porter's five forces competitive analysis is based on a long-run and stable environment, where short-run fluctuations are known to have an impact on industry profitability but do not influence industries' potential profits, measured as "long run return on invested capital".

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[50] Always higher than the yield on long-term US government securities - the risk-free rate in CAPM models.

IO implicitly assumes that all firms in an industry are identical, with the exception only in relation to their size, a variable widely utilised to test the industry concentration hypothesis. Although understanding that other firms' differences exist, they are considered "random noise" (Porter, 1981). However, these assumptions are not realistic, since product differentiation exists and firms are heterogeneous. This issue and others with the same importance will be revisited in Resource-Base Theory.

3.2.2 - Resource-Based Theory (RBT)

An attempt to analyse firms' diversity performance using less aggregated data, and more focus on firm characteristics is the object of the Resource-Base Theory (RBT). This theory started to develop in the 1970s with studies performed by Peltzman[51], Gale and Shepherd, still within the IO paradigm. RBT has flourished more recently from the 1990s onwards. Initially more focused on firms' size as the main source of firms' differences in profitability, it brought out the importance of firms' resources and capabilities as a determinant of heterogeneity among industries and firms. In this context, resources have to be understood as all tangible and intangible assets a firm holds, and that allow it to produce several marketable goods or services. Capabilities are well defined by Makadok (2001) as a subset of resources which represent an "organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm". Capabilities thus refer to the capacity of a firm to deploy its resources, mostly in combination, using internal process and procedures to best achieve the desired end. For this theory, the strategic management field consists in properly identifying these resources and build product and market positions that would effectively utilise, maintain and extend them.

In its essence, RBT's line of research keeps some ideological links to neo-classical theories where actors are rational utility maximisers and the factors of production resources, and capabilities are elastic in supply. Regarding this last point, however, not all factors of production are elastic for RBT. It posits that supply inelasticity occurs because some resources cannot be sold or bought and are developed over a long period of time. Consequently, firms that hold these inelastic factors may be able to generate

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[51] Sam Peltzman, 1977 – "The gains and losses from industrial concentration".

abnormal profits during some period of time, at least until an increase in the supply of these inelastic resources occur. Thus, supply inelasticity can be understood as a key source of a firm's sustained competitive advantage. Peteraf (1993) correctly connected RBT to the work done by Ricardo (1817), a micro-economic analysis of profit implications on factors of production that are inelastic in supply. In accordance with the author, "Ricardo demonstrates how these kinds of factors of production can generate profits for firms by analysing the profitability of farms when the supply of fertile land is fixed". RBT adopts the possibility of having more than one factor of production being inelastic in supply.

As mentioned before, the core of RBT is rooted in the neo-classical view of firms as input/resource-combiners and competitive advantage is the outcome of a proper combination of these resources. So, competitive advantage can be understood as the way firms sustain profits that exceed the average of the industry based on a value creating strategy. Sustained competitive advantage then happens when other firms are unable to duplicate successful strategy models. Sustained competitive advantage is a research area of the strategic management fields and owes a single organising framework to studies of Andrews (1971), Ansoff (1965), and Hofer and Schendel (1978) and more recently Porter (1985) and Rumelt (1991). This single organising framework is based on strengths, weaknesses, opportunities and threats (SWOT) analysis. In order to obtain sustained competitive advantage, firms have to explore their internal strengths, avoid internal weaknesses, through a detailed strategy analysis, be able to explore their environmental opportunities, and neutralise environmental threats.

Efforts have been made to identify, describe, and measure the attributes of firms' resources and capabilities having inelastic supply that lead them to be in a superior competitive advantage. Some studies identified these attributes as being the outcome of some firms' strategies that privilege investments in intangible assets rather than tangible assets. Intangible assets are hard to measure and tabulate, but it leaves marks on firm characteristics, something more palatable, easier to describe and possible measure. Porter (1985) identified two basic types of competitive advantage, based on product differentiation or cost advantages. Firms have to chase a leadership position in the industry either as a lower cost seeker or a product differentiation benefits deliverer. Moreover, Barney (1991) presented four empirical indicators of the potential of firm

resources to generate sustained competitive advantage. They are value, rareness, imitability and substitutability. A valuable resource is a resource that allows firms to explore opportunities and neutralise threats. A rare resource is a resource that a firm's current and potential competitors have no easy access to due to its infrequency or uncommon characteristics. Imperfectly imitable is a resource substantially costly to obtain or develop for competing firms. It is possible only if one or a combination of three reasons occur; unique historical condition dependence, casual ambiguity and/or social complexity related to sustainable competitive advantage. Finally, for substitutability "there cannot be strategically equivalent substitutes for this resource that are valuable but neither rare nor imperfectly imitable" (Barney, 1991).

A critic of the Industrial Organization model is well framed in Resource-Base Theory. A powerful RBT argument that challenges the importance of industry structure as the main driver of firm profitability is the occurrence of firms' persistence of profit (POP). The importance of industry structure is nested in the hypothesis that market competitive process is able to eliminate all excess profits and losses over time. Profits in excess in an industry would call new entrants, inducing escalating competition for market share via price and, consequently, decreasing overall industry profits. Naturally, a basic condition for the entrance of new participants in any market is the free movement of factors, so there are no barriers to entry neither to exit. POP studies call for a larger horizon of research in order to avoid short term glimpses about long term causality between market structure and profitability. The simple presence of unstable years (e.g. recessions, war, and crises) may lead to biased data, collected under disequilibrium of the business environment forces. Mueller (1977) challenged previous studies, mainly performed by Bain (1956) and Brozen (1971), where it was confirmed that the flow of resources from activities yielding less than normal profits to activities yielding excess profits would bring all returns back to normality. Using firms' data instead of industry aggregates (where the correlation was focused mainly on industry concentration), Mueller (1977) tested the "competitive environment" hypothesis, where the profits quickly return to normality, against an alternative hypothesis of the persistence of profit above industry average. The idea was simple. If there is independence of profits of a firm at any two points of time, the competitive environment hypothesis would be satisfied, if not, profits do not converge and the profits of a firm at any point of time is directly related to past profits. Using probabilistic models tested on 472 US firms over 24 years, the competitive environment

hypothesis was rejected. Some years later, the same author (Mueller, 1986) revisited this point trying to found out whether market share and other firms and industry characteristics would lead to POP over time. The author used time series data instead of yearly average rates of return of cross-sectional data to better understand the POP phenomena[52]. The findings were threefold. First, confirming previous understanding about its importance to firms, size matters when a survival analysis was performed between 1950 and 1972 with 1000 US firms. Second, POP was reaffirmed but a convergence toward the industry mean was identified, which does not mean that companies would not sustain higher profits than the industry mean for a persistent time. Profits that started high[53], continuously decreased but remained above the average. Lastly, a sample of firms that were projected to earn profits of 50 per cent or more above the average and another sample of firms that were projected to have returns of 50 per cent or more below the average were used to perform an analysis of their characteristics. The most evident characteristic was the market dominance or leadership of a group of firms with above normal profitability. So, market share, translated as "market power", is an important firm characteristic when explaining POP. Consequently, industries "with stable leading-firm patterns tend to be large and concentrated, and thus that perhaps efficiency advantages or capital market advantages produce stability in industry leadership" (Mueller, 1986). The other supportive POP evidence is related to product differentiation, measured by advertising and patent intensity. Conner (1991) states that "like Chicago view, and unlike Bain-Type IO [Harvard School], resource-based theory sees these returns [POP] as resulting primarily from acumen or luck of the firm in acquiring, combining, and deploying resources (resource), rather than from the structure of the industry…".

Finally, as properly concluded by Conner (1991), RBT incorporates and rejects at least one central feature of IO Harvard and IO Chicago. RBT and IO Harvard agree in the possibility of having POP but disagree when identifying the unit of analysis for understanding the sources. For RBT it is the firm and for IO Harvard it is the industry. Similarly, RBT and IO Chicago agree that firms are production and distribution efficiency-seekers but disagree in POP possibilities.

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[52] Later followed by other authors, like Cubbin and Geroski, 1987 – "The convergence of profits in the long run: inter-firm and inter-industry comparisons".

[53] Maybe due to problems with the starting point, the years from 1950 to 1952, which would be seen as years in disequilibrium.

In summary, unlike IO theory, RBT is traditionally focused on firms' data, assumes that products are different and firms are heterogeneous. Distinctive capabilities and resources diversity (with the assumption of immobility) are the basic elements to be blended in order to achieve competitive advantage, which guarantees firms' superior performance. As a consequence, strategy formulation is important to explain firm profitability. In a SWOT framework to identify firms' competitive advantage, it is clear that weaknesses and strengths call for a firms' internal analysis and weaknesses and opportunities call for an external analysis, mainly related to the industry where the firm belongs but also to macroeconomic, political and social environments. But, in general, it is not clear how these analyses have been performed under the RBT point of view. On one hand, current studies related to industry/environment analysis have two basic assumptions that conflict with firm analysis performed under RBT, viz., 1) firms within an industry are identical in terms of relevant resources, and 2) resources heterogeneity are highly mobile. On the other hand, RBT studies about competitive advantage analysis focus only on firms' internal characteristics and performance, having no clear and/or uniform assumptions about industry/environment. The answer may rely on the third theoretical perspective mentioned before, the Contingency Theory. In accordance with Parnell (2014) "a strategy is most likely to be successful when it is consistent with the organization's mission, its competitive environment, and its resources". In accordance with this theory, firms' performance is the joint result of environmental forces (the business environment) and firms' strategic actions towards their resources. A firm should operate where the business environment (represented by an analysis of opportunities and threats) best matches at firm's strength and weaknesses. If the business environment changes in an unfavourable way, a firm should consider leaving the current industry to another one, with more favourable conditions, reallocating its resources. In any case, a search for a balanced analysis requires further development in the field of strategic management.

There is abundant literature dedicated to the analysis of firm profitability situated in economics, strategic management and accounting and finance research areas. For instance, RBT studies about competitive advantage analysis focus mostly on firms' internal characteristics and performance (where the differences between firms are the main driver of profitability), having no clear and/or uniform assumptions about industry/environment. On the other hand, IO studies related to industry/environment analysis (where the degree of concentration in an industry plays the most important part

in predicting profitability) have two basic and unrealistic assumptions, namely, that firms within an industry are identical in terms of relevant resources and that resources heterogeneity are highly mobile. The proposed research is not framed either in IO or in RBT perspectives. It is, however, an attempt to find a middle point between the two theories (if it exists). Similarly to the model presented in McDonald (1999), it can be considered a hybrid method to assess firm profitability, taking the best variables from both theories. A summary of previous studies with their length of data, countries in use, models applied, and dependent and independent variables utilized is demonstrated in APPENDIX C, Table C1.

3.3 – Modelling firm profitability

Modelling profitability in times of crises and times of no crisis is at the centre of this research. In this respect and in connection with IO and RB theories, two different lines of studies have emerged to model and predict firm profitability: structure–conduct–performance models (SCP) and resource-based view (RBV). The first theory understands industry factors as the main factor in determining firm profitability while the second suggests that differences in profitability level between firms within the same industry are related to internal factors (resources) of each firm. Schmalensee (1985) is a classic paper pro industry factors whereas Rumelt (1991) favours firm factors. These two theories are not completely different from each other. They share some common understanding such as the heterogeneity in the distribution of resources and capabilities among firms and the search to identify the reasons why some firms consistently outperform others. In addition, the applicability of these models in recession times provoked discussions that lead to a deeper, wider and more generic contemporaneous analysis of firm profitability in times of country crisis.

3.3.1 – Structure–Conduct–Performance Models (SCP)

Industrial Organization studies produced an econometric model framework that can be empirically estimated to predict industry's profitability. IO also sustains that industry structure conducts firms' strategy that will affect firms' performance (SCP model). So, industry structure influences the way firms elaborate their strategies, which jointly determine the industry performance and consequently, firms' performance in the

marketplace. Industry structure should be understood as the context where competition occurs with stable economic and technical dimensions, a static perspective that does not incorporate changes. SCP model is originated from the first wave of studies in IO and it is very empirical in nature. Bain (1951) can be understood as the origin of SCP's line of research and it was a dominant line of thought until the early seventies. This model reflects a classic tradition of industrial economists where the industry is the unit of research when explaining the source of performance differences[54]. Academics supporting this model claim that market structure is influenced by technological (economies of scale and scope) factors and the existence of high profit levels is evidence of monopoly power. Following this modelling theory, differences in profitability among firms are transitory and, in accordance with Schmalensee (1985), "a central hypothesis in virtually all the classical work was that increases in seller concentration tend to raise industry-wide profits by facilitating collusion". Schmalensee (1985) corroborated the ideas of Bain but it was focused on the decomposition of the total firm profitability variance into industry, firm (corporate), and market-share components. Furthermore, this study can be seen as an attempt to reconcile previous work done in the field about profitability causes (industry or firms' effects) that could not find a common pattern in their outcomes. He pointed out no support "for the existence of firm effects nor for the importance of market share effects" and emphasized the existence and importance of industry effects on firm profitability. Industry effects accounted for almost 20% of the variation in business-unit profits and 75% of the variance in industry returns. Similar result was found in Wernerfelt and Montgomery (1988) given that they shared the same conclusions regarding the importance of industry effects in explaining the variance, but identifying the existence of positive firm effects. In turn, Powell (1996) derived studies from Schmalensee (1985) and Rumelt (1991) and corroborated with the previous study performed by Schmalensee (1985) where industry effects explain almost 20% of total financial performance variance across industries. However, a highlight was made about the importance of firms' specific effects to partially explain the still unexplained 80% of the variance that lasts without proper full identification. Only entry barriers and competitive power variables help explain a significant proportion of overall performance variance.

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[54] Following Porter (1981), "performance was defined broadly and in the economist's sense of social performance, encompassing dimensions such as allocative efficiency (profitability), technical efficiency (cost minimization), and innovativeness".

Going back to some of the original studies mentioned above, Shepherd (1972) stated that firms' market position affects their degree of profitability. He defined market position as a firm's market share, industry concentration, and industry barriers. Results of the main model provided evidence of positive and significant effects for market share, sales growth and industry concentration on firm profitability. Market share was classified as the main element, independent of barriers of entry which were understood to be as important but with smaller effects. Contemporaneous to Shepherd and sharing some common understanding about the importance of market share on firm profitability, Gale (1972) showed that the effect of market share on firm profitability depends "on the degree of concentration and rate of growth in the industries in which the firm competes, and on the absolute size of the firm"[55]. The higher the concentration of the industry, the higher the firm profitability as firms' market share increases. This relation is rooted in bargaining power and in economies of scale. On the other hand, industries experiencing a moderate rate of growth would increase firm profitability as firms' market share increases. Particularly here, the author understood that rapidly growing industries are affected by market share competition among firms via price, sacrificing current profits for future market share, something that does not happen in more mature and stable industries[56]. With respect to firms' size, the bigger firms are, the higher is the firm profitability as firms' market share increases. It is understood that bargaining power is reinforced and product differentiation advantage would increase as firms get bigger. The author concluded by saying that market share (at that time understood as the main variable to explain profitability) is positively associated with profitability but the effects also depend on other firm and industry characteristics. This was an important step towards a wider comprehension of firm profitability causality, accepting the importance of firm factors in an era of industries factors' dominance. Weiss (1979) revisited the power of industry concentration to influence firm profitability. He concluded that the impacts of concentration and market share are very significant when the variable of interest is market price.

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[55] Different models included interacting market share variable with other variables (i.e. concentration, sales, and industry growth) represented as dummy variables of high, medium, and low intensity.

[56] This understanding was corroborated by a later study performed by Mueller (1986) when mentioned that "industries undergoing rapid structural change, as indicated by large increases in concentration and rapid growth, are more likely to experience turnover in leadership than slow-growing industries with unchanging concentration levels".

Mueller (1986) mentioned that models of firm profitability under this SCP theory has to assume that firms sell identical products at the same price and have access to the same production technology, so the same cost function. The author finds evidence of a negative relationship between profitability and industry concentration when explaining firm profitability. Using firms' data, Scott and Pascoe (1986) performed a study over a line of business (LB) profitability instead of firm overall profitability. Understanding the importance of firms' diversification to firm profitability, these authors tried to understand the importance of concentration and entry barriers to the profitability of a line of business. In line with previous work done where market share rather than concentration is the main factor responsible for differences in profitability (e.g. Ravenscraft, 1983, and Gale, 1972) and firm characteristics (e.g. Demstetz, 1973 and Shepherd ,1972), they used three sets of independent variables (industry, firm, and line of business) to explain LB profitability. The authors arrived at a conclusion that firm-specific variables are significant and the effect of concentration in firm profitability "has probably been misinterpreted because it has not been conditioned on a seller's [firm] capital intensity". A source of inspiration to Schmalensee, Ravenscraft (1983) examined the impacts of industry and firms' variables in an econometric model to explain firm profitability and found a powerful positive impact of firm's "capacity utilization", industry growth, and firm's market share. It is interesting to notice that research and development (R&D) expenses and total asset variables had a significant and negative impact on overall firm profitability but this relationship does not apply for firms with large market share, where these variables are presented as significant and positive. In addition, industry concentration appeared with a negative coefficient. Geroski (1990) understands industry concentration as the best variable to capture market competition once it "is affected only by the actual entry". Nevertheless, he classifies "entry" and "mobility" as classical latent variables for, respectively, industries and firms that will persist in most of the dynamic models that aim to predict firm and industry profitability. Covering largest American firms from 1996 to 2004, Bourgeois III et al. (2014) observed that industries differ widely in performance, with higher variances within-industry firms than a between-industry variance. The study found that concentration is not a reliable predictor of profitability and that individual industries do not always perform in line with the overall economy. In addition, the factor time seems to be relevant when assessing industry profitability given that shifts in the position may occur occasioned by business cycle effects. They concluded by saying that "high-performing firms in less profitable industries often outperform low-performing

firms in more profitable industries". This observation implies that the choice of industry to invest/compete does not guarantee success and higher returns, but the business strategy of the firm does.

In summary, it can be said that a "pure" SCP model typically regresses average profit rates on a limited number of independent variables, mainly concentration index, measures of economies of scale, R&D and advertising expenses to sales ratio. These last three variables represent proxies for barriers to entry. So, researchers within SCP have relied on proxies to capture industry factors commonly assumed to have explanatory power over profitability, sometimes suffering critics about the endogeneity of variables that can produce correlations that could not be given a structural or causal interpretation. However, some studies classified here as belonging to IO modelling school, performed under the so-called SCP umbrella, appear to incorporate some elements of the firm in their models (notably market share variable), especially the most recent studies. In fact, they are more hybrid models than a pure SCP model, an updated and more robust methodology to assess the impact of industry structure on industry performance. Models designated to explain industry profitability in times of crises follows and complements this literature review.

3.3.2 – Resource-Based Models (RBM)

Resource Base Theory is based on the assumption that firms' diversity in performance is a result of firms' internal capabilities, translated into better handling of organisational resources, capabilities, and systems, creating competitive advantage. Firm size was initially seen as the main source of asymmetric performance, demonstrating the influence of concentration variable and studies derived from IO. Later on, it brought to the analyses other firms' variables with a potential capacity to explain heterogeneity among industries and firms. Firms' capabilities are at the centre of these studies and proper identification of those internal resources combined with their effective use is at the heart of the strategic management field.

Rumelt (1991) was a pioneer study and a reference paper in Resource Base View (RBV). Using the paper from Schmalensee (1985) as a starting point, the author amended an important weakness identified in Schmalensee's study and argued that when looking at

only one year of data it was not possible to distinguish how much of his results were due to stable industry effects and how much was due to transient components of industry effects. The author concluded by showing that there are significant firm effects (understood as business unit effects) that strongly overweight the importance of industry effects in predicting firm profitability. Later, revising the work done by Schmalensee (1985) and Rumelt (1991), McGahan and Porter (1997) used a model similar to Rumelt (1991) but with more data, representing more sectors, and in a longer period of time that encompassed several phases of the business cycle. The authors concluded attesting that industry factors really matter, having even different impacts on firms in different sectors. Relating this study to a previous one[57], they also found "that industry effects are more persistent over time than business-specific or corporate-parent effects, which is consistent with the view that industry structure changes relatively slowly". Still investigating the importance of firm and industry factors on firm profitability, a subsequent work by McGahan (1999) showed that firm effects were more important than industry effects among US firms, although "firm effects had a large transient component… whereas industry effects were largely permanent". She concluded by saying that "a detailed analysis suggests that industry, corporate-parent, and business-specific effects are related in complex ways".

Looking in more detail at the firm variables that may influence profitability, McGahan (1992) showed that size, represented by firms' market share, drives profitability variance in within-industries firms. Moreover, but focusing only in the service industry in Portugal, Nunes et al. (2009) found a positive relationship between size (sales), lagged profitability, sales growth and firm profit. On the other hand, Portuguese service industries relying more on debt and with more tangible assets are less profitable. The authors concluded by saying that there is the persistence of profits (POP) despite possible alterations in Portuguese service markets. Geschwandtner (2005) distinguished the variable size in a different context but within the same theory. Again, challenging the theory that competitive process among firms should eliminate profit differentials between different firms or industries in the long run (mean reverting theory), the author supported that profits persist despite competition and realised that bad performance was not present in

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[57] McGahan and Porter, 1997 – "The persistence of profitability: Comparing the market-structure and Chicago Views".

all cases and that "among exiting firms there is a group of successful firms that are projected to earn profits significantly above the norm, therefore not all exiting firms could have left the market in lieu of bankruptcy". Size (total assets) was mentioned as an important component in POP, together with volatility in profits. Geschwandtner (2005) concluded the study positioning positively the importance of the industry where the firm is located, something that is explained by the industry capability in building entry barriers and grow (avoiding price competition). In fact, firm size, entry barriers, and growth are correlated variables. In addition to Geschwandtner (2005) and Nunes et al. (2009), authors like Hardwick (1997), Dilling-Hansen (2005), Asimakopoulos et al. (2009), Stierwald (2009), and Yazdanfar (2013) connect firm size to positive rates of profitability. In theory, the bigger the firm, the bigger the advantages that come in economies of scale, the greater are the possibilities to diversify products and investments and, consequently, the greater are the opportunities to raise natural barriers for new competitors. It means that less competition is a relevant factor to increase rates of profitability and, then, growth. Nevertheless, this theory is controversial and seems to be applicable only for firms located in concentrated industries. Some other authors (Jensen and Murphy, 1990; Pi and Timme, 1993; and Goddard et al., 2005) connect bigger firm size to lower firm profitability due to reasons that range from problems related to agency theory (conflict of interests between managers and owners) to market adaptation and strategic agility; these last two are not characteristics of concentrated industries. The variable size receives a lot of attention in empirical studies on the persistence of profits and firm profitability. However, results are ambiguous and this intriguing variable demands a deeper and wider analysis using more data from countries and firms.

Moving on to firm profitability and the attempt to identify the firm characteristics that explain profitability, McDonald (1999) studied the determinants of Australian manufacturing firm profitability and found a dynamic profitability pattern over business cycles. His model produced lagged profitability, with a very high explanatory power, and industry concentration as positive and significant in explaining firm profitability. On the other hand, union density, import intensity, and wage inflation affect negatively firm profitability. It is interesting to notice that, to the author, "profit margins are found to be procyclical in concentrated industries but counter-cyclical in less concentrated industries". He concluded mentioning that firm profitability is significantly affected by industry and macroeconomic variables. Goddard et al. (2005) understood the importance

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of economic integration within the EU in intensifying competition among firms and found a persistent - but smaller - tendency of abnormal profits in four large and important countries in the EU. Again, lagged profitability deserved lots of attention when explaining current firm profitability. In addition, market share and liquidity appeared positively influencing firm profitability. In contrast, size and leverage negatively influenced firm profitability. They conclude stating that firm profitability derives from country factors and firm characteristics, endorsing resource-based theory (RBT) and the importance of the country where firms do business. Stierwald (2009) studied Australian firm profitability and highlighted the importance of productivity as an explanatory variable. Together with lagged profitability, productivity variables are responsible to explain a greater part of firm profitability in the model. The results also showed significance to the variable size (employees) and leverage. Age was not found a significant variable to explain firm profitability and sector effects were present, playing a minor role. Yazdanfar (2013) analysed a wide number of non-financial micro unlisted firms operating in Sweden and found out that size, lagged profitability, growth, and productivity positively influence and age and industry affiliation negatively influence firm profit. It is interesting to notice that, by far, productivity was the most significant determinant of profitability (almost five times the second more important variable – lagged profitability). Finally, Asimakopoulos et al. (2009) investigated non-financial Greek listed firms and found that firm size (sales), sales growth, and investment positively influenced profitability. On the contrary, leverage, current assets, EMU participation, and the adoption of the euro were negatively related to profitability. More recent studies consubstantiated the importance of intangible assets (supply inelasticity and superior competitive advantage theory), as they leave marks on firm characteristics, something already mentioned as describable and measurable.

APPENDIX C (Table C.1) summarises IO and RB theories in non-crisis periods. Models designated to explain firm profitability in times of crises follows and complements this literature review.

3.3.3 – Industry profitability and crises

Bartram and Bodnar (2009) find evidence a homogenous impact a world crisis (Financial Crisis of 2008-09) on the performance of all industries. Conversely, Narayan and Sharma

(2011) suggested that given that firms and industries are heterogeneous in nature, then sudden changes in some important external variables (they used oil prices) may not impose a significant and equal adverse impact across all industries, a matter of severity well identified and composed by the authors. More recently, using the 2008-09 Financial Crisis as the parameter, Ranjeeni (2014) found evidence that industries behave heterogeneously during stock market crises. Al-Rjoub and Azzam (2012) empirically examined stock return behaviour during financial crises in emerging markets from 1992 to 2009 and concluded that crises have a negative impact on stock returns for all industries, with the banking industry being the most affected. In a similar direction, Durbin and Ng (2005) pointed Bank, Construction and Utilities entities as most exposed and oil and gas entities with a lower level of country exposure. Koller and Goedhar (2010) support that banking industry is more likely to be affected than general retailers, simply because of the strategic importance of the banking industry to a country and, indirectly, to a government. They also pointed out that exporting firms might benefit from currency devaluation while importers would be damaged. By taking into consideration only common volatility between firm stock prices and their industry price index as a parameter, Sharma et al. (2014) found that firms' and industries' (sectors) volatilities are related to each other but the relationship differs by sector. In their study, they analysed 14 sectors and concluded that seven of these sectors have high common volatility, five have common volatility, and two have no common volatility. Inconsistent with the literature, they also concluded that a firm's size matters with respect to commonality in volatility, the larger is the firm, the higher would be the common volatility. Furman (2000) compared industry effects on firm profitability in four countries and found out that geography influences profits. A work performed by Jiang et al. (2009) is very close to what will be done in this chapter given this paper had the same taxonomy and database utilized in this research inspiration. The aim of this study was to observe the reaction of industries to economic downturns in the US, and the authors pointed out that Energy was seen as the last industry to be hit, while others were fairly resistant to recessions, like Consumer Staples and Healthcare industries. The size of the drop also varies. Consumer Discretionary, Materials, Energy and Industrials presented the sharpest drops in returns. Also, Consumer Discretionary was the most sensitive to economic decline, presenting the largest drops among the industries in the analysis. This study provided valuable parameters to the analyses that will come. APPENDIX C (Table C.2) summarizes what was seen until now for industries in crisis environments.

3.3.4 - Firm profitability and crises

In a seminal study about firm performance and crises, Rajan and Zingales (1998), tried to explain differences in growth between industries among countries. In doing so, the authors naturally investigated some industry explanatory factors that helped clarify some assumptions. The authors assumed that there were some "technological" reasons[58] why some industries depend more on external finance than others. Probably this paper was the beginning of a series of studies that tried to connect financial development and economic growth in a micro-economic (industry specific) scope of analysis, going deeper towards the importance of firm characteristics in explaining the phenomena. Inspired by Rajan and Zingales (1998), Braun and Larrain (2005) tested if recessions could have a larger impact on industries with higher external dependence. They regressed industry growth against size, a dummy for recessions, and the interaction between recession dummy and external finance dependence, and concluded that industries that are more dependent on external finance and rely more on soft assets are hit harder during recessions and in countries with poor accounting systems. The variable size was also significant in their regressions. Later, Dell'Ariccia et al. (2008) supported the evidence that banking crises have independent negative effects on the real economy and test whether more financially dependent industries experienced slower growth. They found differential effects across sectors, worst for those industries located in developing countries and in countries with less access to the international capital market. Some firm level variables were used to provide robustness for the study and, for instance, the level of indebtedness and size were found positive and significant, whereas export orientation was not found significant. Some authors tried to measure the distinctive performance between local and multinational firms in times of crises. Desai et al. (2008) investigated the source of different impacts of currency crises over multinationals and local firms' sales growth and capital expenditures. Apart from financial exposure (the higher, the worst), they conclude that ownership plays a decisive role to overcome financial constraints and explains the differential investment response of multinational affiliates and local firms. Similarly, Blalock et al. (2007) analysed the effects of the Asian crisis in 1997 in firms in Indonesia and found that foreign-owned exporters firms took advantage of the crisis more than local

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[58] They are, among others, the initial project scale, the gestation period, the cash harvest period, and the requirement for continuing investment.

exporters due to liquidity constraints imposed by the crisis that greatly retarded local exporting firms' ability to take advantage of the better terms of trade brought by the crisis. On the other hand, Varum and Rocha (2011) tested employment and sales growth in Portugal during two recessionary periods, having ownership as the variable of interest. They concluded that ownership does not influence employment growth but does influence sales growth. Size matters for both dependent variables. Forbes (2002) looked for answers about the impact of currency crises on firms by examining which firm characteristics determine the impact of depreciation on firm performance. She regressed some firm indicators (sales, net income, market capitalization and assets) on a set of firm characteristics (product characteristics, foreign sales exposure, production structure, debt ratios, size, and profitability) and the outcome was ambiguous. For instance, for the variable size, the bigger the worst and firms with greater foreign sales exposure have a significantly better performance after depreciation. Those firms with higher debt ratios tend to have lower growth in net income, and larger firms often have worse performance than smaller firms. Notably, Kolasa et al. (2010) brought to the surface insights about the resilience (or lack of) of firms during periods of crises. They were precise when asked which firms suffered the most in terms of sales, profits, investment and exports during the great global recession of 2008-09. They regressed some firms' indexes over ownership, sales orientation, size, and their interactions with crisis dummy and the outcome was that ownership, size and sector of activity (postponable goods producers are hit harder) matters in explaining the impact of 2008-09 financial crisis in Polish firms' performance. Alternatively, a survey was the base for a report made by Békés et al. (2011) about firm performance during the 2008-09 financial crisis in seven European countries. They tried to understand the impacts of this crisis on firms and found that "there was a great deal of divergence from country to country, industry to industry, and most importantly, firm to firm". Results indicated that size made no difference, exporters contracted more while importers suffered less of sales decline. Parent firms performed better and those firms more dependent on external finance experienced greater sales declines. Finally, firms with greater pre-crisis tangible assets or relying on local bank finance were particularly constrained. It is interesting also to notice that they claimed that "firm-level performance is only partly determined by country and industry. A simple exercise suggests that industry and country differences are less important than within industry/within-country heterogeneity in explaining firm-level performance". Similarly, Clarke et al. (2012) built a regression where the reported severity of financial constraints

on firms' operations was their dependent variable for the 2008-09 financial crisis. The probit models utilised several independent variables for firms' characteristics as size, age, exports/sales ratio, ownership, and a dummy of privatized firm, as well as others related to performance[59]. They also used some control variables as financial services and country characteristics and the outcome was that access to finance, size and age, as well as country characteristics are significant. Tan (2012) revisited financial exposure and firm performance during the Asian financial crisis of 1997-98 in eight countries having leverage, a dummy for crisis and the interaction between them as independent variables. Firms' control variables were sales (a proxy for size), prior profitability, and prior total asset growth, having also industry and country dummy variables to control for differences across industries and countries. As expected, leverage was negative and significant in times of non-crisis as well as in times of crises. Size was also significant. From a different angle, Paunov (2012) tested the aggregate impacts of 2008-09 global crisis on firms' innovation in eight Latin American countries. Using a probit regression model, the author tested if a firm stopped an innovation project during the crisis having as independent variables the access to public and private funds, age, size, export status, and supplier to a multinational company. It is interesting to notice that access to public funds is a significant positive factor for firms to keep innovation projects, as well as age and export orientation. Access to external funds and size does not matter at all. Supply to multinational firms and discontinued exports have a negative and significant outcome. More recently and more in line with what is proposed in this study, Bruni, et al. (2014) examined the growth performance differential among firms in Italy during 2008-09 financial crisis. They regressed EBITDA/total sales ratio and ROE against firm-specific variables such as size, age, level of multinationality, leverage, liquidity, and some industry-specific variables. In the end, they pointed out that age and ownership have negative and liquidity and size have positive impacts on firm profitability.

To conclude, firm effects are considered as more appropriate to explain profitability than country and industry effects. For instance, Békés et al. (2011) pointed out that firm performance is only partially determined by country and industry characteristics, emphasizing the relevance of microenvironment and its partial independence from macro factors. Bamiatzi et al. (2016) found out that firm effects got stronger under a scenario of

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[59] As ISO certification, return on sales, employment growth and a dummy for investments

crises, while industry and country effects become weaker. Forbes (2002) concluded her work identifying a gap in the literature when mentioning the necessity to combine firm-level evidence with the traditional macro-level approach. As pointed out by the Mueller (1986) in his main finding in the persistence of profit' analysis (POP) is that "differences in profitability across companies exist and these differences are to be explained by a combination of firm- and industry-specific factors"[60]. In addition, as concluded by Claver et al. (2002), ideas and models that industrial organization has provided to strategic management should not be forgotten once industry effect was proven to be existent and any strategic analysis must carry an internal analysis complemented by a pertinent external analysis about the industry. In this way, a literature revision over firms' POP made in Goddard et al. (2005) suggests that "there are differences between firms in long-run equilibrium rates of profit, and varying degrees of year-on-year persistence. These findings may reflect the influence of both industry-level and firm-level factors".

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[60] Same understanding was found in Hansen and Wernerfelt, 1989 – "Determinants of firm performance: the relative importance of economic and organizational factors",

CHAPTER 4
Methodology

4.1 - Introduction

This chapter provides an overview of the methodology to be applied in the thesis, explaining the most appropriate methodological tool for this research and presenting data sources.

4.2 – Methodologies employed

Empirical studies situated in IO and RBT theories demonstrated the ability of a variety of industry and firm variables to predict firm profitability. Other groups of studies demonstrated the ability of another variety of firm variables to predict firm profitability in times of crises. However, none of them mentioned firm profitability in non-crisis (tranquil times) periods, although it is assumed that the first mentioned models were built in this scenario. Moreover, previous studies have not analysed firm and industry profitability in a broader and continuous space of time, where the business environment may change, as it effectively has changed several times along the past decades, irrespectively of the country under analysis. The business environment alters firms and industry profitability and its disturbance will be seen as a result of country crises.

4.2.1 – Variables

Previous works done in the field have already suggested the necessity of looking at firms' performance and their characteristics when trying to better understand the impacts of country crises on firm profitability. In addition, the industry effects and firm effects have to be part of any model interested in explaining firm profitability, complementing each other. Nevertheless, these studies also suggest that country-specific and industry-specific characteristics will better serve as control variables and firm characteristics will be seen as variables of interest. Despite this, this observation does not exclude the initiative to investigate and understand the impacts of country crises on industry profitability. The importance of industry variables to firm profitability is also well evidenced in literature, and this knowledge will not be relegated. Regression techniques for industries will use country-specific characteristics as control variables.

Above all, an attribute of profitability models is at the core of this thesis and will support the methodology, which is the instability of the coefficients of independent variables in regressions that span different economic cycles and encompass several different business environments over the years under analysis. This is the subject of the next subsection.

4.2.2 – Parameter instability

Doubts about stability in firm profitability parameters are evidenced in literature but it has not been directly addressed in previous studies. In times of crises, risks may change in nature, intensity and place, affecting temporarily or permanently economic fundamentals and, hence, firm profitability. As a consequence, Hsiao (2003) suggested that "when data do not support the hypothesis of coefficients being the same … then it would seem reasonable to allow variations in parameters across cross-sectional units and/or over time as a means to take account of the interindividual and/or interperiod heterogeneity", supporting the adoption of variable coefficient models in cases where there are changes in economic structures, or in socioeconomic and demographic factors over time. In an observation about models to measure financial system fragility (i.e. the banking system's vulnerability to systemic risk), Golin and Delhaise (2013) stressed that "good models are those that adjust to changing circumstances", especially in the field of banking and finance, where the environment is changing as never before. They pointed out some reasons why a model produces poor predictions about banking system fragility, highlighting the assumption that "the same causes produce the same effects over time and in changing social, financial, and political environments" (Golin and Delhaise, 2013). The assumption is that microeconomic data generated during different business cycles do not support parameter stability to explain firm profitability in times of crises and in times of non-crisis. The macroeconomic environment may demand different independent variables and/or coefficients to better explain the changes it imposes on the microeconomic environment related to firm profitability. For this thesis, this is an essential assumption and it represents a gap in knowledge.

Mirroring some studies of stock return predictability would help to clarify this assumption. Although predictability of stock returns has been well covered in literature, recent empirical studies doubted the stability of return forecasting models. Some authors have changed their approach to identify a set of independent variables able to predict

stock market return that, consequently, allow them to create more powerful forecast models. This was an attempt to create regression models strong enough to perform well in out-of-sample tests. There was observed strong evidence to support parameter instability behaviour on stock returns. Goyal and Welch (2003) can be considered one of the first studies uncovering instability in models of stock market returns. They argued that the widely used dividend ratio (independent variable) predicting equity premium (dependent variable) "was a mirage, apparent even before the 1990s", due to poor parameter stability observed in dividend ratios variable. Then, Paye and Timmermann (2006) understood that previous studies evidenced the instability of forecasting models of stock returns but did not determine where the return models have changed. They tested the presence of structural breaks in stock returns and deduced from it a different approach in the selection of variables, given "the relationship between particular state variables and stock returns may change substantially following a break". A further study performed by Henkel et al. (2011) was more precise, supporting the idea that "[p]redictors such as dividend yield and term structure variables are typically important only during poor economic times", suggesting the usage of different variables over business cycles. These studies related to predictability power of forecasting models for stock market returns have used the instability factor of coefficients as empirical evidence to regime changing models. However, they mostly tried to determine when instability occurred since the whole idea was an *ex-ante* attempt to predict stock returns without having the accurate information to which regime they currently are. No further investigation was given to the variables themselves, taken as given and fair enough for the purpose of forecasting in times of economic recession. Regrettably, there was no attempt to identify those variables that best explain stock market return in times of economic booms, neglecting the fact that there is also interest in stock market return predictability during this regime.

This new methodological wave that arose from studies of stock market returns is a source of inspiration for the methodology to be applied in this thesis. However, some differences between this thesis and these studies have to be set in order to draw a particular line of methodological research. From the perspective of the business environment effects on firm profitability, the issue related to the identification of points where there are larger shifts on economic fundamentals has persuasive macroeconomic evidence and extensive literature, related to the manifestation of country/global crises through macroeconomic indexes widely used in theory and practice to determine breaks. It is truly an *ex-post*

exercise that well serves the purposes of this thesis since there is no immediate interest to perform *ex-ante* models in a typical microeconomic annual data analysis. On the other hand, when considering the business environment effects on firm profitability, regime-changing models were not empirically tested yet, but independent variables are well mapped to good and bad times of the business environment.

Stock return studies indicate that the change in predictors' power happens after the occurrence of a break without further significant changes (but sometimes continuous) until another break occurs, so the new set of significant parameters remains stable until the occurrence of another break. As seen, there are intriguing differences between the two but also some interesting similarities.

4.2.3 – Regime changing models

As introduced above, academic interest in econometric models specified to incorporate parameter variation has increased in last years, answering forecasts' needs in the search to incorporate recurrent but temporary events such as wars, economic depressions, hyperinflation, financial crises, and business cycles. In order to meet this demand, one common econometric tool used is regime changing (or regime-switching) models, described by Piger (2007) as "time-series models in which parameters are allowed to take on different values in each of some fixed number of regimes", where regimes are understood as different periods of time after the occurrence of a structural break. Regime change models are able to capture sudden changes in economic and financial fundamentals that can persist for several periods after the change. Capturing well the aim of this chosen methodology, Ang and Timmermann (2011) affirmed that "[t]he notion of regimes is closely linked to the familiar concept of good and bad states or states with low versus high risk", which is precisely what is expected to be seen in different business environments found in this thesis. Usually, formulations of regime-switching time-series models are centred in two main approaches; Markov-switching models and threshold models. Their difference is related to the identification of the time of a regime shift, the first assuming that the regime shifts evolve according to a Markov chain (result of an unobserved, discrete, random variable) and the last emerging from the detected behaviour of the level of an economic or financial variable in relation to some pre-settled threshold value. Markov-switching models' approach will not be considered in this thesis. Most

data sets in emerging markets may not be long enough to allow these models to be estimated. Panel data analysis is more appropriate for short time-series, since estimators of panel data with "short T and large N" are consistent and efficient. "Short T, large N" refers to panels where the time series dimension is very short, and particularly too short for consistent estimation in time series, whilst the individual dimension is very large (Pesaran, et al., 2000; Pesaran and Smith, 1995; and Pesaran and Zhao, 1999, inter alia). Clearly, the threshold model is more sympathetic to this research due to the possibility to identify crises using macroeconomic data.

Due to regime changing methodology applied in this research, I expect changes not only in coefficients values across regimes but also changes in sign and significance of independent variables. A decisive motivation of this study is to provide ways to further refine sample accuracy of the proposed models[61], so adjustments of such nature (intensity, significance, and sign) are understood as important to bring the models as close as possible to reality. Regime changing models have become popular modelling tools for market practitioners and a useful method for applied work. The absolute magnitude of estimated parameter coefficients, their changes over time, and also changes in significant independent variables are equally important when trying to understand the impact of a specific crisis on firm profitability.

4.2.4 – Statistical technique

This study will use panel regressions as the main tool to describe the relationship between firm profitability and the business environment. However, panel regressions do not answer all questions addressed in Chapter 1. Due to uniqueness and simplicity of question six, descriptive analysis and use of medians and means of dependent variables are seen as suitable to answer this question in Chapter 7. The usage of regression techniques will allow taking into account specific effects that are common to all individuals in the sample, thereby reducing coefficient estimated bias and, in the end, best representing the relationship between firms and industry profitability and a set of firm and industry characteristics in times of crises and in times of non-crisis. In addition, regressions using panel data can control state and time-invariant variables that cannot be controlled in time

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[61] As concluded by Ang and Bekaert, 2002 when compared to single-regime models.

series or cross section studies. By controlling for individual heterogeneity, unbiased estimators are produced and the usage of panel data "give more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency" (Baltagi, 2005). Nevertheless, the choice of variables to be included as independent variables as well as how much data to be used are keys in the success of explanatory models.

With regard to parametric models, the static panel data approach will be used when lagged profitability variable is not included in the models. This is the case for industry analysis. On the other hand, dynamic panels will be used when firm variables are under analysis. For both, fixed and random effect models will be estimated and their results will be tested through the Hausman test to see the difference in estimators between the two. However, in this research Hausman test will not guide which model to be used once when fixed effects are chosen, dummy variables[62] can be dropped, provoking undesirable results. Fixed effects remove effects of time-invariant characteristics of firms (also assumed not to be correlated across firms) but the literature suggests that differences across firms have some influence on firm profitability. So, it is believed that individual effects are random, suggesting random effect as the most appropriate model to be used. In addition, Bell and Jones (2015) support that Random Effects models are preferable to Fixed Effects models most of the time, independently of Hausman test results. They argue that Fixed Effects eliminates much of the researchers' interests, offering simplistic and poor results that may lead to incorrect conclusions about the object under study. A well-specified Random Effect model is able to achieve everything and much more than a Fixed Effect model can achieve. Nevertheless, Random Effects models are not perfect as no model is. In fact, the authors emphasize that Random Effect models are not appropriate to a small number of higher-level units, but, on the other hand, it is the most recommended when there is imbalanced data. They maintain that populations have a hierarchical structure; higher-level entities, translated here as the firms (individuals under observation), and lower-level occasions, which are firm characteristics included in the statistical model. Time-varying observations are measured at lower-level while time-invariant are measured at higher-level. It is well known that Fixed Effects models cut off exactly time-invariant measures, making irrelevant any correlation between this higher-level variance and lower-level

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[62] Ownership, export orientation, and product characteristics.

characteristics, leaving the model only with lower-level information, net of any higher-level attributes. They stressed that "[w]here time-invariant variables are of particular interest, this (cut off higher-level variance) is obviously critical" (Bell and Jones, 2015) because the time-invariant process can have an influence on time-varying variables. This is the case in this thesis. If a Fixed Effects model is adopted as the model to be followed due to Hausman tests results, individual differences (and their correlation) between firms will be eliminated other than the more obvious firm independent variable included in the model. For instance, if Fixed Effects are in use, intangible assets can be removed. Conversely, if Random Effects are used, variables as brand recognition, customer relationships, strategy, and business methodologies could be composing parameters estimations and the error term. Firms' influence on profitability is of interest and there is abundant literature about this relationship, as described in Chapter 3 and explicated by the observed low coefficient of determination (R^2) presented in most of the studies. For this reason, all firm analyses will be performed under Random Effects models and Hausman test will only provide additional information about the analyses.

Another important procedure adopted in this thesis is related to the model in use for dynamic panels. Two step Generalized Method of Moments (GMM) estimator is widely used when dynamic panels are under analysis since lagged profitability variable may cause estimators to be biased and inconsistent for both, fixed and random effects models (Baltagi, 2005). GMM models were introduced by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) as an alternative to solve problems originated by the inclusion of lagged dependent variables and endogeneity. Nonetheless, endogeneity problems related to lagged dependent variables as independent variables is not a source of problems in this research as it will be demonstrated at the end of this study. Learning by doing approach indicates that Random Effects models utilized for dynamic panels produce efficient and unbiased estimators all the time, dismissing the necessity to use GMM estimators.

4.2.5 – Concluding remarks about the methodology applied

To best address the problem and identified gaps in the literature, this thesis will apply panel data regressions with regime changing models to observe the variables of interest during times of crises and times of non-crisis as the main methodological approach. This

method allows to observe, for instance, the differences in coefficients and R^2 in multivariate regressions across countries and types of crises. In turn, determining sample size (number of non-financial firms, depending on the number of years and counties under analysis) "can be very important if the coefficients are not constant over time and including pre-break data will lead to biased forecasts" (Paye and Timmermann, 2006).

Nevertheless, panel regressions do not help to answer all questions addressed in Chapter 1. Due to uniqueness and simplicity of question six, descriptive analysis and use of medians and means of dependent variables are seen as suitable to answer this question. Furthermore, since the study mainly targets country crises effects on firm profitability and considering a gap in the literature the relatively narrow empirical coverage of countries and crises made until today, a lengthy historical interval of data is essential. Therefore, the period under consideration ranges from 1990 to 2014 and it will be subject to the availability of data in individual countries. In conclusion, multivariate panel models will be used to define the main determinants of firm profitability[63] among a set of explanatory variables in times of country crises and in times of no country crises. It will be shown that a cross-sectional dominant analysis since the number or firm per year will easily surpass the number of years in each regime analysis (from 1 to 25 years) but this attribute is not expected to influence the outcomes.

The methodological approach is divided into seven basic steps: 1) in the time horizon under analysis, identify crises and tranquil periods of time per country, 2) classify the type of each country crises as a single and pure crisis or a combined crises, setting the regimes' length of time for each country in the sample, 3) group countries in groups – developing and developed countries, 4) group crises per type and per groups of countries, 5) test firm-level independent variables in multivariate panel regression models with industry and country control variables for each identified regime along the horizon under analysis, 6) test industry-level independent variables in multivariate panel regression models with country control variables for each identified regime along the horizon under analysis and 7) identify common patterns among types of crises, groups of countries and independent variables.

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[63] Measured by Return on Equity - ROE, Return on Sales – ROS, Free Cash Flow - FCF, and Stock Market Return - SMR.

4.3 – Methods to identify country crises

Although country crises identification is a crucial step in this research, there is no consensus among specialists on a definition, types, and, especially, time of crises that makes this work easier. Furthermore, this lack of consensus can lead to inconsistent conclusions in studies where time identification of crises is important. As such, a detailed analysis on a country-by-country basis is mandatory as a way to decrease uncertainty about time occurrence of countries' crises.

Recalling that crises are an abrupt change in some economic, financial, political or social indicators (served as parameters to normality) in a specific time window, it is understood, in general by the literature, that currency crisis is quantitatively defined by thresholds and banking and debt crises are qualitatively defined by events[64] or judgemental analyses (Reinhart and Rogoff, 2009, Laeven and Valencia, 2013, and Claessens and Kose, 2013). However and in order to avoid inconsistent conclusions, an attempt to set up a unique quantitative analytical framework would be applied to identify the beginning and the end of the solo crisis and combined crises. This methodology will follow what the literature review has pointed out as being the most important indicators to be used as main drivers for crisis identification and will allow international comparison across countries, periods of time, and types of crises. Then, the methodology to identify country crises and their combinations will rely as much as possible upon quantitative information provided by diverse sources. In addition, all quantitative attempts to identify currency, debt and banking crises will be supported by a qualitative historical analysis of turbulent periods within every single country used in the sample.

4.3.1 – Currency Crisis identification

Ishihara (2005) will be the basis to set up quantitative methodological parameters to identify currency crises. However, some concepts applied for currency crisis identification would also be applied to debt crises, especially the thresholds concept. According to Ishihara (2005), operational definitions help identify crises when appropriate indicators and thresholds are used. A crisis starts when the indicator exceeds

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[64] For banking crisis, events as forced closures, mergers, acquisitions, government takeovers or financial assistance, and runs of several banks.

a threshold, having the gap between the threshold and the indicator the measure of crisis intensity. Figure 4.1 illustrates it:

Figure 4.1 – Crisis identification
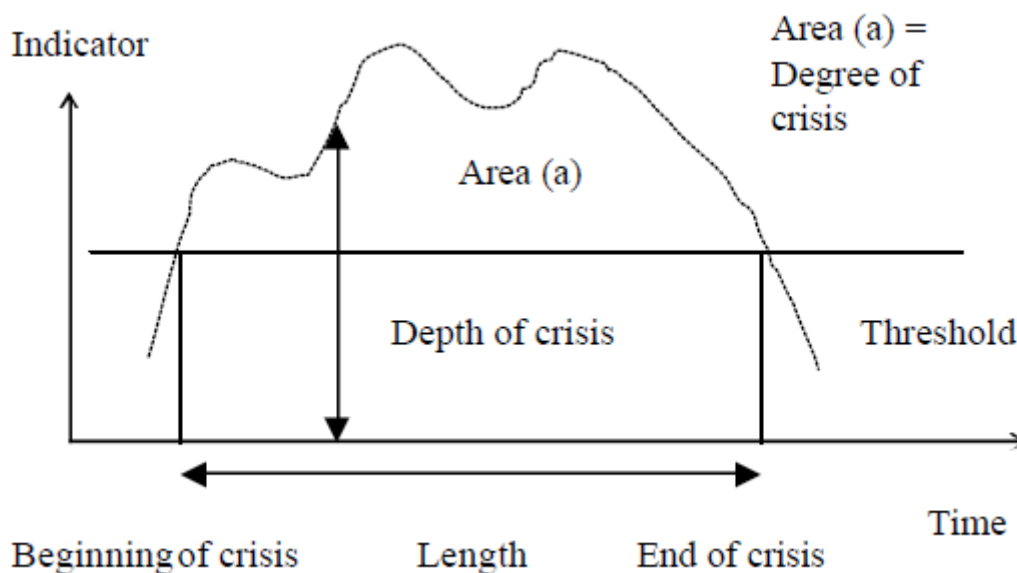
Source: Ishihara (2005), page 6.

Still, there are two approaches to determine thresholds; set an absolute level of an indicator or use a deviation from the trend. The second approach is considered the most appropriate and feasible for currency crisis identification. It allows comparing various crisis indicators on the same scale and best captures abrupt changes, the most important characteristic of a crisis. On the other hand, the absolute level is more applicable to debt crises due to the frequency and availability of data, as it will be seen in the subsection that follows. In order to do the second approach, first it is necessary to convert indicators (e.g. quarterly exchange rates against US dollars) into standardized scores (calculated on a five-year moving average basis). Then it is necessary to compare standardized scores with a common threshold, case by case. So, it is possible to identify currency crises periods. It is important to stress that, in this thesis, a window period of three or fewer quarters between two crises episodes is considered as one crisis episode. This condition excludes spurious signals of the end of crisis episodes. As demonstrated in Figure 4.1, the degree of a crisis is measured by the sum of the length and the depths of a single crisis. The length is the amount of time (in years or quarters) of a crisis from its beginning to its

end. The depth of a crisis at time *t* is the result of the standardized score of this period *t* minus the set threshold.

For currency crises, the indicator to be used will be end of period nominal exchange rates against the US dollar[65] and against a basket of currencies (National Currency per SDR[66], end of period – IMF´s International Finance Statistics. Line ENSE). In order to be considered a currency crisis, it is necessary that both comparisons trespass the threshold, set as two standard deviations from the trend. This criterion is used to avoid exchange rate movements that do not, necessarily, represent a currency crisis. For instance, recent strengthening of the US economy after 2010[67] to 2016 (due to the fall in 2008-09 financial crisis) lead to an appreciation of the US Dollar against all currencies in the world. It is hard to support that all other countries in the world have suffered a currency crisis in this period for this reason. Furthermore, Ishihara used quarterly information to identify currency crises. Although our firm and industry data are annual, quarterly frequency is recommended for crisis identification given that annual data may not able to identify crises that start and end within the same year.

Concluding, a study that does not consider, for instance, a year with nine months in a currency crisis as a currency crisis year would be mistaken and may interfere with final results. So, for the purpose of this thesis, a year with two or more quarters in crisis is considered a crisis year.

4.3.2 – Debt Crisis identification

As seen before, the literature points out that debt crisis periods are mostly qualitatively identified through events. Despite this, it can be said that their starting point is relatively straightforward to identify and depends on the time when arrears of principal or interest happen or when debt restructuring (rescheduling or debt reduction programs) occur. On

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[65] In the case of US, the currency comparison will be against Sterling Pound.
[66] Special Drawing Right (SDR). Following IMF, "[t]he SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. Its value is currently based on a basket of four major currencies, and the basket will be expanded to include the Chinese Renminbi (RMB) as the fifth currency, effective October 1, 2016. SDRs can be exchanged for freely ble currencies" (IMF webpage - http://www.imf.org/external/np/exr/facts/sdr.htm). Currently, the currency value of the SDR is based on market exchange rates of a basket of the U.S. dollar, Euro, Japanese yen, and pound sterling.
[67] And mainly after 2014 when the US Dollar/Euro exchange rate went from 0.74 in 04 of January 2014 to 0.89 in 31 of January 2015 (an appreciation of more than 20%).

the other hand, the same cannot be said about the end point. According to Manasse and Roubini (2005), "do default crises end when the default is cured (as in the case of Brady plans for the 1980s crises) or when economic adjustment and reforms lead to economic recovery?" On this matter and in accordance with Standard & Poor's, a default ends when a settlement is put in place and when it judges that "no further near-term resolution of creditors' claims is likely" (Beers and Chambers 2006). Either way, this definition clarifies the issue and brings the key event to be searched. Unfortunately, it does not contribute to objectively inform when a debt crisis ends. Probably here lies the root cause for a quantitative assessment of debt crises' periods of time. To the best of my knowledge, the lack of a reliable time series data about the number (in any currency) of debt arrears and restructuring is a reality. However, a work performed by Beers and Nadeau (2015) in Bank of Canada - Credit Rating Assessment Group (CRAG), compiling diverse sources of data of arrears in interest and principal and restructuring programs in sovereign debt comes to start changing this reality. The data, available at Bank of Canada`s website, tabulates country-by-country debt owed to either public and private creditors[68] arising from sovereign defaults between 1975 to 2014. This unique effort demanded a combination of data sets from a diverse number of sources and the result is a reliable and comprehensive estimation of stock of defaults for 141 countries. CRAG's database will provide the main and "the missing" data source used to identify debt crisis starting and ending years, allowing a quantitative identification based on threshold methods presented in Ishihara (2005), mentioned above.

Thus, for debt crises, the indicator will be the ratio of total sovereign debt default (obtained from CRAG's database) to total external sovereign debt[69]. In order to be considered a debt crisis, it is necessary that the indicator trespass a threshold set at 5%. A debt crisis ends when the indicator persistently remains lower than 5% for at least three years. So, a window period of two or fewer years between two debt crises episodes is considered as one debt crisis episode.

4.3.3 – Banking Crisis identification

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[68] IMF, World Bank, Paris Club, other official creditors, private creditors, foreign currency bank loans, foreign currency bonds, and local currency debt.
[69] It was obtained from World Bank - Quarterly External Debt Statistics/SDDS. Other sources as Chile Central Bank, Poland Central Bank, and Russia Central Bank were necessary to be used due to some missing data found in countries where arrears and restructuring occurred. Some estimations were also necessary, but they did not compromise the identification of debt crises.

Analogously, the literature indicates that banking crisis periods are essentially a qualitative exercise. However and as mentioned before, the intention in this research is to identify the country's crises using quantitative methods as much as possible. In this sense, in the literature review it was possible to identify three main causes of banking crises; the amount of non-performing loans, bank runs and exhaustion of banks' capital account. Although these main causes to banking crises were easy to understand, they alone and in practice did not support any previous studies to identify banking crisis periods. Laeven and Valencia (2013) highlighted that dating the start of a banking crisis is a complex matter and justifies dating banking crises on the identification of events.

Hence, Laeven and Valencia's works, viz., Laeven and Valencia (2008, 2010, 2013 and 2018), will be followed to identify banking crises. Their work covered banking crises from 1970 to 2018 and also covered all countries in the chosen sample. Using events as the main methodological tool to identify banking crises[70], their studies are seen as the most reliable source for the sample of countries chosen in this research. They define the banking crisis as an event that should meet two basic conditions; 1) it is necessary to find significant signs of financial distress in banking systems (banks' liquidations and runs, and losses in the banking systems), and 2) it is also necessary to identify significant banking policy intervention measures due to losses in the banking system. They also considered a systemic banking crisis when either 1) a banking system is operating in a share of non-performing loans above 20% or bank closures of at least 20% of the system's assets, or 2) fiscal costs derived from restructuring programs exceed 5% of a country's GDP[71]. Still, crisis ends in the year before two consecutive positive growths of GDP and real credit[72] happen (Laeven and Valencia, 2010). This is the strongest methodological way to identify banking crises found in the literature that leaves aside a considerable level of subjectivity and guessing. On the other hand, an issue was identified when the authors limited the duration of a banking crisis to five years. Given that no further details were provided, special attention should be given for those crisis periods under this limitation,

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[70] Following the authors, the identification of banking crises episodes "is determined by the availability of detailed information …on a variety of sources, including IMF Staff reports and working papers, World Bank documents, and central bank and academic publications" Laeven and Valencia (2008).

[71] Gross Domestic Product, Constant Prices - Percent change - World Economic Outlook database – IMF, line NGDP_RPCH.

[72] Claims on Private Sector - National Currency – IMF´s International Finance Statistics (IFS), Line 22D_XDC, deflated using Consumer Price Index (CPI) from World Economic Outlook database - IMF.

since they can misrepresent the actual length and depth of the crisis. As a way to provide additional robustness to banking crisis identification, the work performed by Laeven and Valencia would be, eventually, qualitatively complemented by outcomes from Reinhart and Rogoff (2009), Glick and Hutchison (1999), Bordo and Schwartz (2000), and Caprio et al. (2005).

4.3.4 – Recession period identification

In essence, I will follow The National Bureau of Economic Research (NBER) methodology to identify recession periods. NBER methodology selected four aggregate indicators to define business cycles (booms and recessions), classified in "coincident" category[73], which is employment, production, personal income, and manufacturing and trade sales. Then, no quantitative or qualitative work will be performed to the identification of recession periods due to the previously shown complexity to reproduce the composite leading indicator on a country-by-country basis. This information will be taken directly from NBER when dating US business cycles and, to other countries, from ECRI[74] (Economic Cycle Research Institute), OECD CLI[75] (Composite Leading Indicators), and general literature to those countries in the sample not covered by the three previous sources (e.g. Hong Kong Monetary Authority for Honk Kong and Department of Statistics Singapore for Singapore) or with incomplete information. In addition, due to the periodicity of this information (mainly provided on a month by month or quarter by quarter basis) received and used without further refinements, a year equal to or with more than 6 months or equal to or more than two quarters in crisis is considered a crisis year[76]. Exceptions to this general rule can be applied if the year presented itself within at least 5 months in recession and the country registered a negative GDP growth.

4.4 – Description of the variables

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[73] The other categories are leading and lagging. Leading indicators are represented by average weekly hours, average weekly claims for unemployment insurance, new orders, vendor performance, consumer expectations, housing permits, stock prices, M2, and the interest rate spread. It serves to identify, in advance, shifts in direction of the business cycle. Lagging indicators are represented by inventory-sales ratios, change in unit labour costs, average prime rate charged by banks, commercial and industrial loans outstanding, ratio of instalment credit outstanding to personal income, the change in consumer prices for services, and average duration of unemployment. It serves to warn structural imbalances that may be developing within the economy that would lead to a change in direction after the coincident series.
[74] In total of 16: Canada, Mexico, Brazil, Germany, France, UK, Italy, Spain, Switzerland, Sweden, Russia, Japan, China, India, Australia, and South Africa.
[75] In total of eight: Belgium, Chile, Indonesia, Ireland, Netherlands, Norway, Poland, and Turkey.
[76] In general, adjustments can be applied when necessary due to considerable discrepancies between dating procedures and GDP growth (%) performance.

Due to the nature of the research, if not controlled, several missing variables would interfere and have some influence on the relationship between firm profitability and their characteristics. Since the aim of this study relies on the influence of firm characteristics to profitability, controlling other non-firm important variables is an interesting and appropriate way to achieve this goal. In this context, control variables are important to provide validity for the results, attesting the behaviour of and the relationship between independent and dependent variables. So, control variables are necessary and they will be used since this is a type of independent variable that will remain unchanged or will be held constant to prevent their effects on the outcome of the experiment. Here two groups of control variables are necessary and CC and CI are the set of control variables from, respectively, country and industry-specific characteristics. However, differences when applying these variables to the model exist. If regressions are performed in a pool of countries at different periods of time, country-specific variables are required. On the other hand, industry effects will be always required, independently if regressions are pooled by country, regime, or time.

The description and formulas to calculate the variables used in this research are presented below. With the exception of some macroeconomic data utilized to identify country crises, all other variables will be calculated/taken on a year-to-year basis.

4.4.1 – Dependent variables

The selection of dependent variables was based on two criteria. First, the most used dependent variables seen on the literature review and illustrated in APPENDIX C (Tables C1 and C2). Second, the understanding that the usage of variables of interest from the stock market would bring important counterpoint and would induce different outcomes for the research. So, the dependent variable is called "$Profit_{ict}$" and can be either Return on Equity (ROE), Free Cash Flow (FCF), Return on Sales (ROS), or Stock Market Return (SMR). These variables are defined below.

Return on Equity (ROE) - This index measures a firm profit by reporting how much profit a firm generates with the money shareholders have invested, as follows:

$$ROE = \frac{Pre - tax\ profit}{Shareholders'Equity}$$

Due to changes in criteria related but not limited to tax expenses and tax rates that can occur from year to year and from country to country, income tax expenses can distort a year/period of time firm's net income depending on the country where the firm is located. As pointed out by Mueller (1977), "before-tax profits were used to avoid the instabilities changes in taxes sometimes introduce". In order to avoid misjudgements and misinterpretation about firm profitability, pre-tax profit figures will be used for this index since it is understood that it best represents the true value of firm profitability. Balance Sheet and Income Statement is where this index is found.

Free Cash Flow (FCF) – It is a measure of a firm's financial performance utilizing accounting data, representing how much cash from its regular operations a firm can generate to keep investment projects, to reduce debt and to pay dividends. So, for the purpose of this research, free cash flow is meant to be only the cash generated from firms' operations. If not directly available in Cash Flow Statement (usually called "Net cash flow from operating activities"), it will be calculated in a year-to-year basis, as follows:

$FCF = Net\ Income - Depreciation - Amortization$ +/- Adjustments to net income +/- Change in Net Working Capital

When this measure is not directly available at Cash Flow Statements, Balance Sheet and Income Statement are where information can be found to apply the above formula.

Return on Sales (ROS) – Probably the most simplistic one and more feasible measurement to be tested. It is taken from Income Statement, representing the pure accounting measurement of profitability of a firm over a period of time compared to the volume of sales, as follows:

$$ROS = \frac{Net\ Income}{Sales}$$

Stock Market Return (SMR) – Although not a direct consequence of a firm profit (other factors also affect returns such as discount rates and market liquidity), this is the financial market's dependent variable utilized to provide robustness to the research. It represents the return obtained from investors in the form of profit (through trading activities) or dividends paid by a firm to its shareholders from time-to-time. The annual average return will be calculated based on firms' daily closing values contrasted to the previous year, as follows:

$$SMR = \frac{Average\ daily\ closing\ value_t - \ Average\ daily\ closing\ values_{t-1}}{Average\ daily\ closing\ values_{t-1}}$$

Then, it is expected that annual average returns would eliminate, at least in part, short term volatility coming from stock market liquidity effects. More information about stock performance and accounting measures performance can be found in Chen and Zhang (2007) and stock market sensitiveness to published accounting and financial reports in Mueller (1990), Schmalensee (1989), and Fisher and McGowan (1985). Main countries' stock exchange market is where this information is expected to be found.

4.4.2 – Firms' independent variables

Variables to be used as independent variables to examine their role in explaining firm profitability in times of crises and in times of non-crisis are demonstrated below. Independent variables commonly used to predict firms and industry profitability were chosen based on a compilation of suggested variables taken from the IO and RBT literature review and summarized in APPENDIX C.

Lagged profitability ($Profit_{it-1}$) – Heavily used in models designated to capture profitability in times of non-crisis, this variable represents the "systematic" factor (Geroski, 1990) in firm profitability. Mueller (1977) tested the "competitive environment hypothesis" to verify that firms' above normal profits would quickly return to competitive rates of industry returns. By doing so, he tested "if profits above and below the norm are transitory phenomena, the probability of a firm having a given profit rate at any point in time should be independent of its previous profit rate, for a period of time taken sufficiently far back". This hypothesis was strongly rejected, indicating that there is

persistence in firm profit over time, bringing to lagged values importance to explain current firm profitability.

Financial leverage ratio (Fl_{it}) – It represents how much of the firm's operations are financed by third-party capital, usually raised by bonds issued on financial markets and/or loans acquired on financial institutions. It is believed that the higher the ratio, the bigger is the risk to a firm meet its financial obligations, and lower firm' profitability in times of crises and in times of non-crisis. It is the result of total debt divided by shareholders' equity, calculated from firm's Balance Sheet.

$$Fl = \frac{Total\ debt}{Shareholders'Equity}$$

Natural logarithm of size (LnS_{it}) – Some studies in Industrial Organization see size as a natural entry barrier in an industry. Regardless of this aspect more related to aggregated data, since a long-time firms' size represents an important and intriguing variable[77]. Although widely recognized that there are exceptions regarding some specific industries[78], the variable size is considered a decisive factor in productivity, improving the scale of production, and smoothing firms' sensitivity to economic cycles. However and in accordance with previous studies about profitability, in times of non-crisis, the variable size is expected to be negative, meaning that the bigger the firm, the lower its profitability would be. In contrast, it is expected that size would increase in importance in times of crises, turning into a positive influence over profitability. Among a few forms to measure a firm's size (number of employees, turnover, and total assets), this research will adopt the total asset account, taken from Balance Sheet, calculated as follows:

$$LnSize = \ln Total\ Assets\ (USD)$$

Market Share (MS_{it}) – This is the most discussed variable since the introduction of economic theory inside the strategic management field (back to 1970s) and a heavily supported variable to explain profitability under IO literature. Although this variable can

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[77] Since studies performed by Marcus (1969) where the relationship between firm' profitability and its size present an erratic pattern among industries.

[78] Small size firms usually perform better than larger firms in industries where diseconomies of scale are an important aspect.

be collected in an industry-wide disequilibrium, biasing the outcomes, there is a consensus that this variable is understood as an important factor in a firm profit in times of non-crisis. As pointed out by Goddard et al. (2005), "the Structure–Conduct–Performance paradigm anticipates a causal link between market share and profitability, as firms with market power tend to develop anti-competitive strategies, enabling them to earn abnormal profit". In addition, Mueller (1986) pointed out market share as an important factor for persistence of profits in a study with US firms between 1950 and 1972, concluding that "market share should be positively correlated with profitability only in those industries in which quality and cost differences are present". MS_{ict} relates a firm's sales to its industry sales, calculated from firms' Income Statement, as well as the consolidated industry sales data, as follows:

$$MS = \frac{Firm's\ sales}{Industry's\ sales}$$

Problems that certainly will arise during data management are related to diversified firms and consolidated industry sales. First, how should diversified firms' MS_{ict} be calculated? I will follow Shepherd's (1972) approach where the residual, non-primary activities will be assumed to be non-significant market shares. Then, a weighted average of market shares for the firm as a whole will be estimated. Second, having a complete set of all industry sales in a country is highly improbable. In order to overcome this issue, the size of the industry (in terms of total sales) will be estimated using only those firms that reported segmented industry sales per year.

Diversification (D_{it}) – Probably, econometric tests to be performed will certify that diversification is a variable that is connected and correlated to firms' market share and industry concentration. Shepherd (1972) excluded firms with a high degree of internal diversification from his sample and Mueller (1977) identified it as an empirical weakness when data is taken in an aggregated form, in industry level. Using Tobin's q as a measure of performance, Wernerfelt and Montgomery (1988) found that narrowly diversified firms do better than widely diversified firms. Notwithstanding, this is an important variable to be considered since diversified firms can obtain efficiency advantages because they are able to avoid some of the imperfections of the capital market (Mueller, 1986), by switching a firm's market power advantages from one industry to another one.

Diversification can also bring less operational risk if industries, where the firm is doing business, have low correlation among them. Literature predicts a positive relationship between diversification and profitability in times of non-crisis. Considering "m" the number of industries where a firm performs sales. $Sales_i$ is the total sales of the firm "i" and $Sales_{iI}$ is the firm i' s sales in the industry I:

$$Sales_i = \sum_{I=1}^{m} Sales_{iI}$$

and so:

$$D = \sum_{i=1}^{m} \left(\frac{Sales_{iI}}{Sales_i}\right)^2$$

In this way, the most diversified firms will be closer to 0 and the less will be closer to 1.

Liquidity ratio (Liq_{it}) - This index measures the capacity of a firm to honour its current liabilities in a timely manner. A liquidity ratio bigger than 1 means that, in the short term, a firm has more assets to be convertible into cash than liabilities to be paid. In theory, the greater the liquidity ratio, the better positioned the firm is to boost investments and increase sales and profitability. It is expected to be significant and positive only during times of non-crisis. It is calculated from firms' Balance Sheet, dividing current assets (net of inventories) by current liabilities, as follows;

$$Liq = \frac{Current\ Assets - Inventories}{Current\ Liabilities}$$

Age (Ag_{it}) – Age is defined as the number of years a firm operates its activities in a country. Together with variable size, variable age seems to be a meaningful factor to support firm profitability in times of crises but it is not in times of non-crisis. The rationale behind this idea is related to the parameters utilized by lenders to provide or maintain credit lines to firms during country crises. Very often "age" means more transparency and longer track credit records. Therefore, long-standing relationship with stakeholders helps established firms to more easily overcome financial constraints that would come in times of country crises. On the other hand, younger firms are faster to adapt to market demands

and carry less fixed expenditures, increasing profitability in times of non-crisis. This information is expected to be taken in the Notes to Financial Statements.

Gross Margin - (GM_{it}) – Gross margin is a measure of a firm's overall operating efficiency. This is the chosen proxy for productivity, a variable widely found in literature and considered the main driver of a firm's profit in times of non-crisis. Although productivity is an important variable to be in the model due to its strength and relevance to profitability, its measurement is not trivial. Productivity measures the efficiency of the production process, the relationship between the quantity of output and the quantity of input used to generate that output. In the case of my thesis, the output would be the sales revenue and the input would be the financial value of labour, material, machinery, and capital applied. The required raw data to calculate the financial value of inputs is not available to be extracted from the database in use (Capital IQ) and, therefore, the usage of a proxy is recommended.

The superior firm hypothesis from Demsetz (1973) places a positive relationship between productivity and profitability at the firm level (Stierwald, 2009). Furthermore, studies from Jovanovic (1982) corroborated the importance of efficiency to firms' survivorship. There, efficiency is understood as a consequence of firms' costs, closely related to the current meaning of productivity. For this research, gross margin is a percentage over sales, here stated as:

$$GM = \frac{Sales - Cost\ of\ Goods\ Sold\ (COGS)}{Sales}$$

It is taken from Income Statements.

Dummy for Ownership (DO_{it}) – It is a dummy variable where 0 means foreign-owned firm (more than 50% owned by foreign investors) and 1 otherwise. This is another representative variable to explain firm profitability in times of crises due to the fact that internationally owned firms are supposed to have cheaper and easier access to credit as well as trade channels for their production.

External financial dependence (Fd_{it}) – It represents the share of capital expenditure not financed with a firm's cash flow. It is expected that firms more dependent on external finance would perform relatively worse during country crises. However, differences in intensity and significance of this variable between developed and developing countries are also expected, having in mind that the last set of countries provides fewer alternatives to finance firms and have less access to foreign finance. It will be taken from Cash Flow Statements and Notes to Financial Statements and it follows the methodology developed by Rajan and Zingales (1998). Specifically:

$$Fd = \frac{CAPEX - Free\ Cash\ Flow}{CAPEX}$$

4.4.3 – Industry independent variables

The identification of the industry independent variables will be anchored in Porter's (1980) structural analysis of industries and influenced by previous studies on SCP. This reputed work helps to identify the set of industry variables that are necessary to be controlled as well as to be used as variables of interest. Following his theory, the state of an industry competition determines the profit potential in the industry and competition is dependent on five forces: threat of entry, bargaining power of buyers, threat of substitutes, bargaining power of suppliers, and industry rivalry. In the long-run, these five forces drive ultimate profit potential of an industry and a strategy to control these forces would leave to firm characteristics the main role to explain short-run discrepancies in profitability. It can be said that the threat of entry relates to new entrants that desire to gain market share, generating consequences on firm profitability through price competition or incumbent cost increase. Second, the intensity of rivalry among existing competitors occurs because one or more competitor perceives opportunities to improve their market position and/or are pressured to perform an aggressive strategy to improve market share. The consequent action-reaction pattern may lead to price cuts (unsustainable), advertising battles, the search for new products and technologies (differentiation), an increase in customer service expenditures, and all of them can leave the entire industry worse off in its profitability. Third, the bargaining power of buyers may force prices down, pushing firms to deliver higher product quality or better services, shrinking the margins. Similar is the bargaining power of suppliers, where suppliers may raise prices or reduce the quality of

delivered goods and services. Without being able to charge higher prices to its customers, firms in the industry will squeeze their profitability. Finally, pressure from substitute's products can change industry profitability by offering alternative products with more attractive price and performance's relationship, forcing incumbents to adjust their prices to compete.

Having said that and performing a deeper analysis of each force, some interesting conclusions can be reached that would help this research. First, the threat of new entrants and intensity of rivalry among existing competitors can be well captured and controlled by the concentration index of each industry. This index will suit well the necessity to control competition among existing competitors and, when looking at a time series analysis of concentration index, it would reveal the existing barriers to new entrants, providing an idea of existing new entrants over the years. Second, the selection of variables to control the other forces is, by far, more complicated. Nevertheless, it can be said that these three forces have common characteristics that can be controlled together. Buyers and suppliers' bargaining powers are deeply related to product and firm characteristics whereas substitute products and services are mainly related to product characteristics. This means that, knowing that firm characteristics are the object of the study, it would be only necessary to control product characteristics, something done by inclusion of a dummy variable identifying non-durable products.

Therefore, the inclusion of industry variables to control firm profitability seems to be necessary to capture the overall impact of macroeconomic fluctuations in business activity, and they are presented below.

Industry Concentration Index (C_{jt}) – A common variable in the structure-conduct-performance (SCP) models, industry concentration is an important variable to explain profitability since classic studies inside Industrial Organization in the 1960s and 1970s[79]. At that time, it was believed that the majority of the differences in firm profitability arose from industry effects and concentration facilitating collusion between firms and increasing industry-wide profits. Still, this index is not free of disagreement among authors. For instance, Tirole (1988) mentioned that "introducing a market-share variable

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[79] Mainly works done by Bain (1951, 1954, and 1956), Stigler (1963), Weiss (1979), and Brozen (1971).

on the right-hand side of the regression tends to wipe out concentration-ratio effects". On the other hand and agreeing with the arguments and hypothesis of this research, Mueller (1986) well summarised when he said:

"...studies that find that concentration loses its significance or reverses sign when market share is included in the equation use data drawn largely if not exclusively from the seventies... the seventies were an unusual if not tumultuous decade for many firms and industries".

However, the consensus view[80] is that the higher the level of concentration in an industry or sector in a country, the bigger would be the possibility to make higher profits for those firms competing there. Notwithstanding, the econometric relationship between concentration index and firm market share needs to be observed and measured in its impacts on firm profitability models, specially collinearity. This research will use Hirschman Herfidahl index (HHI) of industry concentration, applicable to the relevant market where a firm generates most of its business. HHI is measured by squaring the market share (MS) of every single firm competing in an industry or in a sector, and then summing the resulting numbers, as follows:

$$HHI = \sum_{i=1}^{n} MS_i^2$$

The HHI index output can range from zero to 10.000 (a monopoly where a firm has 100% of market share). This index is commonly used by the market as a measure of sector/industry concentration and it has been used by the U.S. Department of Justice as a tool to evaluate mergers. An HHI below 1500 is considered to have a non-concentrated industry, between 1500 and 2500 a moderately concentrated industry and above 2500 a highly concentrated industry. There, is expected some degree of collinearity of this variable with market share variable.

Dummy for Product Characteristics (DPc_{jt}) – It is a dummy variable where 1 means an industry with durable/non-consumable products and 0 otherwise (nondurable/consumable products). Originally, the conceptual importance of this variable

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[80] For instance, authors like Ravenscraft (1983) found concentration having an insignificant or even negative and significant correlation with firm profitability when market share variable is observed in econometric models.

is related to studies about "permanent income hypothesis", developed by Friedman (1957). This theory postulates that consumption of nondurables is a function of permanent income, while spending on durables is related to a more volatile and transitory income component. Then, this variable is introduced to qualitatively control product characteristics, encompassing the necessity identified in Porter (1980). In addition, Mueller (1986) understood that industries like food, drugs and textiles have more stable profits patterns over time, something that helps them be more profitable in recession times and less in boom times. On the other hand, durables and intermediate goods have profit profiles that vary more in accordance with the economic cycle. More recently, a study performed by Bricongne et al. (2012) identified that the impacts of the 2008-09 Financial Crisis on firms have been more severe in firms producing durable goods.

Dummy for Exports Orientation (DEx_{jt}) – This variable does not come from studies related to industry impact on firm profitability. It is, in fact, an adaptation of an important variable attributed at firm level that was not possible to be measured due to lack of data from the main data source (Capital IQ). In literature, exports to total sales variable at firm level is disclosed as positive and significant to explain firm profitability in times of crises. Due to the lack of data related to export sales at firm level, the industry proxy utilized is export orientation. This variable sees the relationship between annual exports (USD billion) of a specific industry and total annual exports (USD billion) of the country where this industry is located. The source of data in use was World Integration Trade Solution (WITS), from the World Bank. It is calculated as follows:

$$Ex = \frac{Industry\ Exports}{Country\ Total\ Exports}$$

The criteria utilized to determine if an industry is exported oriented or not was the usage of a threshold of 2% for classification. If more than 2% the industry receives 1, as an exportable oriented industry, and 0 otherwise. This threshold was set analysing the relevance of industries in countries' exports among the 27 countries in the sample. It was

observed that countries' export list is highly concentrated in a few codes[81] (HS[82] 2007 mapped to SIC[83] codes), independently if developed or developing country.

4.4.4 – Control variables

Control variables for countries are necessary to capture the overall impact of macroeconomic fluctuations in business activity. In accordance with Li et al. (2014), the predictive power of GDP growth variable in firm return on net operating assets (RNOA) is significant. They mentioned that one percentage point in expectation of GDP growth leads to an additional 27 basis points of RNOA over the next year. Minsky (1982) related profits in an open economy with big government to, among other microeconomic variables, government deficit (positively) and balance of trade deficit (negatively). These are the variables understood as important to be controlled in the models.

Inflation (%) – It is the rate of increase of a country's consumer price index. High levels of inflation may announce structural problems in the economy, affecting price stability, tightening monetary conditions, and shortening investment plans horizon. Its persistence over time could lead to public dissatisfaction, affecting the business environment, and may lead to political instability. It will be mostly taken from the World Bank database (series name "Inflation, consumer prices (annual %)")

GDP growth (%) – Indeed it is the final representation of the expression "country growth", indicating the strength of a country's economy. GDP represents the value of all goods and services produced in a country over a specific period of time, measured by the contribution to the economy of each individual producer (a firm), industry or sector in a country. GDP growth is the difference between two sequential GDPs in terms of a percentage of the first GDP value. It will be taken from the World Bank database (series name "GDP growth (annual %)").

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[81] Maximum median registered in Italy, with 2.3%, and lowest median in Norway, with 0.3%, 3rd quartile with maximum in Brazil, with 5.7%, and lowest in Ireland, with 0.8%. Average 3rd quartile in 3.7%.

[82] Harmonized System Codes. It is an international product nomenclature developed by the World Customs Organization (WCO).

[83] Standard Industrial Classification, developed in US and widely used in US agencies to classify industry areas.

Current Account/GDP (%) – This variable represents the net foreign investment or net financial (lending or borrowing) position of a country compared to the rest of the world. It is the difference between exports and imports of goods and services (trade position). Persistent deficits in this account would demand future adjustments in the country's economy, which would involve depreciation of exchange rate and revaluation of external liabilities. World Bank defined current account balance as "the sum of net exports of goods and services, net primary income, and net secondary income". Data will be taken from the World Bank database (series name "Current account balance (% of GDP)").

Fiscal Balance/GDP (%) – This represents the relationship between revenues and expenses of a sovereign government, and their comparison to country GDP. It is identified by the World Bank database as cash surplus or deficit of a sovereign government. Fiscal deficits will mostly lead to an increase in public debt unless they are offset by the sales of sovereign assets or they are financed through the country's central bank. In any case, a prolonged fiscal deficit would lead to an unsustainable position by central government indebtedness and, hence, increase the vulnerability of sovereign debt. Data will be taken from the World Bank database (series name "Current account balance (% of GDP)").

Unemployment (%) – When workers lose income due to unemployment and when this phenomenon become a widespread reality within the society, countries suffer losses in production and consumer spending, slowing down economic activity and decreasing the distribution of economic well-being in an economy. As with inflation, persistence over time could lead to public dissatisfaction and may lead to political instability. It is calculated over the disclosed official unemployment, as a percentage of total labour force. It will be mostly taken from the World Bank database (series name "Unemployment. total (% of total labour force) (national estimate)").

GDP per capita (USD) – It is a country's GDP divided by its population. In theory, it reflects the living standards and well-being of a population. Apart from critics related to its simple measurement and improper conclusions that could come be drawn (for instance, United Arab Emirates has a GDP per capita in 2013 of USD 43,048.9 but living standards far below the UK, with USD 41.781,15), it is a powerful summary indicator of economic development. It will be taken from the World Bank database (series name "GDP per capita").

International Reserves (USD) – It shows the amount of foreign currency a country possesses in its central bank. It is an important signal about the ability of a country to resist any external shocks. Central banks can intervene in the exchange rate market and help stabilize the domestic currency, allowing companies to roll over foreign external liabilities and exporters to access credit lines. It will be taken from the World Bank database, representing total reserves in USD, including gold (series name "Total reserves (includes gold, current USD)").

4.5 – Empirical Models

The main objective of this research is to understand which sets of firm and industry characteristics are the most important to explain their profit performance in times of crises and in times of non-crisis. For this purpose, a multivariate panel model with a range of firm and industry-level independent variables are used to explain the differences in firm profitability in a regime change analysis. Regime changing models help to better understand the behaviour of independent variables in different business environments. Regimes were set as presented in Table 2.1 (Nomenclature of Regimes) and encompass the way crises combined themselves over the years under analysis.

First, based on the importance attribute to industry structure in predicting firm profitability, it is interesting to understand the behaviour of each industry variable during those regimes. The model to be used, having industry-level independent variables of interest, is set as (1):

$$Profit_{jct} = \alpha_{S_t} + C_{jct}\beta_{1.S_t} + DPc_{jct}\beta_{2.S_t} + DEx_{jct}\beta_{3.S_t} + CC_{jct}\pi_{1.S_t} + \eta_j + \varepsilon_{jct}$$

Where j stands for industry , c for country, and t for time, α is the constant term, β and π coefficients are unknown parameters, η is the set of individual industry effects, and ε is the random error term, with zero expected value, constant variance, independent, and normally distributed. Still, S_t (t = 1, 2, .. , 16) denotes the regime at time t. In these regimes changing regressions, constant term and coefficients are unknown parameters and regime-dependent. The dependent variable *Profit* is represented by return on equity (ROE), free cash flow (FCF), return on sales (ROS), and stock market return (SMR).

Independent variable *C* represents industries' concentration, while *DPc* represents dummy for product characteristics, *DEx* represents dummy for export-oriented industries, and *CC* are countries' control variables.

The second is a model where firm characteristics in predicting firm profitability are the variables of interest, industry variables are control variables, together with country control variables already used in previous model. A multivariate panel model for firms, called firms' model, is given as (2):

$$Profit_{ijct} = \alpha_{S_t} + X_{ijct}\beta_{S_t} + CI_{ijct}\pi_{1.S_t} + CC_{ijct}\pi_{2.St} + \eta_i + \varepsilon_{ijct}$$

Where *i* stands for company, *j* for industry , *c* for country, *t* for time, α is the constant term, β and π coefficients are unknown parameters, η is the set of individual firm effects, and ε is the random error term, with zero expected value, constant variance, independent, and normally distributed. S_t (t = 1, 2, ... , 16) denotes the regime at time *t*. In these regime changing regressions, constant term and coefficients are unknown parameters and regime-dependent. The dependent variable *Profit* is represented by return on equity (ROE), free cash flow (FCF), return on sales (ROS), and stock market return (SMR). The vector of firms' independent variables ($X_{it}\beta$) are firms' specific variables represented by lagged profitability ($Profit_{it-1}$), financial leverage ratio (Fl_{it}), logarithmic function of size (S_{it}), market share (MS_{it}), diversification (D_{it}), liquidity ratio (Liq_{it}), age (Ag_{it}), gross margin (GM_{it}), dummy for ownership (DO_{it}), and external financial dependence (Fd_{ict}). Control variables for industry ($CI_t\pi$) are concentration index (C_{jt}), dummy for product characteristics (DPc_{jt}), and dummy for export orientation (DEx_{jt}). Control variables for countries ($CC_t\pi$) are inflation, GDP growth, current account/GDP, fiscal balance/GDP, unemployment, GDP per capita, and international reserves.

4.6 – Data

The sample will be restricted to non-financial firms. I excluded financial firms "because the high leverage that is normal for these firms probably does not have the same meaning as for non-financial firms, where high leverage more likely indicates distress" (Fama and French, 1992). Leverage, an independent variable in the model, would be a skewed data that could drive my results away from what it is truly the objective of this research. So,

the sample of non-financial firms will be taken from 27 countries chosen based upon a rank of the main destination of FDI until 2016 (UNCTAD, FDI/TNC database). Nevertheless, some prominent countries well positioned as FDI destination were not chosen for the sample of countries to be tested. These countries typically have problems with firms' data (lack of financial statements, reduced stock market, or due to the size of their economy) that would decrease the number of observations in the dataset. In this sense, British Virgin Islands (12nd place with USD 634 billion), Cayman Islands (19th place with USD 354 billion), Luxembourg (23rd place with USD 245 billion), Saudi Arabia (26th place with USD 231 billion), and Thailand (27th place with USD 189 billion) were replaced by Japan (28th place with USD 187 billion), Poland (29th place with USD 186 billion), South Africa (35th place with USD 137 billion), Norway (36th place with USD 136 billion), and Turkey (37th place with USD 133 billion)[84]. Moreover, to ensure external validity, this sample of countries will be split into three groups of countries with different characteristics; developed and developing I and II countries. The first sample will include 16 developed[85] countries; United States, United Kingdom, France, Belgium, Germany, Switzerland, Spain, Netherlands, Canada, Australia, Italy, Sweden, Ireland, Norway, Poland, and Japan; and the second will include 11 developing countries clustered in two categories: 1st China, Brazil, Russia, Mexico, Indonesia, India, Chile, South Africa, and Turkey (Developing I); and 2nd Hong Kong and Singapore (Developing II). Together, this sample of countries represents 83% of the world stock of FDI in 2016. The period under analysis ranges from 1990 to 2014 and it will be subject to the availability of data in individual countries.

All annual non-financial firms' financial statements and stock market data will be obtained from Capital IQ. The main data source for crisis identification and macroeconomic variables to be utilized as control variables will be sourced by IMF's International Financial Statistics (IFS) and the World Data Bank from the World Bank. Differently from annual data analysed for firms, data for crisis identification will be handled on a quarterly basis to improve the accuracy in the identification of crisis periods. Periods of economic recessions and booms will be taken from NBER (The National Bureau of Economic Research) for the US and, when available, by ECRI (Economic

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[84] Net impact of changes in countries' rank: USD 875 billion, representing 3% of total stock of FDI.
[85] Countries' classification about developed or developing followed United Nation's list, found at
https://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

Cycle Research Institute), OECD CLI (Composite Leading Indicators). Published papers will also be used to identify economic recessions and booms to those countries that were not covered by either of the previous three sources. However, methodological procedures to determine peaks and troughs in these papers have to follow NBER methodology, in accordance with The Conference Board's Business Cycle Indicator Handbook (2001). Still, firms are assigned to individual industries primarily following classifications by GICS (Global Industry Classification Standard) codes, composed by two-digit numerical codes assigned by Standard & Poor's and Morgan Stanley Capital International to identify the primary business of the establishment.

With regard to data treatment, before grouping firms' yearly observations per type of dependent variables, independent variables' outliers were removed using the same criteria utilized for dependent variables[86]. Here, it is understood that, out of 13 independent variables of interest, only four would be sensitive to outliers: leverage, liquidity, gross margin, and external dependence. The other eight independent variables are composed of three dummies (ownership, export oriented, and product characteristics), three related to sales activity and market position that are naturally held between 0 and 1 (market share, diversity, and concentration), age and size (natural logarithm of total assets). These variables are not seen as eligible for outlier detection and cleaning procedures since they do not affect parametric statistics but add explanatory power to the model. Moreover, all dependent variables and their lagged dependent used as independent will also be cleaned, but in a second moment, after cleaning procedures are performed in independent variables.

Following data treatment, descriptive analysis of independent variables will be presented. This analysis will be performed without outliers (after first cleaning) but, at that moment, no descriptive analysis will be shown for each type of dependent variable in use as they would be still full of outliers. Later, parametric statistics tests will be performed over each type of dependent variable already cleaned and any disarrangement will be reported accordingly.

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[86] After excluding extreme outliers that cause distortions in means and standard deviations, those observations that exceed normalized Z score of 2.576 (1%, two tail distribution), were considered outliers.

In turn, correlation analyses between variables are of great importance. If a high correlation is observed between two independent variables (above 0.7 or below -0.7) then collinearity may be present in future multiple regressions. Consequently, one cannot be precise which independent variable explains better the effects on the dependent variable. If more than two independent variables are highly correlated to each other, multicollinearity is present and results could be severely threatened. If multicollinearity is perfect, then independent variable coefficients are indeterminate and their standard errors are infinite. If it is not perfect, regression coefficients possess large standard errors, although determinate. All of this means that those regression coefficients will not be estimated with great precision or accuracy. As mentioned before, special attention is necessary to be given to the correlation between the lagged independent variable and the error term (endogeneity problems). Correlation analysis between all variables will be performed without outliers and per type of crises.

Finally, this thesis includes four types of dependent variables, three groups of countries, two periods of time (phases), and a considerable number of observations from 27 countries, thousands of firms with 13 independent variables that can, if not well presented, puzzle final conclusions. So, for a better understanding of the empirical efforts to answer the questions here addressed, the core of this study will be divided into the three groups of countries presented before. It will thus be possible to present sample sizes, data descriptive statistics, and correlation analysis of all independent variables for the two periods of time.

CHAPTER 5
Empirical chapter - Country crisis identification

5.1 – Introduction

Country crisis identification is a very important step in this research. The identification of crisis years will allow the classification of regimes on a country-by-country basis. Therefore, a quantitative approach will be always preferable, although not always possible. Consequently, a qualitative analysis aims to complement the quantitative identification of financial crises[87] providing, or not, support to country-specific crisis characteristics (date, incidence, and frequency). Initially, single crises will be identified on a yearly basis using the methodological procedures described before. Ultimately, the occurrence of overlapping crises will enable the identification of another type of crisis, a combined crisis, theoretically more severe, with different characteristics, and with different impacts in the real economy. It is, then, expected that combined crises will be more than a simple sum of single crises. This understanding is seen as an important contribution to current knowledge, given that crises are often seen, studied, and treated independently to each other, even when they appear at the same time, something that may lead to incorrect conclusions.

After a brief literature review about crisis identification and the presentation of methodological procedures to be used in a country-by-country analysis, crises will be identified using quantitative and qualitative data, rescuing some historical narrative of facts, events encompassing financial crises, and previous papers published by authors interested in crisis identification.

5.2 – Country crisis identification

The ability to quantitatively identify country crises will be always dependent on, among others, the availability of data. Although identification will not rely only on quantitative information, the period of time under analysis will be delimited by it. Some countries in the sample are considered new in capitalist systems, as the case of Poland and Russia.

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[87] Specially banking crisis and debt crisis as commented by Reinhart and Rogoff (2009), Laeven and Valencia (2103), and Claessens and Kose (2013).

Others as South Africa, Singapore and Hong Kong are inserted in the capitalism system for a long time but, due to particular characteristics, were not able to provide reliable hard information to, for instance, allow the identification of periods of recessions and expansions, invalidating a more comprehensive analysis. Another possible limitation is regarded to banking crisis identification. As mentioned in the banking crisis methodology, Laeven and Valencia's studies will be closely followed for banking crisis identification. All detailed data and information on a country-by-country basis are presented in APPENDIX A. There it is possible to identify each type of crisis and their overlaps for all countries in the sample.

5.3 – Remarks about identified country crisis

The identification of single crisis years was made following the methodology presented in Chapter 4. Nevertheless, their combinations are the essence and the basis for this work, driving future empirical tests. As such, the three singles crises and the recession period can be combined from two to four ways when occurring at the same time, creating a new type of crisis. So, the combination without repetition provides a total of 15 types of crisis plus a period where there is no crisis, totalizing 16 possible regimes along the horizon under analysis.

Following the nomenclature presented in Table 2.1 and based on conclusions about crisis and non-crisis periods identified in APPENDIX A, APPENDIX B summarizes the classification of regimes per country in a graphical way. There can be realized some consequences of international capital flows during the period proposed for analysis (1975 to 2014). The 1970s started without Bretton Woods system of fixed exchange rates and presented itself with the dominance of currency crises[88] and recession periods, sometimes appearing together. The 1980s was the most disturbing decade, where 41% of crises appeared together. This decade was marked by market openness and deregulation of countries, a symptom of an increased globalization procedure in place. In addition, the damage to the world economy provoked by the increase in oil prices made by OPEC (in 1974 and in 1979) reflected on over-indebted countries, resulting in increased debt and banking crises around the world. The following decades also appeared disturbing,

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[88] Corroborating with Reinhart and Rogoff (2009), currency crises were more frequent in Bretton Woods (1945 to 1972) and post-1973 eras.

although less in frequency in combined crises (31% in the 90's and 28% in the 00's). The five years of the last decade under analysis (the 10`s) are shorter but equally intense, where 29% of crises appeared together. This period was affected by the 2008-09 Financial Crisis which left developed countries coexisting mainly with banking crises and recession periods in the following years. In the same way, the 2000s would be the most prosperous decade if it was not hit by the 2008-09 Financial Crisis, having the higher incidence of the non-crisis period (69% of the years if data was from 2000 to 2007). Therefore, these crises can be studied not independently of each other anymore, but together, making it possible to test their single and combined effects on different variables from the real economy. So, multi-dimensional crises were directly identified in this chapter, confirming clustering behaviour suggested by Reinhart and Rogoff (2009).

5.3.1 – Country crisis types, frequency and duration

Crisis frequency is a common analysis in the literature about financial crises but types of crises are primordial to this thesis. For the sample of 27 countries utilized, there were identified 295 single crisis years (29% of total), 102 double crisis years (10% of total), 31 triple crisis years (3% of total), and 10 years (1% of total) with all crises together. Non-crisis periods predominated with 564 years (56% of total), as shown in Table 5.1:

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Table 5.1 – Summary of years per type of crisis and countries

Number of years

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16
Banking Crisis	■				■	■	■				■	■		■	■	
Currency Crisis		■			■			■	■		■	■	■		■	
Debt Crisis			■		■		■		■	■		■	■	■	■	
Recessions				■		■		■	■		■	■	■	■	■	
Country																
Australia		4		4												32
Belgium	2	1		18			3		1							15
Brazil	2	3		3			1	5	2			3	1	2	2	16
Canada		3		6												31
Chile		3	3	4	1		2		5	1	2		1		2	16
China	1	6		1												23
France	1	1		7			1		2							28
Germany	1	1		10			1									27
Hong Kong		1		6												24
India		5		2	1				1							31
Indonesia			1	6	1	4			1	1					1	10
Ireland	2	1		15			3		4							15
Italy	1	2		7			1		3							26
Japan	3			6			4						1			26
Mexico	3	2	2	5					3		4	1			3	17
Netherlands		1		14			2									23
Norway	2	3		14			1		1							19
Poland				11		1				1				2		9
Russia		1	4				2	1		1			4		1	9
Singapore				15												13
South Africa		6	3	6				1	4	1			1			18
Spain	4			2	1		6		1			3				23
Sweden	3	2		4			3		3			1				24
Switzerland		1		10			2									27
Turkey		11		5	2			1	8			2	3		1	7
United Kingdom	1	2		5			4		1							27
United States	4	1		5			2									28
	30	61	13	191	6	5	38	8	40	5	9	9	11	2	10	564
Total	3.0%	6.1%	1.3%	19.1%	0.6%	0.5%	3.8%	0.8%	4.0%	0.5%	0.9%	0.9%	1.1%	0.2%	1.0%	56.3%
Developed	80%	38%	0%	72%	17%	20%	87%	0%	40%	20%	0%	56%	0%	100%	0%	67%
Developing	20%	62%	100%	28%	83%	80%	13%	100%	60%	80%	100%	44%	100%	0%	100%	33%

Note: The "Ss" on the top of columns refer to the nomenclature of regimes used in this thesis, in order to make their identification easier when regimes' notations are required for the regressions' models. They represent the combination of the crises marked above each "S".

Source: Author, based on data from IMF/IFS, World Bank/World Data Bank, NBER, ECRI, OECD CLI, Beers and Nadeau (2015), Laeven and Valencia (2018), Hong Kong Monetary Authority for Honk Kong, and Department of Statistics Singapore for Singapore (1990-2014).

As demonstrated, more than half of the years under analysis are years with no crisis but, unfortunately, this result is not balanced between developed and developing countries. On average, developing countries tend to be more exposed to crises than developed countries, given that developing countries stayed 51% of the time in crises while developed countries stayed 39%. On the other hand, developed countries stayed 21% of

their time in recession periods, against 14% in developing countries. In fact, the occurrence of single crises is much more acute in developed countries (76% of their crises' time under single crises) than in developing countries (57% of their crises' time under single crises). Nevertheless, developing countries are much more affected by combined crises than developed countries (44% against 23%), confirming the less stable business environment found in this group of countries.

In Table 5.1 can also be seen that the frequency of single, double, triple, and all types of crises follows what is naturally expected; rarer is the appearance of concomitant single crises in the same year. Also rare are some types of combined crises, especially those where banking crises and debt crises appear together (S6 and S14 types with, respectively, five and two observations), corroborating Laeven and Valencia's (2008) findings. On the other hand, the most frequent combined crisis (S7 type with 38 observations) confirms what was previously pointed out in the literature review that banking crises are associated with recession episodes, but causality effects between the two are still demanding further research. Moreover, corroborating to previous studies, recession periods are heavily presented in periods of crises, either alone or combined with another crisis/es, as presented in Graph 5.1 below:

Graph 5.1 - Crises combination
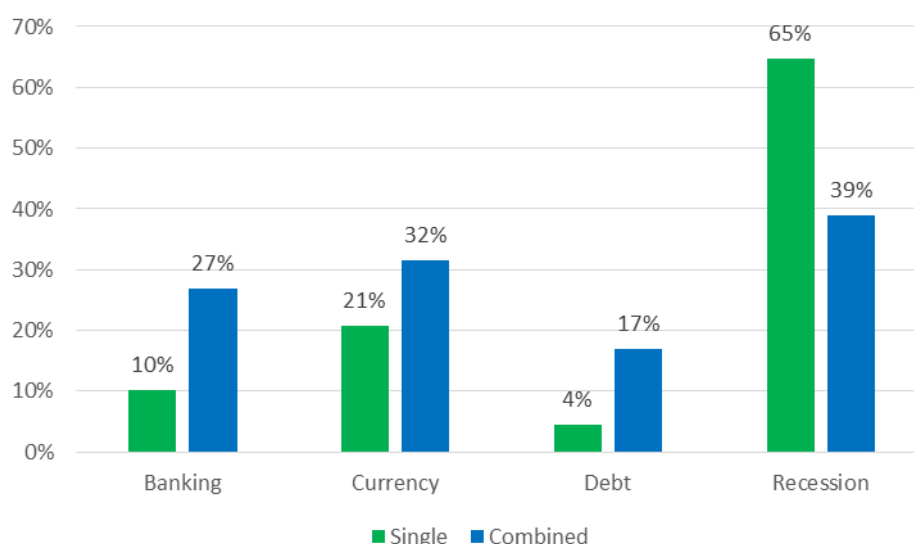
Source: Author, based on data from IMF/IFS, World Bank/World Data Bank, NBER, ECRI, OECD CLI, Beers and Nadeau (2015), Laeven and Valencia (2018), Hong Kong Monetary Authority for Honk Kong, and Department of Statistics Singapore for Singapore (1990-2014).

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So, recessions were present in 39% of all combined crises, 7% more than currency crises, showing its predominance over the other crises and contrasting with Ishihara (2005). This author finalized his study by saying that currency crises are present in 85% of combined crises episodes, followed by recession periods and debt crisis (47% and 46%, respectively). In addition, currency crises are the most frequent type of single crisis not only in Ishihara, but also in Bordo and Meissner (2016), and Laeven and Valencia (2013). In a more detailed analysis, Laeven and Valencia (2013) concluded that currency crises are more commonly attached to another crisis than banking and debt crises. Currency crisis dominance is claimed possibly because they did not consider recessions as a crisis in their studies. If recessions are not considered, then there is an agreement from previous studies to the findings in this research. In the same basis for comparisons, in this research currency crises effectively happened the most, with 154 years, followed by banking crises with 109 years, and debt crises with 63 years. However, recessions are there and represented 306 years, almost the double of currency crises. Furthermore, it is also interesting to notice that debt crises much more commonly happen together with another crisis than alone (three times more), which is the opposite of recession periods. Besides, debt crises are rarer and they are also more selective, hitting almost exclusively developing countries (there is one exception in developed countries, Poland from 1991 to 1994 after opening its economy). These findings confirm the trigger characteristic of recessions established in the literature and suggest debt crises as a type of crisis in the wake of other crises. Finally, it is possible to draw a simple correlation among single crises over the years of analysis, as presented in Table 5.2:

Table 5.2 – Single crises correlation matrix

	Banking Crises	Currency Crises	Debt Crises	Recession
Banking Crises	1			
Currency Crises	0.153	1		
Debt Crises	0.253	0.323	1	
Recession	0.179	0.138	0.078	1

Source: Author, based on data from IMF/IFS, World Bank/World Data Bank, NBER, ECRI, OECD CLI, Beers and Nadeau (2015), Laeven and Valencia (2018), Hong Kong Monetary Authority for Honk Kong, and Department of Statistics Singapore for Singapore (1990-2014).

All correlation coefficients are significant at the 1% level, except recessions and debt crises correlation (0.078), significant at the 5% level. Some interesting confirmations can

be done. As expected, there was no negative correlation between crises. On the other hand, there is no strong or even moderate correlation between them. Although correlation does not mean causality but strength and direction between two variables, debt crises appear to fluctuate more in line with banking and currency crises. In the same pace, debt crises and recessions are the weakest links. It is also seen that banking and currency crises had the most representative linkage to other crises. Nevertheless, the correlation between these two is below expectations. Twin crises are widely explored in literature but, in this research, they have shown no predominance, nor high frequency. In this regard, Laeven and Valencia (2008) presented 42 twin crises out of 124 banking crises (34%), a representative frequency not observed here, where only six twin crisis years happened out of 109 banking crisis years (5.5%). In a more recent work, Laeven and Valencia (2013) identified 218 currency crises, 146 banking crises, and 66 debt crises. When comparing their findings to the ones from this research, results are illustrated as follows in Figure 5.1:

Figure 5.1 – Comparative results – Laeven and Valencia vs. thesis
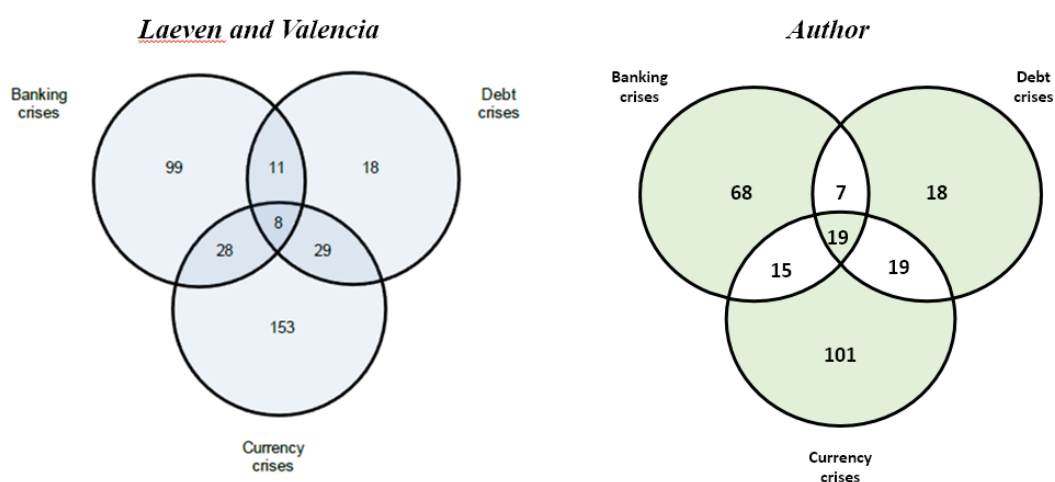
Source: Laeven and Valencia (2013) and author

Although there are differences in methods to identify combined crises, some conclusion can be made when contrasting these two works. First, as in Laeven and Valencia (2013), currency crises are more common (51% in their work and 47% in this thesis) than banking (34% in their work and 33% in this work) and debt crises (15% in their work and 19% in this thesis). Second, the frequencies of occurrence of single crises are very similar (63% in their work and 57% in this thesis). Third, double crises occur less often in this thesis'

sample than in Laeven and Valencia's work (13% against 16%). Lastly, differently to double crises, triple crises are more frequent in this thesis than in Laeven and Valencia's work (6% against 2%).

5.3.2 – Comparing country crisis identification outcomes

A list of studies composed by Caprio and Klingebiel (1996a, 1996b, and 2003), Demirguc-Kunt and Detragiache (1998, 2000, and 2005), Glick and Hutchison (1999), Kaminisky and Reinhart (1999), Bordo and Schwartz (2000), Detragiache and Spilimbergo (2001), Manasse et al. (2003), Caprio et al. (2005), Laeven and Valencia (2008, 2010, 2013, and 2018), Borensztein and Panizza (2008), Reinhart and Rogoff (2009), and Reinhart (2010) were used in this research for, at least, two main important objectives; 1) to understand methods they used to identify crises - so these methods would be replicated as a way to identify crises periods, vital information, and 2) to provide chronological references of previous financial crises and their years of occurrence – allowing comparisons to identified crises in this research. Here, it is important to acknowledge that the two kinds of comparisons are possible. One is to compare identified years of financial crises (banking, currency, and debt) to other authors' findings, irrespective of the method used. The other is to compare identified years of financial crises to other methods found in the literature utilizing the same database, replicating other methodologies. Those two objectives will be explored in this part of this chapter's conclusion.

Out of the four single crises to be studied and dated, banking crisis and recession methods of identification found in the literature were not possible to be replicated. For them, respectively, outcomes from a widely accepted study and some recognized institutions/prominent papers were simply followed. As mentioned before, recession periods were mostly taken from institutions and used without any kind of treatment due to the complexity to reproduce the composite leading indicator on a country-by-country basis. So, for recession periods, there is no possibility of any kind of comparison. Similarly, banking crisis periods were taken from Laeven and Valencia (2018) due to the inability of, alone, quantitative indicators dating with the required precision the starting and ending of banking crises, having in mind the necessity to look at their consequences to the real economy. Once there was no replication of methods with own database,

comparison with other methodologies is not possible, but it is possible to compare the outcomes in Laeven and Valencia's with the list of authors mentioned above in a year-by-year and country-by-country basis (ignoring the methodologies applied). On the other hand, currency and debt crises methods were replicated and are possible to be compared with different methodologies, with the list of authors mentioned above, and with probably different databases. The overall agreement for banking, currency and debt crises against the list of authors and the agreement with other methodologies for currency crises are summarised in Table 5.3.

The criteria used here is that if there is at least one paper pointing out the occurrence of, for example, a banking crisis in a specific year, this year is considered a year in banking crisis to the set of papers. Still, in the case of banking crisis identification, there were two independent years that eight papers agreed that those years were banking crisis years, so they would deliver a very strong positive signal. Individual agreements were shown in the country-by-country analysis made before. When analysing results, the overall agreement for banking crises is high (more than 90%) and brings comfort to perform the analysis of firm profitability over Laeven and Valencia's (2018) working paper. The list of papers that served as parameters for banking crises' comparison were: Glick and Hutchison (1999), Caprio and Klingebiel (1996b, 2003), Reinhart and Rogoff (2009), Demirguc-Kunt and Detragiache (1998, 2000, and 2005), Manasse et al. (2003), Kaminsky and Reinhart (1999), Caprio et al. (2005), Bordo and Schwartz (2000), and Detragiache and Spilimbergo (2001). Although this general comparison to these authors' outcome in banking crises provide comfort to the adoption of this study as the reference one for this research, special attention should be given to results from US (only 68% in agreement). In addition, Hong Kong, India, Indonesia, Italy, Japan, and Mexico also deserve some scrutiny for some mismatch periods reflected in less than 85% in agreement. Banking crises showed in Laeven and Valencia (2018) appear to have a strong connection to countries' macroeconomic reality.

Table 5.3 – Summary of agreement in crisis identification – List of authors vs. thesis

Country	Agreement					F&R	R&R
	Currency	Bank	Debt	Average			
Australia	88%	89%	100%	92%		88%	78%
Belgium	98%	100%	100%	99%		95%	95%
Brazil	73%	92%	90%	85%		83%	85%

Canada	88%	92%	100%	93%	93%	90%
Chile	70%	95%	98%	88%	73%	75%
China	85%	95%	100%	93%	90%	90%
France	95%	95%	100%	97%	95%	100%
Germany	98%	89%	100%	96%	98%	95%
Hong Kong	98%	84%	100%	94%	98%	100%
India	83%	84%	95%	87%	85%	83%
Indonesia	90%	84%	93%	89%	93%	88%
Ireland	88%	97%	100%	95%	85%	90%
Italy	88%	84%	100%	91%	90%	90%
Japan	90%	78%	100%	89%	98%	93%
Mexico	78%	84%	93%	85%	83%	78%
Netherlands	98%	100%	100%	99%	98%	93%
Norway	82%	89%	100%	90%	88%	88%
Poland	100%	95%	100%	98%	88%	73%
Russia	77%	91%	96%	88%	100%	91%
Singapore	100%	100%	100%	100%	100%	98%
South Africa	71%	89%	83%	81%	83%	80%
Spain	93%	100%	100%	98%	90%	93%
Sweden	88%	97%	100%	95%	88%	83%
Switzerland	95%	100%	100%	98%	98%	90%
Turkey	53%	87%	90%	77%	85%	95%
United Kingdom	88%	92%	100%	93%	90%	90%
United States	98%	68%	100%	89%	95%	90%
Overall	**87%**	**91%**	**98%**	**92%**	**90%**	**88%**

Note: The first three columns are the agreements (%) with the list of authors' work, while the fourth column is their average. The last two columns are the agreements in currency crises against different methodologies applied in works of Franke and Rose (1996) and Reinhart and Rogoff (2009).

Source: Author

Once it was considered that these events were an important parameter for identification, results of this study are expected to work well when applicable over microeconomic data found in firm profitability. The real economy was presumably affected due to banking crises period identified in Laeven and Valencia's work.

Second, currency crises showed very disperse methodologies for their identification in the literature. For instance, some studies focus only on large depreciation of the nominal exchange rate (setting an arbitrary threshold to serve as a guide), while others also include episodes of defence (from speculative attacks) performed by authorities as an additional reason to date a currency crisis[89]. Especially referring to governments' efforts to protect the currency, this research did not consider them as a good parameter to sustain the

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[89] Specially Kaminsky and Reinhart (1999), who utilized a methodology to produce an index called "index of currency market turbulence" that joins devaluation/floatation of domestic currency and foreign exchange reserves' changes.

identification of currency crisis episodes due to the absence of the crisis itself (if they were avoided). Considering that collateral effects to a country's economy would come in a medium to long-run (e.g. rise in interest rate) as a response to government efforts, there are no factual effects on the real economy at the date of the defence. Assuming those efforts as reasons to date a currency crisis can perturb the results of this research given that it is concentrated in the disturbances of the business environment on firm profitability. In this way, the most cited study to identify currency crises was the one performed by Franke and Rose (1996) where currency crisis was observed when "the nominal dollar exchange rate increases by at least 25% in a year and has increased by at least 10% more than it did in the previous year". Another notorious reference to currency crisis identification is the work performed by Reinhart and Rogoff (2009). To these authors, a crisis happens when the nominal dollar exchange rate increases by at least 15% in a year. These last two were used for sanity checks of methodologies applied.

Reminding that this research understood Ishihara's (2005) methodology as the most appropriate one to identify currency crises, at this point, the first comparison of outcomes between these three methodologies is desirable. The right side of Table 5.3 presents the results if the outcomes of this research method are compared to the outcomes found when using the methodologies presented in Frankel and Rose (F&R) and Reinhart and Rogoff (R&R) with the same database. It can be observed a high overall agreement in both comparisons, something that brings comfort to the usage of the selected methodology to identify currency crises. Nevertheless, final conclusions require special attention for countries that showed a lower level of agreement in both comparisons; Australia, Brazil, Chile, India, Mexico, Poland, and South Africa, all of them with less than average of 85% agreement. Further, it is also possible to compare identified currency crises in this research to other authors' outcomes in a yearly-based unit of measure, a general comparison as done in banking crisis analysis. The list of chosen papers that served as parameters for comparison were: Glick and Hutchison (1999), Reinhart and Rogoff (2009), Manasse et al. (2003), Kaminsky and Reinhart (1999), Laeven and Valencia (2008), and Bordo and Schwartz (2000), and results were shown also in Table 5.3. Overall agreement results for currency crises are less expressive than in banking crises but it is still in a comfortable zone to maintain that the method showed in Ishihara (2005) is the best one for this research. The reason for this statement lies behind the frequency of data supporting Ishihara (2005)'s methodology. His method requires quarterly information

about nominal exchange rate whereas Frankel and Rose and Reinhart and Rogoff are satisfied with the end of year nominal exchange rates. By using quarterly information, considerable fluctuations that occurred in the exchange rate within a year would eventually lead this year to be identified as a currency crisis year. This outcome may not be possible when using annual information if, for instance, there occurs a recomposition of the exchange rate in the last days of December, masking what had really happened to the real economy and its effects on firms' financial statements. The general result confirms the attention that should be given to Brazil, Chile, India, Mexico, South Africa, and increment with Turkey.

Finally, debt crisis identification is less problematic in regard to the selection of the best methodology and much more problematic in relying on a trustful database of sovereign debt defaults. A vast majority of papers understand that debt crises arise from default on sovereign debt. Although supported by a logical and strong theoretical skeleton based on defaults, the problem was always related to setting up a reliable database of government debt default. In attempts to build one, several authors used several sources and, not occasionally, they faced different data for the same country/year and this inconsistency in data would lead, when analysed together, to misleading results. So, some authors proposed alternative methods of identification based on available and trustworthy data but they lost touch with reality. This was the case in Ishihara (2005) who used, instead of the inconsistent debt default, the trustworthy external debt outstanding to exports ratio. Results were not satisfactory. The selected methodology based on sovereign debt defaults and arbitrary threshold was selected to identify debt crises. Still, the problem related to a reliable database would persist. Hopefully, an interesting and reliable work (surrounded by considerable men and time efforts!) made by Beers and Nadeau (2015) in the Bank of Canada appeared to overcome this issue. Based on this, debt crises were identified and it is possible to compare to other authors' outcome. The list of chosen papers that served as parameters for comparison were: Glick and Hutchison (1999), Reinhart (2010), Manasse et al. (2003), Kaminsky and Reinhart (1999), Laeven and Valencia (2008), Borensztein and Panizza (2008), and Levy-Yeyati and Panizza (2006), As shown in Table 5.3, results are the highest when compared to banking and currency crises. However, this overall agreement percentage could be puzzling. Benefits come from countries that did not default in the period of analysis (1975 to 2014) and it is notorious that the quality of data did not influence as well as the methodology utilized. Germany and South Africa

outcomes may deserve attention, but doubts about the differences were dissipated in the individual analysis made in APPENDIX A.

5.3.3 – Country crises impacts on economy

The literature usually measures the impact of a crisis in a country's economy using GDP or GDP per head as the dependent variable. For instance, Bordo et al. (2001) measured the impacts of financial crises combined with recessions on GDP[90] and detected that recession with crises are always worse for GDP growth and GDP recovery than recessions without crises. They also stressed that crises often occur during recession, but underline that there was no direct causality of these crises and the severity of those recessions. The authors sustained that financial crises sometimes add nothing to the adverse effects provoked by recessions to the real economy, concluding that not all financial crises are associated with output losses. In this way, in their 1973-1997 sample period of studies, Bordo et al. (2001) argued that twin crises have grown more severe, in estimated output loss, when compared to previous sample periods. Twin crises also lasted longer and were always more disruptive to growth. In turn, Bordo and Meissner (2016) found that there were economic downturns in GDP and GDP growth associated with financial crises in nearly all studies. Kaminsky and Reinhart (1999) suggested that GDP growth is hardly affected downwards (between 2% to 6%) in a pre-banking crisis period, recovering completely only after almost one year of the end of the crisis. Similarly, Demirgüç-Kunt et al. (2000) believed that there is a GDP contraction in the order of 4%, remaining depressed in the year following a banking crisis but recovering to its pre-crisis level after it.

The results found in this thesis are different from what was observed by these authors. The following average GDP growth per type of crisis is demonstrated in Graph 5.2:

Graph 5.2 – Average GDP growth per type of crisis

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[90] Here, it is important to note the difference in concepts of what is output (GDP) loss used by the Bordo et al. (2001) and what is GDP growth/contraction utilized in this chapter. The first is related to estimates of what would be the loss, in terms of output, if there would have been no crisis. This is an attempt to measure the cost of a crisis and its severity. The latter is also related to severity but looking at the effects on real economy, disclosing what really happened to the business environment in a certain period of time when there is a crisis. The preference for the latest as unit of measure is evidenced once it is more connected to the aims of this thesis.
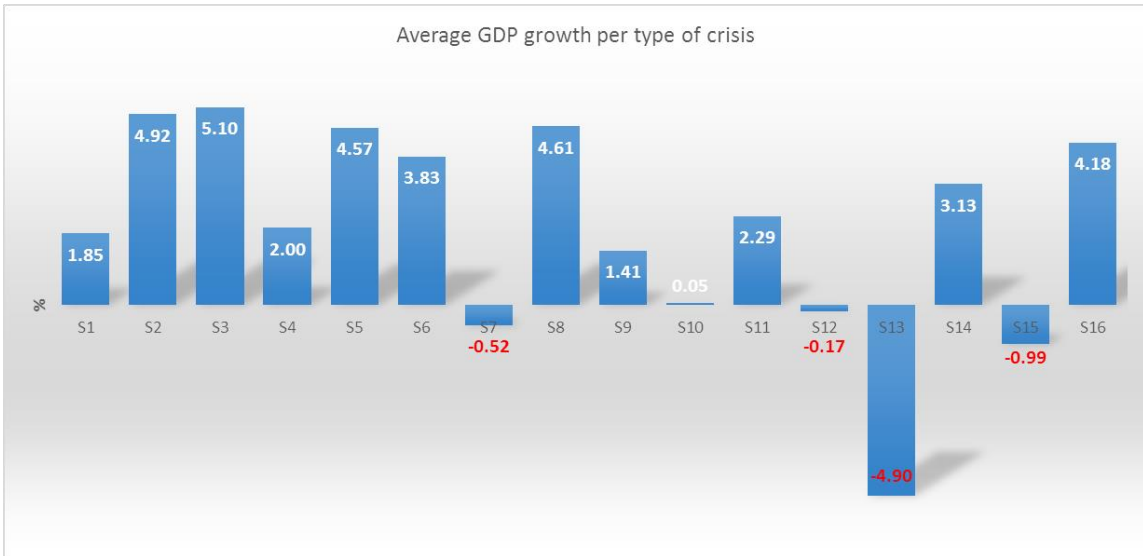
Source: World Development Indicators – World Bank, and author

In addition, the distribution seen in box plots can help better understand the characteristics of these diverse results found when looking only at simple averages, as shown in Graph 5.3. The y-axis shows the number of occurrences of the type of crisis represented by each box.

Graph 5.3 – GDP growth' crises distribution
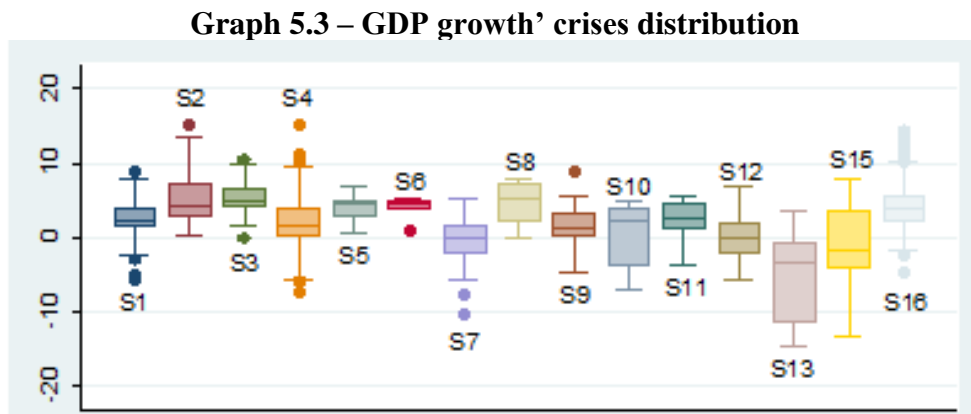
Source: World Development Indicators – World Bank, and author

The short box plot for S6 crisis demonstrates a high level of agreement in GDP growth pattern when this type of crisis happens, but its low frequency (only five occurrences) compromises any conclusion in this sense. A similar situation occurred to crises types S5, S8, S10, S1, and S12 (all of them with less than 10 observations). S14 was not even plotted because there were only two observations. However, the highest frequency distribution (S16) shows a good level of agreement between upper quartile (Q3) and lower quartile (Q1), representing 50% of the distribution and ranging from a GDP growth of

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2.4% to 5.5% per year. In addition, outliers are GDP growth above 10.1% (20 occurrences) and below -2.2% (2 occurrences). In turn, all types of crises (S15) shows a GDP growth median of -1.9% per year, some positive growth was observed[91] (against the intuition under the worst possible environment) and no outliers were identified. Furthermore, recession with banking crises (S7) tends to be worse than recessions with currency crises (S9), given that the medians are, respectively, -0.09% and 1.33% in GDP growth. When comparing single crises, recessions are more harmful to economies than any other type of crisis, having debt and currency crises showing positive GDP growth from lower whisker to upper whisker, suggesting positive effects to economies. In this regard and as seen on the overall picture presented in graphs 5.2 and 5.3, some conclusions can be reached. First, single currency crises do not always tend to reduce county's GDP due to deterioration of terms of trade, suggesting that rearrangement of factors of production and increase in exports would boost country's output and investments. Similarly, single and double crises with debt crises seem to help defaulted countries to recovery faster their production and GDP growth as suggested by Eichengreen (1991), redirecting resources to serve domestic market instead of serving external debt. Second, twin crises appear to hit the real economy less incisively than suggested by Kaminsky and Reinhart (1999) and Laeven and Valencia (2013). This phenomenon is possibly explained by the fact of the observed positive effects of currency crises (alone, and mainly without recession) on real output. In addition, although the number of observation of twins is low (just six episodes in S5 type and nine episodes in S12 type), it would not be incorrect to infer that twins without recession (S5) is less harmful than twins accompanied by recessions (S12), corroborating previous findings about the importance of recessions. Episodes with recession concentrate 50% of its distribution (Q1 to Q3) ranging a GDP growth from -2.1% to 1.77% per year against 3.1% to 4.9% without recessions. Third, recessions with crises (S7, S9, S10, S12, S13, S14, and S15) is confirmed as being worse for GDP growth than recessions without crises (S4), as the only exception, presented in average GDP growth for S14, cannot be considered due to the few number of observations (just two years in Poland – 1992 and 1993). As a matter of fact and corroborating to previous studies, it is correct to affirm that recession is a

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[91] The two years in S15 (1984 and 1985) found in Chile resulted to an expressive GDP growth of, respectively, 7.97% and 7.12%. Nevertheless, GDP growth patterns for Chile was expressive for that time. For instance, from 1976 to 1979 GDP growth average was 7%, from 1986 to 1989 was 7.52%, and from 1990 to 1999 was 6.38%.

period of diminishing activity rather than diminished activity, since it was possible to see positive GDP growth in the average of 2% in the sample. Lastly, it is clear that not all crises lead to an economic contraction, corroborating to Bordo et al. (2001) and indicating the possibility of no breaks in firm profitability. Anyway, this variable (GDP growth) is controlled in regressions, but the emphasis in its necessity to be used should be stressed. Furthermore, this affirmative also put emphasis into the importance of the industry where firms belong, since these industries will serve as clusters of common characteristics that would be more exposed to fundamental causes of crises, something possibly not observable when looking at firm characteristics.

In the end, if considered the scarcity of observations and heterogeneity in GDP growth patterns in some scenarios of crises and combined crises (S3, S5, S6, S8, S10 to S15 types of crises), less predictable would be the results of these crises on the business environment and firm profitability, something to be confirmed in next chapters.

CHAPTER 6

Empirical chapter –Industry profitability and regimes

6.1 – Introduction

The importance of industry-level variables as a unit of analysis is well set in theories regarding firm profitability. So, search for industry variables that help to predict firm profitability is one of the objectives of this thesis. In this regard and in connection with Industrial Organization (IO) Theory, a specific line of study has emerged to model and predict firm profitability, the Structure Conduct Performance (SCP) model. This modelling theory understands industry factors as the main factor in determining firm profitability. Schmalensee (1985) is the classic paper in favour of industry factors, the basic reference for further studies in this field. This chapter will use static panel data to understand the impacts of industry-level variables on firm profitability in times of crises and in times of non-crisis. Random Effects models will be the base model to run the regressions and Hausman test will not guide which model to be used.

6.2 – Sample and data description

As a preface to this section, some comments related to terminology should be addressed. Previous studies denounce the lack of commonality in terms and concepts in use to, for instance, define what an industry is, if the best term to be used is really "industry" instead of "sector", or indefiniteness about types of industries that may exist. For this research, the term "industry" can be defined as a specific group of firms that can be seen as similar based on their primary business activity. In fact, the issue is not this straightforward definition (generally well accepted) but the way firms are grouped in industries and the way industries are, consequently, classified. The key driver to classify a firm in a specific industry is its source of revenues. If, for instance, an automobile conglomerate has a financial division that contributes only with a few percentages on total revenues, this conglomerate would be classified in an industry where primary business activity is manufacturing automobiles. So, the bigger is the revenue in an industry, the closer to this industry the firm would be. In literature, there are at least ten types of classification systems to organize firms into industrial groups (called industry taxonomy). Every kind of taxonomy in use is sponsored by a different organization and some mapping procedures

are available to compare two similar industries in two different taxonomies. The most used in the market are ISIC (International Standard Industrial Classification of All Economic Activities), sponsored by United Nations, NAICS (North American Industry Classification System), sponsored by Governments of the United States, Canada, and Mexico, SIC (Standard Industrial Classification), sponsored by the Government of the United States, and GICS (Global Industry Classification Standard), sponsored by Standard & Poor's and Morgan Stanley Capital International. In this study all data in use is provided by Capital IQ (a Standard & Poor's division) and, hence, GICS is adopted as the taxonomy to be followed. Based on GICS, there are 11 groups of industries: 1) Energy, 2) Materials, 3) Industrials, 4) Consumer Discretionary, 5) Consumer Staples, 6) Health Care, 7) Financial[92], 8) Information Technology, 9) Telecommunication Services, 10) Utilities, and 11) Real Estate.

6.2.1 - Sample

Due to data constraints, the covered period of time (1990 to 2014) was split in two: from 1990 to 2004 (called "Phase I"), and from 2005 to 2014 (called "Phase II"). It is important to remember that, before 2005, the source of data (Capital IQ) does not present sales' segregation by industry codes (GICS). So, it was not possible to work with three theoretical important variables in Phase I: market share and diversification at firm level and concentration in industry level. This is the reason for splitting the period under analysis in two. Hence, industry-level analyses are restricted to Phase II (2005 to 2014) since concentration is only present in this database. Moreover, determinants of firm profitability will be analysed using industry variables in three groups of countries (Developing I, Developing II, and Developed) in order to make further comparisons among countries with a similar level of economic development easier and more practical. Countries were grouped following the United Nation' country classification guidelines[93].

The sections below is dedicated to disclose industries regressions' diagnostics through descriptive statistics and correlation analyses of all dependent variables and industry independent variables.

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[92] Financial sector will not be under analysis in this thesis.
[93] For further information, please access
http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

6.2.2 – Dependent variables

Previous research did not spend too much time on the main statistical characteristics of firm profitability. Indeed, authors dedicated to explain firm profitability (irrespectively of the occurrence of crises or non-crisis periods in the timeframe) did not go beyond exposure of means of their dependent variables, sometimes covering only one year and in one (mostly) or in a few countries (Shepherd, 1972; Gale, 1972; Weiss, 1979; Ravenscraft, 1983; Scott and Pascoe, 1986; Nunes et al., 2009; and Asimakopoulos et al., 2009). In contrast, few studies considered the behaviour of a dependent variable during crisis periods, having most of them opted to do it using economic cycles (McDonald, 1999; Dell'Ariccia et al., 2008; Tan, 2012, Bruni et al.; 2014, Prasad et al., 2015; and Bamiatzi et al., 2016). This limited number of studies dedicated to analysing the behaviour of firm profitability over time is understandable because the timeframe utilised usually did not go beyond a single crisis period and/or a single non-crisis period. In addition, comparisons between dependent variables are affected since there is no unique acceptable ratio or index that fully represents firm profitability.

For the descriptive statistical analysis of dependent variables, the database in use comprehends all possible and available data in the data source (Capital IQ). Then, the number of observations here is much higher than the one utilised below to perform regression tests. However, it is also important to remember that basic parametric statistics that will result from this heavy database (as means, standard deviation and skewness) are very sensitive to outliers and their presence can compromise results and lead to incorrect conclusions. For instance, extreme outliers with returns of more than 10.000% were found in FCF, ROE and ROS's distributions. These extreme returns would compromise the quality of the sample in use, biasing results towards what is actually abnormal. These outliers were removed as the first procedure of data cleaning once they were considered errors. The second procedure of data cleaning was targeted to those returns that represented mild outliers, in other words, those traditional outliers that exceed a normalized Z score of 2.576 (1%, two tail distribution). Although not as powerful to interfere as extreme outliers, this class of outliers would also bias conclusions due to their unrepresentativeness. Table 6.1 summarises the number of observations in the full sample, identified outliers, and final sample for each type of dependent variable:

Table 6.1 – Dependent variables cleaning procedures to outliers

Dep. Variable	Full Sample	Extreme outliers		Sample I	Mild outliers		Final Sample	
		Number	%		Number	%	Number	%
ROE	609.991	171	0.03%	609.820	3.336	0.55%	606.484	99.43%
FCF	495.437	550	0.11%	494.887	4.706	0.95%	490.181	98.94%
ROS	562.775	1.196	0.21%	561.579	4.288	0.76%	557.291	99.03%
SMR	462.698	147	0.03%	462.551	6.074	1.31%	456.477	98.66%

Source: Author

Jondeau et al. (2007) analysed the behaviour of daily stock market returns and concluded that their distribution is composed of approximately 5% of outliers. Our samples presented a much smaller number of outliers. In addition to parameters for outliers, the authors presented other characteristics of these financial returns. The SMR distribution in Jondeau et al. (2007) shows considerably more small returns than large returns, it has null skewness (gross symmetry), and displays a high kurtosis. So, observations are more or less well distributed around the median, almost symmetrical and with decaying concentration when moving away from the median. Similar characteristics can be found when looking at chosen dependent variables in a pooled database. APPENDIX D shows different patterns of range, median, mean, skewness, and kurtosis, but confirmatory signs of symmetry (except for ROS). Remarkably, kurtoses are excessively high in all distributions, well above the generally accepted "mean+3" thresholds, demonstrating a generalised leptokurtic distribution of returns. Leptokurtic distributions are characterised by having fatter tails, allowing the more frequent occurrence of extreme values than with a normal distribution. As commented by Nath (2015), fat tails imply that risks are coming from outliers' events, such as the 2008-09 Financial Crisis. These events are caused by a less than perfect marketplace, a place highly influenced by unpredictable human behaviour. There can also be seen that average returns between groups are all statistically different (significant at 1%) from each other in the four dependent variables.

Table 6.2 can better synthesize what was presented in APPENDIX D.

Table 6.2 – Summary of dependent variables' descriptive statistics

		Observ.	Range	Minimum	Maximum	Median	Mean	Std. Deviation	Skewness	Kurtosis
Developing countries (I)	ROE	151.487	40.19	-19.69	20.50	0.10	0.11	0.77	-0.92	155.27
	FCF	117.912	163.61	-81.08	82.53	-0.23	-0.20	6.76	0.02	43.70
	ROS	149.946	131.43	-75.60	55.82	0.05	-0.00	2.33	-6.67	227.56
	SMR	84.646	4.64	-1.00	3.64	0.00	0.10	0.52	1.49	6.48
Developing countries (II)	ROE	30.116	43.45	-22.31	21.14	0.09	0.08	1.12	-1.22	91.75
	FCF	26.323	110.70	-55.11	55.59	-0.25	-0.27	5.42	0.16	37.54
	ROS	29.845	117.60	-61.57	56.03	0.06	-0.18	3.35	-4.89	115.32
	SMR	23.149	4.47	-1.00	3.47	-0.04	0.03	0.52	1.77	9.07
Developed countries	ROE	424.881	90.29	-45.23	45.06	0.08	0.01	2.19	-0.18	98.84
	FCF	345.946	140.93	-70.65	70.28	-0.06	-0.05	4.76	0.67	48.53
	ROS	377.500	321.29	-175.62	145.67	0.02	-0.85	8.70	-8.53	120.21
	SMR	348.682	5.31	-1.00	4.31	-0.03	0.01	0.51	1.79	10.67
Overall	ROE	606.484	90.29	-45.23	45.06	0.09	0.04	1.89	-0.26	126.41
	FCF	490.181	163.61	-81.08	82.53	-0.10	-0.10	5.35	0.33	50.55
	ROS	557.291	321.29	-175.62	145.67	0.03	-0.58	7.30	-9.90	164.86
	SMR	456.477	5.31	-1.00	4.31	-0.02	0.03	0.51	1.72	9.67

Source: Author

As demonstrated, developing countries tend to present higher returns in ROE and SMR, with less standard deviation in ROE and similar patterns in SMR. This summary also helps to disclose the different behaviour existing between those variables taken from firms' financial statements (ROE, ROS, and FCF) and the one taken from financial markets (SMR). Financial market variables respond much faster to changes in the business environment as they reflect averages of massive daily data, something that does not occur with variables taken from financial statements. As expected, financial market returns are normally closer to the expected return (in percentages), and with their standard deviation, skewness and kurtosis in a more compatible pattern for a normal distribution. It is also interesting to notice that the mean and median profitability measured by equity (ROE) or sales (ROS) returns brought different absolute values as well and, not occasionally, inverse signals (positive or negative returns). The reason may be due to the negative equity accounts that can occur. This interpretation is considered as a much more plausible explanation than eventual uneven adjustments in income taxes account that would bring different signals between Pre-Tax Profit and Net Income accounts.

In all cases, it can be said that more doubts than answers were created when analysing the pattern of firm dependent variables over the years covered in the sample. As explained in Chapter 2, this behaviour corroborates the challenges faced by academics in the strategic management field, related to the diversity of performance among firms and their profitability, demonstrating variability in the sample in use and exhibiting high dispersion in returns. So, a better approach would be necessary for an attempt to clarify some ambiguity brought by these pooled database analyses. As suggested by Dell'Ariccia et al. (2008), Tan (2012), Bruni et al. (2014), Prasad et al. (2015), and Bamiatzi et al. (2016) an approach that splits the years between crisis and non-crisis years comes as the first and more evident way to follow. As an example, if two SMR`s subgroups are created for the UK based on crises and non-crisis periods (non-crisis years – 1992 to 2006, and 2012 - 2014 - 18 years, and crises years – 1990, 1991, and 2007 to 2011 - 7 years) and analysed separately, results would provide some hints that highlight the essence of this work. In Figure 6.1 the sub-group called Non-crisis shows a range of 2.83 (-1 to 1.83), a mean of 0.04, a standard deviation of 0.39, and 5.04 in kurtosis. Conversely, the other subgroup (called Crises) shows a similar range of 2.81 (-1 to 1.81), higher standard deviation (0.43), lower kurtosis (4.18), and shows a statistically different mean of -0.02 (at 1%).

Graphically speaking, these are what they represent:

Figure 6.1 – UK SMR's distributions
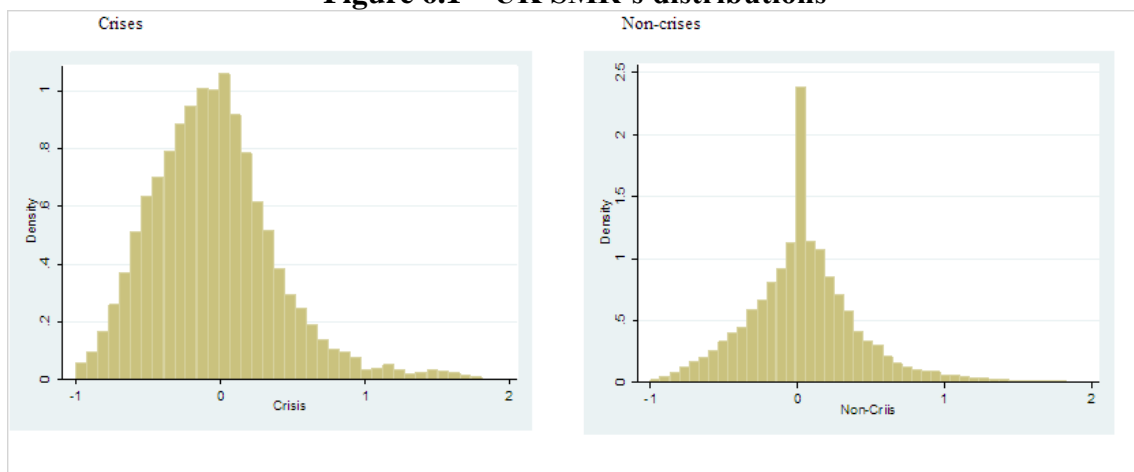
Source: Author based on Capital IQ database

This illustration helps better understand the differences in the business environment. It can be seen that, in times of crises, dispersion of returns has fatter tails and distribution is

less centred in the mean. This is represented by a lower kurtosis in crises periods. In UK case, crisis years present worse returns (mean and median) with different dispersion and standard deviation, corroborating the expected effects of the turbulence of the business environment on firm stock market returns. If the same exercise is made to other countries in the sample as well as the other dependent variables, similar results are seen, as shown in APPENDIX E.

When analysing differences between crises and non-crisis periods per type of dependent variable, some congruence in results can be found. ROE and ROS tend to move together. There are more countries with larger ranges in times of non-crisis than in times of crises but, on the other hand, more countries with larger standard deviation in times of crises than in times of non-crisis. As expected, average returns are higher in times of non-crisis in 81% of the countries in the sample for ROE, out of which 70% is statistically significant at some level (either at 1%, 5%, or 10%). Likewise, for ROS, 67% of the countries have higher returns in times of non-crisis compared to times of crises, out of which only 63% are statistically significant at some level. Comparing ROE and ROS for those countries where mean returns are higher in times of crises than in times of non-crisis brings the interesting result that 80% of them are not statistically significant for ROE and 55% for ROS. In turn, SMR presented more robust results. Average returns are lower in times of crises than in times of non-crisis in all cases. Ranges are bigger in non-crisis periods (17 counties) as well as standard deviation (15 countries). In contrast, FCF provided the weakest comparative results with average returns almost identical between crises and non-crisis periods. In addition, 81% of these differences are not statistically significant. When looking at the three groups of countries and the four dependent variables together, results support the findings in Dell'Ariccia et al. (2008). The range is larger in periods of non-crisis in 67% of the time, average returns are lower in times of crises also in 67% of the time, out of which 66% is statistically significant. Standard deviation is mostly larger in periods of crises (75%). These overall statistics can be better seen in Table 6.3 below:

Table 6.3 – Summary of descriptive statistics in times of crises and times of non-crisis

		Non-crisis					Crises					
		Range	Min.	Max.	Mean	Std. Dev.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Developing countries (I)	ROE	40.19	-19.69	20.50	0.11	0.87	36.18	-18.27	17.91	0.10	0.90	2,05**
	FCF	160.60	-80.53	80.07	-0.27	3.17	163.61	-81.08	82.53	-0.23	6.64	-0,02
	ROS	131.43	-75.60	55.82	-0.07	1.71	125.20	-74.16	51.04	-0.05	2.43	-1,47
	SMR	4.46	-1.00	3.46	0.11	0.53	4.64	-1.00	3.64	-0.04	0.50	34,03***
Developing countries (II)	ROE	33.99	-16.32	17.67	0.09	1.11	39.53	-18.39	21.14	0.05	1.17	2,86***
	FCF	109.06	-54.61	54.45	-0.30	2.34	109.02	-55.11	53.92	-0.21	5.41	-1,34
	ROS	115.84	-60.64	55.20	-0.23	1.87	117.60	-61.57	56.03	-0.38	2.76	4,77***
	SMR	4.47	-1.00	3.47	0.10	0.56	4.34	-0.99	3.35	-0.20	0.51	38,01***
Developed countries	ROE	90.29	-45.23	45.06	-0.00	2.19	83.32	-44.02	39.31	-0.04	2.34	4,55***
	FCF	140.93	-70.65	70.28	0.07	2.21	132.07	-64.94	67.14	0.06	4.35	0,85
	ROS	321.29	-175.62	145.67	-1.64	3.30	302.95	-174.71	128.24	-1.40	6.00	-12,91***
	SMR	5.31	-1.00	4.31	0.06	0.52	5.30	-1.00	4.30	-0.07	0.47	69,93***
Overall	ROE	90.29	-45.23	45.06	0.03	1.87	83.32	-44.02	39.31	-0.01	2.11	7,19***
	FCF	160.60	-80.53	80.07	-0.04	2.51	163.61	-81.08	82.53	-0.01	4.88	-2,15**
	ROS	321.29	-175.62	145.67	-1.10	2.85	302.95	-174.71	128.24	-1.09	5.36	-0,90
	SMR	5.31	-1.00	4.31	0.07	0.52	5.30	-1.00	4.30	-0.07	0.48	88,01***

* - significant at 10%, ** - significant at 5%, and *** - significant at 1%

Source: Author

After presenting and analysing overall figures, some important conclusions can be made. Data on dependent variables support assumptions of the worst-case scenarios for firm profitability in times of crises. As expected, returns are lower in times of crises and standard deviations are higher (representing more risk), with the exception of SMR. Distributions of returns are sparser (ranges are bigger) in times of non-crisis. These characteristics of distributions; crises with lower means and fewer spreader returns but higher in standard deviation; and non-crisis with higher returns, lower standard deviation and spreader returns, suggest:

1. Crises compromise firm profitability, making it lower than in times of crises;
2. Due to the higher standard deviation, the business environment is riskier during periods of crises;
3. Higher returns, less volatility but with wider ranges registered in times of non-crisis suggests propensity of firms to assume more risks due to more predictability of the business environment.

These conclusions also indicate that firms perform more closely to their own internal capabilities and resources in times of non-crisis. When firms assume more risks and plan

more in the long-turn[94] they become even more heterogeneous. Hence, their returns are less affected by the negative or positive influences from the business environment and become more extreme, for the good or for the bad. This inference supports the Resource-Based Theory (RBT) presented in Chapter 3 as being the most appropriate approach to explain firm profitability in times of non-crisis. RBT is rooted in firms' competitive advantage that holds the view of firms as input/resource-combiners and this view is confirmed for non-crisis periods. In addition, due to lower standard deviation, returns are less volatile, demonstrating a more stable business environment. The second and last conclusion is that statistically different returns demonstrate accuracy in determining crisis years presented in Chapter 5 and APPENDIX A. Together, these first findings show the heterogeneity of profitability indicators/indexes behaviour, independently of whether they are seen in periods of turbulence or in calm periods. As a continuing act, they intensify the necessity to look deeper into the causes of differences in firm profitability among countries through the use of panel data analysis with firm and industry-level independent variables and in accordance with changes in the business environment (called regimes, which are linked to country crises). Finally, profitability patterns change with time and country.

6.2.3 – Industry samples and independent variables' description

Whilst recalling that concentration index is a continuous variable ranging from 0 to 1 and the two other independent variables are dummies (product characteristics and export orientation), data treatment is different for industries. There is no reason to perform data cleaning procedures for industry independent variables, as well as their descriptive analyses as they do not affect parametric statistics. However, dummy export orientation is expected to positively influence profitability in times of crises. The other dummy, product characteristics, has value of 1 for durable products and 0 for non-durables products. Durable products are expected to influence positively profitability in times of non-crisis and negative in times of crises. The third and last independent variable, concentration, is expected to positively affect profitability in times of non-crisis.

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[94] Delaying or not decisions as acquisitions, plant investments, divestitures, staff recruitment, and talent retainment are some examples of actions that are hanged in the balance of the business environment.

There is no necessity to the first cleaning process because it was already done before. However, the so-called "second" data cleaning procedure is still necessary which is the one involving dependent variables due to regime classification already in place. Applying the same criteria utilised in the previous section for dependent variables[95], the number of outliers from the cleaning procedure is shown in Table 6.4:

Table 6.4 – Dependent Variables Sample Outliers – Industries

	ROE	*%*	*ROS*	*%*	*SMR*	*%*	*FCF*	*%*
S2	1	0.26%	9	2.35%	9	2.62%	5	1.31%
S4	3	0.15%	13	0.63%	29	1.94%	11	0.56%
S7	6	2.41%	4	1.61%	1	3.33%	5	2.09%
S9	1	0.10%	4	0.42%	18	2.35%	14	1.53%
S16	43	0.32%	30	0.22%	233	2.46%	112	0.88%
Developing Countries I								
S4	15	0.86%	1	0.06%	19	1.54%	2	0.12%
S16	19	0.50%	14	0.36%	59	1.99%	23	0.62%
Developing Countries II								
S1	42	0.45%	54	0.58%	127	1.80%	53	0.59%
S4	14	0.20%	30	0.43%	54	0.88%	66	0.73%
S7	44	0.45%	47	0.48%	80	1.05%	58	0.61%
S16	97	0.26%	188	0.51%	449	1.59%	246	0.69%
Developed Countries								

Source: Author

As can be seen, there is no abnormal percentage of outliers in samples and, following Jondeau et al. (2007), they are at acceptable levels of less than 5% in all types of crises and non-crisis periods. As a result, Table 6.5 below provides the final sample number in use for regressions.

As expected, there are more observations in ROE and ROS than in SMR and FCF and in developed countries compared to developing countries.

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[95] Those observations that exceed normalized Z score of 2.576 (1%, two tail distribution), were considered outliers.

Table 6.5 – Dependent Variables Sample - Industries

	ROE	*ROS*	*SMR*	*FCF*
S2	382	374	335	378
S4	2,053	2,043	1,463	1,969
S7	243	245	29	234
S9	960	957	748	900
S16	13,559	13,571	9,240	12,627
Developing Countries I				
S4	1,733	1,747	1,218	1,680
S16	3,818	3,822	2,911	3,692
Developing Countries II				
S1	9,198	9,185	6,922	9,003
S4	6,930	6,914	6,079	6,799
S7	9,668	9,666	7,536	9,461
S16	36,632	36,537	27,715	35,629
Developed Countries				

Source: Author

6.2.4 – Correlation analysis

Correlation analyses between variables are of great relevance, especially due to previous indications that product characteristics and export orientation have high correlation. In fact, these two variables present themselves with a correlation classified as weak to moderate in the database in use given that correlation averages found in three groups of countries range from 0.377 to 0.534 (in absolute values). However, there is one case of perfect correlation between the two, in Developing Countries I, SMR and in S7[96]. The variable was dropped in the regression. Apart from this case of perfect correlation, the maximum correlation observed in the sample is 0.59. In addition, there was no level of correlation between independent variables and the error term that would be a reason to question problems with endogeneity. The highest correlation between the error term and the independent variable registered in all regressions is 0.035 (related to the concentration index).

6.3 – Empirical results

Empirical results related to industry analysis are divided into two types. First, a comparison in industry returns between crises and non-crisis periods, per country, per

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[96] For this regression, the number of observations was low, only 29, and it was made with only with one country, Russia (2008 and 2009). However, original data, before cleaning procedures (hence, including outliers in dependent variables), demonstrated a correlation between the two of 0.51.

groups of countries, and per types of crisis is presented. Then, regressions are run and the importance of industry-level independent variables is investigated.

6.3.1 – Industry profitability and regimes

Firm dependent variables were pooled in accordance with the industry they belong to and comparisons between crises and non-crisis periods were done. In APPENDIX F.1, F.2, F.3, and F.4 it is possible to see these comparisons, industry by industry, country per country, per group of countries, and per type of profitability measure. Individual results are captivating and offer a range of possibilities for analyses. This chapter focus only in grouped data and in some eventual individual discrepancy that may occur and would draw attention. So, data in the first measure of firm profitability (Appendix F.1 – SMR) reveals robust empirical evidence for the difference in means between periods of crises compared to periods of non-crisis. From the 267 possible comparisons (some industries retuned zero observations), average profitability returns were lower in times of crises in 246 cases (92%). From these 246 cases, 78% (192 cases) presented statistically significant difference at 1%, 5%, or 10% (t-test, two tails). On the other hand, the other 21 cases where non-crisis periods presented lower profitability than in times of crises, in none of them the difference was statistically significant at any level. When analysing country per country, it is worth noting that for the Chinese market no difference between means was found in any industry, suggesting that, during the covered period (1990 to 2014), crises did not affect industries listed in the stock market. It is also interesting to notice that pooled data from Developing Countries Group I presented statistically strong difference in means between crises and non-crisis periods in all industries. Consumer Staples industry is the only exception, with significance at 10% only, showing stock market resilience in times of crises and corroborating with expectations presented formal description of the industry presented by Standard and Poor's – Capital IQ and MSCI (2015) and conclusions in Jiang et al. (2009). The other two country groups demonstrated statistically different means for all ten industries under analysis, with crises periods with lower returns all the time. Ranges were higher in the period of crises only in 33% of the cases, also with standard deviation higher in times of crises in only 36% of the cases.

APPENDIX F.2 provides information about industry comparisons when ROE is the profitability measure for industries. Although in less clearly than with SMR, periods of

crises presented lower ROEs in 175 cases (65% in a total of 270 possible comparisons) against periods of non-crisis, with 95 cases where ROEs were lower in times of non-crisis than in the period of crises. Contrasting with SMR, out of these 175 cases, only 36% were statistically significant. Similarly, from the 95 cases where ROEs were lower in times of non-crisis, in 15 of the cases differences were statistically significant (16%). Developing Countries Group I showed Healthcare, Telecommunication Services, and Utilities with statistically lower returns on equity in times of non-crisis. In the group where non-crisis periods presented higher returns on equity than in periods of crises, Real Estate, Industrials, and Energy presented no significant difference in means. Still, but following expectations, all other remaining four industries presented statistically different means where crises periods produced lower returns on equity than non-crisis periods. Developing Countries Group II presented only two industries where means are statistically significant between the two business environments, leaving no room for further interpretations. Similar inconsistent results were found for the Developed Countries group, where four industries presented lower returns in times of crises (Consumer Discretionary, Industrials, Real Estate, and Telecommunication Services), and other six presented lower returns in times of non-crisis (Consumer Staples, Energy, Healthcare, Information Technology, Materials, and Utilities). Ranges were higher in the period of crises in 41% of the cases, with a standard deviation higher also in times of crises in 58% of the cases.

The third measure of profitability (ROS) is presented in APPENDIX F.3 and results were similar to ROE. From the 270 possible comparisons, 160 (59%) had returned in times of crises lower than in times of non-crisis, out of which only 31% (49 cases) were statistically representative at some degree (1%, 5%, or 10%). The other 110 cases where returns were lower in times of non-crisis, where only 31 were statistically different (28%). In total, only 80 cases (30% of total) presented some differences between crises and non-crisis periods, providing insights into the low impact of crises on industries' ROS. Conversely, when seeing groups of countries, only Developed Countries Group had a statistically significant difference in means, majorly in favour of lower returns in times of non-crisis (in nine of 10 comparisons).

Lastly, industries FCF's analyses between crises and non-crisis periods returned less valuable information. As expected, with regard to returns, results were almost equally

split in two between crises and non-crisis periods but the level of overall significance was disappointing, only 13% of the cases (35 cases out 270 possible). It can be said that there are no major significant differences between crises and non-crisis periods in industries' returns when FCF is the measure of profitability.

Contrasting results to those found in Jiang et al. (2009) would be interesting since the same industries' taxonomy was used in both studies. First, US results found in this study show that, for industries' SMR, the biggest drop in means (mean for non-crisis periods minus mean for crises periods) was seen in Real Estate (-0.23), followed by Information Technology (-0.18). The smoothest decline was observed in Energy and Utilities industries (-0.02). Under ROE's perspective, Utilities had the worst performance (-0.03), followed by Materials (-0.02). All other industries presented positive returns, particularly Real Estate with 0.35 difference in their means. Energy and Consumer Staples presented the worst drop in means for ROS (-0.48 and -0.29 respectively), closely followed by Utilities (-0.22). FCF also presented the biggest drop in absolute mean returns, Real Estate with -0.71. It was followed by Telecommunication Services industry, with -0.20. Hence, results in this research did not copy what was presented by Jiang et al. (2009). Consumer Staples and Healthcare demonstrated no resistance to crises. The first presented lower returns in times of crises for industries' SMR and ROS, while the second for industries' SMR, ROS, and FCF. The biggest drops during crisis periods compared to non-crisis periods were registered in Real Estate (-0.71 for FCF and -0.23 in SMR), Energy (-0.48 in ROS and -0.18 in FCF), and Telecommunication Services (-0.19 in SMR and -0.20 in FCF). The only agreement with the authors was in the Energy industry. In addition, Consumer Discretionary was not the most sensitive to economic decline, but Real Estate. Nevertheless, these comparisons cannot be taken straightforwardly. In order to measure the drops, the authors utilized the last period before the US getting into a recession as a basis for comparison in times of crises (only recessions). Here, it was utilized means between crises and non-crisis periods. This difference for the reference in tranquil periods could have resulted in the difference in findings.

Moving on, when overall results (all data together, irrespectively of country and region) are under perspective, some distinctive conclusions can be built about industry returns. The summary for all industries with all data from all types of the dependent variable is shown in Table 6.6:

Table 6.6 – Summary of industries' returns – Full sample

		Non-Crises					Crises						T-Stats
	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	
Consumer Discretionary													
ROE	82,526	84.74	-40.94	43.80	0.09	1.50	34,735	65.74	-34.56	31.18	0.06	1.47	-2.35 **
FCF	67,583	156.75	-77.61	79.14	-0.12	5.31	25,539	148.64	-73.54	75.10	-0.18	4.70	-1.59
ROS	80,822	255.01	-165.21	89.80	-0.31	3.75	32,920	201.98	-90.08	111.90	-0.24	2.97	3.43 ***
SMR	62,119	5.28	-1.00	4.28	0.07	0.46	28,865	5.23	-1.00	4.23	-0.06	0.46	-38.16 ***
Consumer Staples													
ROE	25,067	75.32	-40.46	34.86	0.14	1.36	12,913	63.18	-37.48	25.71	0.13	1.37	-0.28
FCF	20,041	149.39	-71.76	77.63	-0.03	4.79	9,467	151.76	-77.76	74.00	-0.06	4.89	-0.50
ROS	24,445	217.34	-161.11	56.23	-0.36	4.43	12,384	141.12	-92.05	49.07	-0.21	3.02	3.66 ***
SMR	18,989	5.25	-1.00	4.25	0.06	0.41	10,621	4.80	-1.00	3.80	-0.01	0.41	-13.32 ***
Energy													
ROE	30,402	89.12	-44.82	44.30	-0.00	2.42	9,147	56.23	-25.38	30.86	0.05	1.96	2.37 **
FCF	26,472	130.63	-64.29	66.34	0.20	5.81	7,871	120.24	-60.00	60.24	0.07	4.79	-2.04 **
ROS	25,488	301.96	-175.16	126.80	-2.37	12.27	7,960	287.72	-174.71	113.00	-1.53	10.06	6.22 ***
SMR	22,677	5.13	-1.00	4.13	0.08	0.58	7,682	5.30	-1.00	4.30	-0.02	0.58	-13.03 ***
Healthcare													
ROE	34,634	88.83	-44.23	44.60	-0.09	2.47	13,767	66.50	-40.02	26.49	-0.04	2.33	1.77 *
FCF	30,216	148.52	-78.86	69.67	0.12	4.67	11,657	126.35	-65.97	60.38	0.07	4.09	-1.17
ROS	32,569	289.49	-173.34	116.14	-2.61	10.41	12,544	225.09	-147.30	77.79	-2.13	8.74	4.89 ***
SMR	26,351	5.27	-1.00	4.27	0.07	0.57	11,249	5.27	-1.00	4.27	-0.04	0.53	-17.57 ***
Industrials													
ROE	77,594	87.42	-44.68	42.74	0.11	1.51	39,095	68.76	-34.90	33.86	0.09	1.35	-2.87 ***
FCF	61,548	154.19	-77.07	77.12	-0.17	5.01	28,462	163.61	-81.08	82.53	-0.18	4.86	-0.26
ROS	75,107	265.59	-166.75	98.84	-0.35	4.32	36,967	257.30	-147.89	109.41	-0.22	3.44	5.36 ***
SMR	57,716	5.28	-1.00	4.28	0.08	0.45	31,607	5.05	-1.00	4.05	-0.05	0.42	-45.28 ***
Information Technology													
ROE	59,376	88.02	-45.23	42.79	-0.01	2.33	25,515	83.32	-44.02	39.31	-0.01	1.99	-0.35
FCF	50,650	156.44	-77.18	79.26	-0.09	5.28	20,611	142.50	-68.08	74.43	-0.16	5.01	-1.65
ROS	58,152	313.36	-170.01	143.35	-1.10	6.97	24,378	264.11	-135.87	128.24	-0.68	5.22	9.52 ***
SMR	46,381	5.30	-1.00	4.30	0.06	0.58	22,590	5.26	-1.00	4.26	-0.11	0.51	-38.53 ***
Materials													
ROE	71,817	89.90	-44.84	45.06	-0.07	2.51	21,457	78.74	-39.98	38.76	-0.02	1.85	3.45 ***
FCF	60,912	160.60	-80.53	80.07	0.18	5.52	16,133	143.64	-76.50	67.14	0.05	4.90	-2.90 ***
ROS	49,472	321.29	-175.62	145.67	-3.16	14.33	17,286	259.73	-166.12	93.61	-0.81	7.02	28.13 ***
SMR	52,406	5.23	-1.00	4.23	0.06	0.55	18,983	5.28	-1.00	4.28	-0.04	0.50	-21.81 ***
Real Estate													
ROE	19,364	54.60	-23.21	31.39	0.09	0.86	7,766	38.16	-17.09	21.07	0.04	0.90	-4.16 ***
FCF	14,308	159.66	-80.11	79.55	-0.45	6.25	5,565	146.18	-80.51	65.67	-0.35	5.93	1.02
ROS	18,549	244.93	-149.52	95.41	0.16	3.73	7,351	184.64	-133.60	51.04	-0.08	4.01	-4.36 ***
SMR	13,987	4.39	-1.00	3.39	0.08	0.38	5,639	3.84	-0.99	2.85	-0.10	0.35	-32.66 ***
Telecommunication Services													
ROE	6,379	70.42	-29.90	40.52	0.06	2.49	2,626	55.00	-36.56	18.44	0.05	2.08	-0.18
FCF	5,577	132.80	-66.49	66.32	0.24	5.25	2,258	87.47	-41.22	46.25	0.09	4.30	-1.31
ROS	6,209	244.96	-159.36	85.60	-1.07	6.33	2,513	163.71	-120.85	42.86	-0.54	6.13	3.58 ***
SMR	4,151	5.31	-1.00	4.31	0.05	0.58	1,797	5.13	-1.00	4.13	-0.10	0.56	-9.35 ***
Utilities													
ROE	14,321	63.48	-45.02	18.46	0.11	1.06	6,051	44.37	-17.97	26.41	0.13	1.06	0.91
FCF	11,882	146.03	-75.76	70.28	0.08	4.35	5,011	140.08	-74.06	66.02	0.06	4.72	-0.33
ROS	13,923	301.97	-168.05	133.92	-0.19	5.70	5,833	176.82	-111.35	65.47	-0.14	3.81	0.72
SMR	7,809	4.89	-1.00	3.89	0.07	0.36	3,020	5.00	-1.00	4.00	-0.02	0.39	-9.84 ***

*- significant at 10%, ** - significant at 5%, and *** - significant at 1%*

Source: Author

SMR has all industries with statistically lower returns in times of crises compared to times of non-crisis, so results are robust enough to affirm that times of crises are worst for all industries in terms of SMR. Conversely, ROE has only three industries in the same situation, with statistically significant better returns in time of non-crisis (Consumer Discretionary, Industrials, and Real State), and other three in opposite direction (Energy, Healthcare, and Materials). This ambiguity in returns' comparison between crises and non-crisis periods for ROE may have motivated conclusions presented in Bourgeois III et al. (2014)[97], when affirming that "individual industries do not always perform in line with the overall economy". In turn, ROS has a predominance of non-crisis periods with statistically lower returns in eight industries, with the exception for Real Estate and indifference for Utilities. FCF, although with almost all returns lower in times of crises

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[97] They used ROE, ROS, and ROA (Return on Assets) as measures of profitability.

(exception for Real Estate), had only two statistically different means, found in Energy and Materials. The biggest drop in means (from non-crisis period to crises periods) in SMR was seen in Real Estate (-0.19), followed by Information Technology (-0.15). Real Estate was also the biggest drop in means for ROE (-0.05), but it was followed by Industrials (-0.03) and, again, Real Estate was the only drop in means registered for ROS (-0.24). For ROS, all other industries had bigger returns in times of crises. On the other hand, Real Estate performed better in times of crises when seen through FCF point of view (0.10). Telecommunication Services had the biggest drops (-0.15) for FCF. Empirical evidence based on overall data supports Real Estate as the most sensitive industry to crises. In addition, considering a sign of resilience those industries where returns did not get worse or remained equal in times of crises and concomitantly presented a low standard deviation, it can be said that Utilities would best fit into these parameters. Drops in times of crises happened twice, to industries' FCF and SMR (-0.03 and -0.08, respectively), and improvements occurred also twice, to industries' ROS and ROE (0.05 and 0.01). When putting together, these means represented the lowest average among other industries, only -0.04 (the closest to neutrality), and only two statistically significant differences were also observed (ROE and SMR). These findings of Real Estate and Utilities industries corroborates Békés et al. (2011) when the author concluded that "[u]ncertainty in financial markets also leads to a difference between sectors with more tangible assets, which may be used as collateral, compared to sectors with fewer tangible assets". Moreover, two other industries showed similar results in returns (Industrials and Consumer Staples, with the last showing returns in times of crises higher that in times of non-crisis), also close to neutrality but higher in dispersions. For the other seven industries, no robust signs of resilience were observed. These analyses contrast to the described characteristics attributed by Capital IQ to Consumer Discretionary, where firms in this group tend to be the most sensitive to economic cycles (Material is the most in this thesis), and partially agrees to Consumer Staples, where firms in this group are seen as less sensitive to economic cycles (Utilities is the most in this thesis).

Another interesting point to review is the analyses of ranges, means, and standard deviations. Industries' ranges of returns are 85% higher in times of non-crisis, means are also higher in 65% in times of non-crisis, while standard deviations are 78% higher in times of non-crisis. Empirical results observed for industries agree to what will be found

for firm profitability[98] in range and means, (higher in times of non-crisis), but it disagrees for standard deviation. Nevertheless, it does not mean conflicting conclusions. Firms hold the atomic part of data and industries are condensations of these atomic data, grouped by similar characteristics. Together, these data represent macro aspects related to each individual firm. They are summaries of the properties of firms but measure characteristics of aggregated data themselves. Then, the way data is condensed justify different outcomes and call for different explanations. First, due to larger standard deviations observed in times of non-crisis for industries, it can be said that market competitive forces do not tend to eliminate industries' excess of profits and losses along the time as defended by supporters of Persistence of Profit (POP) theory (i.e. Mueller, 1977). As commented before (Chapter 3), studies about POP should be made in large horizons of time as a way to avoid short term glimpses about long term causality between market structure and profitability. If studies are held with short horizons of time, biased data can be collected and results would be inaccurate due to the presence of unstable years mixed to stable/tranquil years. This concern presented in previous studies was eliminated here as two separate business environments were created, splitting stable and unstable years in different samples. Consequently, based on empirical evidence in data analysed in this section, Resource-Base Theory is confirmed as the most appropriate theory to explain the profitability of industries in tranquil times (against Industrial Organization Theory[99]). Still, these industries' higher dispersions represented by larger ranges in times of non-crisis oppose to what was suggested by Stigler (1963). The author mentioned that "[d]ispersion is relatively greater in years of depression: industries cannot adapt to sudden decreases in demand as well as they can to expansions—in part, perhaps, because fixed capital is easier to increase than to decrease in the short run" (Stigler, 1963). Second, as will be observed for firm profitability, it is confirmed that times of crises produce lower

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[98] In firmy'i analyses, non-crisis periods have higher returns and ranges but they have lower standard deviation.

[99] This theory supports that firms' returns tend to follow industries' returns over the years and it is based on a long-term equilibrium hypothesis that does not count short-term disturbances. These disturbances may occur due to unexpected events which call for movement of resources requiring time to be completed, as it happens in times of crises.

Table 6.7 - Comparison of means by industries - Non-crisis

Means

Developing I

	ROE	ROS	SMR	FCF
Consumer Discretionary	0.10	-0.12	0.12	-0.31
Consumer Staples	0.14	-0.01	0.08	-0.22
Energy	0.15	-0.16	0.16	-0.11
Healthcare	0.14	-0.06	0.13	-0.01
Industrials	0.12	-0.01	0.11	-0.26
Information Technology	0.15	-0.10	0.07	-0.23
Materials	0.11	-0.07	0.11	-0.18
Real Estate	0.13	0.17	0.07	-0.65
Telecommunication Services	0.09	-0.11	0.12	-0.10
Utilities	0.14	0.10	0.09	0.16

Developing II

	ROE	ROS	SMR	FCF
Consumer Discretionary	0.10	-0.28	0.10	-0.26
Consumer Staples	0.11	-0.28	0.10	0.08
Energy	0.07	-0.65	0.10	-0.63
Healthcare	0.09	-0.59	0.10	-0.27
Industrials	0.13	-0.29	0.10	-0.25
Information Technology	0.06	-0.24	0.07	-0.27
Materials	0.11	-0.56	0.09	-0.33
Real Estate	0.08	0.42	0.13	-0.54
Telecommunication Services	0.18	-0.12	0.11	-0.01
Utilities	-0.00	-0.20	0.15	-0.32

Developed

	ROE	ROS	SMR	FCF
Consumer Discretionary	0.08	-0.41	0.05	-0.02
Consumer Staples	0.14	-0.53	0.05	0.05
Energy	-0.04	-2.98	0.06	0.29
Healthcare	-0.15	-3.30	0.05	0.16
Industrials	0.11	-0.48	0.07	-0.13
Information Technology	-0.04	-1.34	0.06	-0.05
Materials	-0.15	-5.25	0.03	0.34
Real Estate	0.07	0.08	0.07	-0.26
Telecommunication Services	0.04	-1.38	0.03	0.34
Utilities	0.10	-0.36	0.05	0.06

T-Test

Developing I vs. Developing II

	ROE	ROS	SMR	FCF
Consumer Discretionary	-0.08	3.38	1.84	-0.53
Consumer Staples	1.06	1.95	-0.98	-1.30
Energy	1.68	2.84	1.67	1.67
Healthcare	0.95	2.70	0.90	1.39
Industrials	-0.29	5.39	0.87	-0.03
Information Technology	3.24	2.70	-0.43	0.27
Materials	-0.01	3.81	1.19	0.83
Real Estate	2.98	-2.37	-4.57	-0.71
Telecommunication Services	-0.86	0.14	0.30	-0.23
Utilities	3.22	1.79	-1.54	1.88

Developing I vs. Developed

	ROE	ROS	SMR	FCF
Consumer Discretionary	2.19	11.86	13.69	-5.67
Consumer Staples	0.36	11.02	4.36	-3.10
Energy	9.65	27.34	8.77	-3.58
Healthcare	14.77	42.72	8.58	-1.89
Industrials	1.58	17.99	6.12	-2.33
Information Technology	12.28	29.72	1.36	-2.24
Materials	18.12	48.28	14.37	-9.65
Real Estate	4.80	1.61	-0.29	-3.09
Telecommunication Services	1.07	11.05	3.91	-2.39
Utilities	2.58	5.64	4.34	0.99

Developing II vs. Developed

	ROE	ROS	SMR	FCF
Consumer Discretionary	1.18	2.57	5.29	-2.88
Consumer Staples	-0.87	1.73	2.73	0.16
Energy	2.22	11.74	1.37	-3.15
Healthcare	3.81	12.94	1.74	-2.59
Industrials	1.02	3.51	2.10	-1.25
Information Technology	3.32	18.13	1.27	-1.77
Materials	6.71	28.14	2.48	-3.83
Real Estate	0.86	3.13	5.03	-1.91
Telecommunication Services	1.29	8.74	1.74	-0.95
Utilities	-2.22	0.85	2.76	-1.58

Blue mark- significant at 10%, 5%, or at 1%

Source: Author

Table 6.8 - Comparison of means by industry- Crises

	Crises							
	Means				*T-Test*			
	Developing I				**Developing I vs. Developing II**			
	ROE	ROS	SMR	FCF	ROE	ROS	SMR	FCF
Consumer Discretionary	0.06	-0.07	0.04	-0.43	-1.48	2.64	13.84	-1.81
Consumer Staples	0.09	0.02	0.06	-0.13	-0.34	1.93	4.55	0.20
Energy	0.11	-0.21	-0.00	-0.46	-0.26	1.87	4.33	-1.03
Healthcare	0.18	-0.20	0.06	-0.13	0.70	1.60	6.14	0.16
Industrials	0.11	-0.10	0.03	-0.24	0.15	-1.10	11.66	-0.52
Information Technology	0.06	-0.20	-0.04	-0.37	0.01	0.99	5.25	0.15
Materials	0.06	-0.11	0.04	-0.25	1.26	1.60	7.64	1.69
Real Estate	0.13	0.18	-0.02	-0.58	4.46	1.00	8.18	-0.95
Telecommunication Services	0.12	-0.01	0.01	-0.11	-0.27	0.96	3.24	-0.62
Utilities	0.14	0.08	0.01	-0.03	1.78	1.70	4.03	-0.63

	Developing II				**Developing I vs. Developed**			
	ROE	ROS	SMR	FCF	ROE	ROS	SMR	FCF
Consumer Discretionary	0.11	-0.25	-0.15	-0.14	0.20	7.09	13.24	-3.11
Consumer Staples	0.11	-0.19	-0.05	-0.18	-2.63	6.19	7.81	-0.75
Energy	0.13	-0.60	-0.15	-0.08	1.84	9.13	0.67	-2.58
Healthcare	0.11	-0.60	-0.17	-0.19	6.57	18.92	5.12	-0.98
Industrials	0.11	-0.05	-0.12	-0.17	2.45	4.01	10.23	-0.81
Information Technology	0.06	-0.28	-0.16	-0.42	2.33	7.79	3.84	-0.94
Materials	-0.00	-0.42	-0.13	-0.73	5.65	12.28	11.33	-4.34
Real Estate	0.04	0.06	-0.16	-0.34	6.03	4.21	7.10	-1.67
Telecommunication Services	0.18	-0.51	-0.18	0.12	1.69	3.98	4.41	-1.34
Utilities	0.02	-0.12	-0.17	0.38	0.88	4.06	1.11	-0.64

	Developed				**Developing II vs. Developed**			
	ROE	ROS	SMR	FCF	ROE	ROS	SMR	FCF
Consumer Discretionary	0.06	-0.28	-0.07	-0.12	1.63	0.48	-6.88	-0.12
Consumer Staples	0.15	-0.30	-0.03	-0.03	-1.01	1.10	-0.86	-0.65
Energy	0.04	-1.79	-0.02	0.14	1.82	5.35	-4.81	-0.72
Healthcare	-0.07	-2.38	-0.05	0.09	1.84	7.10	-3.85	-0.84
Industrials	0.08	-0.26	-0.06	-0.16	1.44	5.11	-5.86	-0.05
Information Technology	-0.02	-0.74	-0.11	-0.13	2.23	6.54	-3.41	-1.59
Materials	-0.05	-1.15	-0.06	0.19	0.83	3.54	-3.32	-3.45
Real Estate	-0.01	-0.28	-0.11	-0.22	1.95	3.13	-3.55	-0.61
Telecommunication Services	0.01	-0.78	-0.12	0.17	0.67	0.49	-1.07	-0.13
Utilities	0.12	-0.26	-0.01	0.09	-1.44	1.07	-3.79	0.47

Blue mark- significant at 10%, 5%, or at 1%

Source: Author

returns for industries when compared to times of non-crisis. From the 65% comparative cases where industries' returns were lower (26 cases) in times of crises, 62% presented statistically significant difference at 1%, 5%, or 10% level (two tails). The remaining 14 cases where non-crisis promoted lower returns were mostly concentrated into comparisons in industries' ROS (nine cases), followed by four cases in industries' ROE. In a different angle, the following analysis is related to comparisons of industries' means among groups of countries. Tables 6.7 (non-crisis) and 6.8 (crises) above provide a summary of findings.

These tables show industries' means on the left and differences (marked in blue when significant) in means between groups on the right. When looking at differences in industries' means in non-crisis period (Table 6.7), in 90% of the cases, industries' ROS are statistically different between groups of countries at some degree. So, it is not possible to evidence similarities among industries between these groups when in tranquil times and having industries' ROS as the measure of return. Industries' SMR deserves a closer look. There are only a few industries with statistically different means between Developing Countries Group I and Developing Countries Group II (Consumer Discretionary, Energy, and Real Estate). The contrary, comparisons between Developing Countries Group I and II and Developed Countries Group show statistical differences in almost all types of industries (80%). Similar results were found to industries' FCF. Overall, it is possible to argue that most statistically significant differences are held between developing and developed countries groups. These conclusions support a study performed by Furman (2000) regarding geographic influences on firm profitability.

With regard to crises periods in Table 6.8, Békés et al. (2011) concluded by saying that some industries suffer more during some crises than others and countries where these industries are prominent feel the consequences in the same direction. Still, when analysing a sample of OECD's countries, the authors observed the greatest decline in machinery and transport equipment, mineral fuels and related products, and chemicals and related products industries. Comparatively to Developed Countries Group in this thesis, their results found partial echo. When looking at all profitability variables together (average), it possible to see the worst impact of crises on Healthcare, followed by Energy, and Materials. The one that benefits the most was Utilities. Also, differently from times of non-crisis, Developing Countries Group II found Utilities industry as the one that benefits the most and Materials as the one that suffers the most. On the other hand, for Developing Countries Group I, Utilities continued to benefit the most in times of crises as it did in times of non-crisis. However, Information Technology suffered the most in times of crises for this group (Real Estate was in the non-crisis group). Between groups of countries, T-tests performed for crises periods returned different outcomes as they did in times of non-crisis. The most evident change was registered in industries' SMR. Market turbulence originated from crises makes differences between Developing Countries Group I and Developing Countries Group II become statistically significant for all types of industries, suggesting less interaction between stock markets in times of crises. On the

other hand, the same turbulence in the business environment produced a notable decrease in differences between all groups of countries in industries' FCF. Hence, changes in stock market behaviour in times of crises and greater differences between developing and developed countries are remarkable conclusions in this exercise.

Lastly, types of crises are put into perspective on industry returns.

Table 6.9 - Summary of returns – Industries' SMR

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
Stock Market Return (SMR)													
Consumer Discretionary													
Return	0.07	0.14	0.16	-0.26	0.58	0.01	-0.30	-0.01	0.02	-0.11	-0.02	-0.23	
Observ.	5,926	3,400	43	75	128	172	840	56	672	38	52	856	0
Consumer Staples													
Return	0.06	0.12	0.26	-0.23	0.33	-0.00	-0.23	0.04	0.05	0.01	-0.07	-0.16	
Observ.	1,968	1,201	48	28	73	137	264	20	449	29	14	324	0
Energy													
Return	0.11	0.27	0.26	-0.16	0.11	-0.08	-0.41	0.29	-0.01	0.02	-0.04	-0.13	-0.08
Observ.	1,498	1,448	48	4	30	38	439	14	91	18	5	41	2
Healthcare													
Return	0.03	0.24	0.28	-0.16	0.13	0.12	-0.22	0.27	-0.02	0.03		-0.20	
Observ.	3,132	1,601	10	3	19	35	844	5	60	8	0	97	0
Industrials													
Return	0.06	0.13	0.26	-0.28	0.52	-0.01	-0.30	0.07	0.04	0.01	0.11	-0.26	
Observ.	6,407	2,919	47	43	88	108	797	51	582	24	39	1,113	0
Information Technology													
Return	0.07	0.17	0.14	-0.28	0.12	-0.19	-0.25	0.08	-0.04	-0.16	0.43	-0.25	
Observ.	5,368	2,547	15	12	8	10	1,115	21	100	4	4	357	0
Materials													
Return	0.13	0.17	0.38	-0.16	0.36	-0.08	-0.33	0.15	0.00	0.12	0.13	-0.20	
Observ.	2,563	3,910	59	54	133	151	332	75	636	37	62	487	0
Real Estate													
Return	-0.02	-0.01	0.47	-0.30	0.46	-0.20	-0.10	-0.03	-0.01	0.18	0.10	-0.31	
Observ.	647	513	21	15	32	93	1	14	229	23	2	72	0
Telecommunication Services													
Return	0.04	0.15	0.25	0.02	0.02	0.11	-0.33	-0.25	-0.02	-0.16	-0.20	0.02	-0.49
Observ.	310	307	22	1	10	8	75	4	54	4	5	10	2
Utilities													
Return	0.05	0.10	-0.02	-0.04	-0.22	0.13	-0.14	0.28	-0.00	0.62	-0.19	-0.02	
Observ.	581	326	46	5	42	1	128	12	149	3	5	31	0

Source: Author

Again, the aim is to recognize those types of single and combined crises that harm most industry returns. Above, a summary to industries' SMR is presented in order to make it easy further comparisons to other profitability's returns. Types of crises are headed in columns, while lines are composed by types of industries, subdivided in observed mean returns and sample size. A first analysis should be done horizontally, in an attempt to identify the worst combination of crises per type of industry, where no clear distinction

that the more crises together, the worst would be the returns. Then, using weighted averages, a vertical analysis shows regime S13 as the one that harms the most a considerable number of industries under industries' SMR, closely followed by S7. Industry results for ROE are demonstrated in Table 6.10:

Table 6.10 - Summary of returns – Industries' ROE

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
Return on Equity (ROE)													
Consumer Discretionary													
Return	0.10	0.12	0.17	0.05	0.04	0.16	0.02	0.28	0.08	-0.06	0.11	0.03	
Observ.	6,999	3,784	85	14,309	89	219	7,802	4	642	62	14	677	0
Consumer Staples													
Return	0.23	0.06	0.10	0.13	0.02	0.29	0.12	0.11	0.10	-0.05	0.14	-0.03	
Observ.	2,306	1,343	66	5,400	69	162	2,568	9	467	42	4	274	0
Energy													
Return	0.15	0.03	0.19	0.02	0.01	0.29	0.03	0.20	0.08	0.04	0.09	0.10	0.03
Observ.	1,953	1,022	69	3,573	56	56	1,962	13	112	21	1	33	2
Healthcare													
Return	-0.01	-0.07	0.34	-0.05	-0.06	0.33	-0.07		0.14	0.38		0.12	
Observ.	3,685	1,908	12	4,338	16	55	3,371	0	79	13	0	90	0
Industrials													
Return	0.11	0.09	0.18	0.08	0.02	0.11	0.08	0.16	0.15	0.07	0.11	0.02	
Observ.	7,503	3,293	70	17,120	136	152	8,763	6	698	44	8	909	0
Information Technology													
Return	0.09	-0.04	0.08	-0.07	0.03	0.03	-0.02	0.33	0.15	0.08		0.09	
Observ.	6,032	2,702	7	10,057	12	18	6,024	2	110	6	0	357	0
Materials													
Return	0.04	0.03	0.08	-0.08	-0.02	0.11	0.01	0.07	0.02	-0.08	0.11	0.04	
Observ.	3,032	3,022	105	9,627	127	197	3,522	29	589	53	13	382	0
Real Estate													
Return	0.10	0.04	0.08	0.05	-0.17	0.28	-0.02	0.06	0.10	-0.01		0.09	
Observ.	801	669	30	4,416	27	106	1,185	5	258	29	0	63	0
Telecommunication Services													
Return	0.10	-0.11	0.12	0.02	0.14	0.40	0.11	0.02	0.15	0.35	0.05	0.15	0.24
Observ.	438	365	49	1,048	12	19	508	10	99	7	3	13	2
Utilities													
Return	0.07	0.05	0.06	0.17	0.16	0.21	0.12	-0.05	0.17	0.07	-0.01	0.07	
Observ.	1,244	572	57	2,436	80	6	1,319	10	226	3	7	50	0

Source: Author

Here, S15 is the regime that dominates top harmful types of crises for six industries and its weighted average mean is the only one negative. Again, there is no evidence of crises' clustering implying more damages to profitability.

For industries' ROS, results were slightly different from what was seen for industries' SMR and ROE. As shown below, single crises appear more often with a negative sign, in 83% of the cases as top harmful types of crises.

Table 6.11 - Summary of returns – Industries' ROS

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
Return on Sales (ROS)													
Consumer Discretionary													
Return	-0.26	-0.47	0.16	-0.19	0.10	-0.04	-0.27	0.05	0.00	-0.04	-0.07	-0.00	
Observ.	6,605	3,700	85	13,793	88	220	6,980	5	627	62	15	684	0
Consumer Staples													
Return	-0.46	-0.55	0.01	-0.09	-0.01	0.01	-0.22	0.03	0.09	0.26	0.06	-0.01	
Observ.	2,164	1,321	66	5,304	68	162	2,290	9	469	43	4	281	0
Energy													
Return	-1.26	-3.23	0.15	-1.37	-0.06	0.05	-1.61	0.15	-0.87	-0.02	0.08	0.01	0.06
Observ.	1,764	950	68	2,899	57	54	1,734	13	102	20	1	33	3
Healthcare													
Return	-2.35	-3.15	0.08	-1.70	-0.05	0.07	-2.21		0.11	0.05		0.04	
Observ.	3,278	1,773	12	4,078	16	55	2,952	0	78	13	0	92	0
Industrials													
Return	-0.27	-0.63	-0.11	-0.14	0.03	-0.16	-0.25	0.05	0.14	0.04	0.06	0.02	
Observ.	6,924	3,206	68	16,571	136	153	7,843	6	693	44	8	920	0
Information Technology													
Return	-0.60	-1.39	0.06	-0.68	-0.07	-0.31	-0.54	0.03	0.23	0.05		0.02	
Observ.	5,725	2,611	7	9,724	11	18	5,617	2	112	6	0	364	0
Materials													
Return	-0.52	-2.20	-0.10	-0.65	0.18	-0.16	-0.62	0.27	-0.27	-0.05	0.17	0.02	
Observ.	2,666	2,851	107	6,662	126	198	2,943	28	560	54	13	389	0
Real Estate													
Return	-0.06	-0.02	0.33	-0.02	0.00	-0.54	-0.51	0.29	0.60	0.35		0.37	
Observ.	744	655	29	4,253	27	108	1,020	5	240	29	0	63	0
Telecommunication Services													
Return	-0.36	-1.17	0.07	-0.62	0.10	-0.35	-0.45	0.02	0.36	0.06	0.14	0.18	0.17
Observ.	414	357	49	1,006	13	19	454	10	100	8	4	26	2
Utilities													
Return	-0.33	-0.14	-0.10	-0.00	-0.35	0.06	-0.28	-0.02	0.16	0.23	0.04	0.03	0.94
Observ.	1,196	567	57	2,360	80	6	1,230	10	224	4	7	50	2

Source: Author

S15 also deserves to be noticed. Stronger than in ROE, it negatively hits all industries, as also does S1, S2, S4, and S7. However, currency crises are the worst type of crises for industries' ROS. Out of ten types of industries, eight have S2 as the most harmful.

Industries' FCF (not disclosed) shows S15 dominance in four top harmful types of crises for Consumer Staples, Industrials, Materials, and Telecommunication Services. It is followed by S12 with two (Consumer Discretionary and Healthcare).

Based on industry's data, when analysed all four dependent variables together, it can be concluded that:

- Consumer Discretionary shows no regime with predominance in terms of appearing more often as the most harmful to profitability. Individually, it is shown

the lower importance of debt crises to this industry (after decomposing combines crises into single crises and computing their appearances cumulatively);

- Consumer Staples provides no predominance of one regime but have recessions appearing combined in top most harmful type of crisis for all industry returns, Recessions are presented in S4 (top in SMR), S10 (top in ROE), and S15 (top in FCF);

- Energy is identical to the other two previous industries, with no predominance of regimes and recessions prejudicing the most this industry;

- Healthcare is identical to Consumer Discretionary;

- Industrials is similar to Healthcare and to Consumer Discretionary, with the same lower importance to debt crises;

- Information Technology also show no predominance of regimes but currency crises appear in the top four most harmful crisis for all industry returns;

- Materials had no predominance of regimes but currency crises appear as the most harmful crises for all industry returns;

- Real Estate is dominated by S15 regime. Banking crises and debt crises appear in the top four most harmful crises for all industry returns;

- Telecommunication Services is harmed the most by S2 regime and, naturally, currency crises are in the top four most harmful crisis for all industry returns; and

- Utilities shows twin crises as the worst combination of crises, having currency crises and banking crises as the worst type of single crises to this industry.

To conclude, S15 regime (all crises together) is the worst business environment for most industries under analysis. It is presented as the most harmful type of crises in 12 out of 40 possible cases (ten industries times four types of industries' returns utilized), corresponding to 30% of all possibilities. It is followed by S2 and S7, with nine and five occurrences, respectively. So, industry returns were worse when all types of crises are held in the business environment, followed by single crises, double crises, and triple crises. Crises' effects do not behave as expected in terms of their prejudice to industry returns. In other words, more crises together do not mean more damage. The contrary to what will be seen in firm profitability, currency crises can be highlighted as the most harmful single crises to industry returns, instead of recessions. However, lower significance of debt crises was corroborated in industry level.

Finally, it was interesting to notice that not all industries are affected in the same way when exposed to the same constraints in a macro/country level. Some industries perform better than others simply because demands for their products are more regular in nature, providing them with a shield against severe economic cycles or financial crises. This conclusion support Durbin and Ng (2005) study where the authors investigated sovereign ceiling and corporate bonds spreads relationship. The most interesting part is the development of an industry country risk coefficient as the result of a regression analysis. The conclusion was:

"While the large standard errors preclude us from drawing sharp conclusions about country risk for different industries, this result suggests that for international capital budgeting purposes, incorporating the same sovereign risk premiums to all different industries is likely to overstate the risk for some and understate it for others."

Exploring more, Sagi and Harikumar (2014) pointed out that there are three major sensible factors that could affect an industry profitability; 1) sensitivity of sales, referring to those sales where people's income is not a crucial determinant of demand, 2) operating leverage, referring to the division between fixed and variable costs, where fixed costs provide less flexibility to crisis, and 3) financial leverage, having similar effects as fixed costs presented before. As we will see, these industry' factors are in line with firms' most important factors.

6.3.2 – Regression analysis

The core of industry analyses is presented in APPENDIX G, where it is shown the results of all industry regressions. Regression analyses for industry reveal the overall low influence of chosen and available independent variables to explain some firm profitability's dependent variables. Out of 132 coefficients available for the four dependent variables in 11 regressions (per regime), only 31 are found significant (23%), where 7 were found significant only at the 10% level. This low individual performance is validated by their average low R^2, as demonstrated in Table 6.12:

Table 6.12 – Summary of R² - Industry

Dping I	Phase II			
	ROE	ROS	SMR	FCF
S2	0.052	0.081	0.142	0.020

S4	0.007	0.017	0.172	0.006
S7	0.018	0.002	0.386	0.014
S9	0.022	0.009	0.105	0.002
S16	**0.004**	**0.004**	**0.086**	**0.001**
Dping II				
S4	0.011	0.003	0.381	0.005
S16	**0.007**	**0.004**	**0.205**	**0.004**
Dped				
S1	0.001	0.011	0.101	0.003
S4	0.005	0.004	0.191	0.004
S7	0.002	0.009	0.160	0.001
S16	**0.001**	**0.006**	**0.012**	**0.000**

Average				
Crisis	0.015	0.017	0.205	0.007
Non-crisis	0.004	0.005	0.097	0.002

Source: Author

There can be seen a few exceptions. In a top-down order, S7 for SMR (Developing Countries I) presents 0.386 in R². This coefficient of determination is explained by the occurrence of coefficients' significance in export orientation and concentration variables as well as the strong influence of constant term (z value of 6.35) and control variable inflation (z value of -6.37). Then, the 0.381 observed for S4 in SMR for Developing Countries Group II have the same explanations regarding the significance of some variables. Coefficients for export oriented and product characteristics (this one now appears significant), together with the constant term and four other control variables (inflation, GDP growth, current account, and fiscal deficit/surplus) influenced this high R². It is possible to realize that industry variables are mostly representative of market return measure of profitability. The average R² registered for SMR is 0.205 in times of crises and 0.097 in times of non-crisis. The other dependent variables do not show averages higher than 0.02 in any case.

Another noteworthy outcome from regressions is the importance of industry variables to developed countries. A total of 16 coefficients are found significant (51.6% of total) in this group of countries, having only one with significance at the 10% level. Individually, first it can be realized that durable/non-consumable products[100] negatively affect profitability in developing counties mainly in times of crises and especially during single currency crises. Second, coefficients' results for developed countries, although more

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[100] Product Characteristics dummy variable receives 1 if durable/non-consumable and 0 otherwise.

present, are less self-explanatory as soon as mixing results were observed for all variables in use. Third, results for ROS go against what is expected since exportable industries are those industries that are harmed the most in times of crises and in times of non-crisis. Lastly, SMR behaves more in line with what is expected when export-oriented industries have positive impacts on profitability, not mattering if in times of crises or not. It also shows some positive impacts of concentration for profitability and that durable/non-consumable products negative impacts profitability in times of crises.

6.3.3 – Interpretation of regressions' results

This section is dedicated to an overview of industry regressions' results and it aims to consolidate findings presented in previous sections. Industry's empirical model (Model 1) used three industry independent variables that are going to be discussed in detail in the following paragraphs.

First, Export Orientation (Ex_{jt}) was found non-significant in Ravenscraft (1983), Dell'Ariccia et al. (2008), and Clarke et al. (2012), positive and significant in Blalock et al. (2007), Paunov (2012), Forbes (2002), and Forbes (2004). It is negative and significant in Varum and Rocha (2011) and Békés et al. (2011). This variable is deeply connected to benefits that would come with better terms of trade originated from changes in the exchange rate or labour and overhead costs. By increasing their external competitiveness, exporting firms are, then, able to increase their profit margins which, in turn, will directly affect their profitability. On the other hand, credit constraints can limit their support to external trade. As seen, this industry variable is heavily ambiguous in its effects on profitability in literature. In this thesis, results are not different. Regression results suggest the relative importance of export orientation to developed countries. However, signs are contradicting between dependent variables. It is not significant for ROE, but it is negative and significant for ROS in times of crises and in times of non-crisis, and it is positive and significant for SMR in times of crises and in times of non-crisis. More in line of what is expected, developed countries' financial market see exports as a worthwhile action to stock prices. On the other hand, an industry that exports more harms more ROS. In the end, it is interesting to notice that not even to those types of crises where currency crises are present this variable shows strong significance. So, the influence of export orientation on profitability did not respond to what is naturally expected. It seems that their cost

advantage provided by the depreciation of the local currency, while keeping local currency prices constant, does not help to profitability in a clear way. In addition, if a firm is heavily dependent on imports to its production process, then would be a reversion of benefits caused by local currency depreciation.

Concentration (C_{jt}) is a variable derived from firms' market share and empirical evidence suggests its low importance to profitability. Regression results, when significant, produced mix information with regard to coefficients' signs and with regard to crises and non-crisis periods. In some sense, it can be argued that concentration is a variable more important to financial markets due to centralization in coefficients' significance in this dependent variable. Literature relating concentration to profitability (as an important variable) is dated, at least, from the middle of the last century. One of the first relevant studies in Industrial Organization Theory (IO) was made by Bain (1951) and the author emphasized the importance of industry concentration for firm profitability, demonstrating a correlation coefficient of 0.28 between the two. Results in this thesis do not corroborate with Bain's findings. The correlation coefficient between concentration and ROE in all groups ranges from -0.081 to 0.079, in ROS, ranges from -0.063 to 0.089, in SMR ranges from -0.268 to 0.15, and in FCF from -0.033 to 0.094. So, as can be seen, correlation coefficients are not only lower than results found in Bain, but also negatively correlated to profitability in lots of time. Furthermore, with a mix of dependent variables in regressions, concentration was also positive and significant for Shepherd (1972), Weiss (1979), Scott and Pascoe (1986), Mc Donald (1999) and Bruni et al. (2014). On the other hand, it was found not significant in Ravenscraft (1983), negatively related to profitability in Muller (1986), and an unreliable predictor for profitability in Bourgeois (2014). Finally, concentration as a variable of interest in industry model is not important, with mixing results regarding its sign, what is, in the end, in line with previously mentioned literature.

Durable products are found negative and significant in Kolasa et al. (2010) and non-significant in Forbes (2002). Durable products have a long useful life and bear higher consumer prices than non-durable products. As such, durables products in times of crises tend to suffer more its effects once consumers adopt a strategy to wait and see how it will be the development of the crisis, postponing purchase decisions, until the horizon becomes clearer. Demand for durable products is affected by expectations about their

future prices. In this thesis, the variable used to represent these characteristics is product characteristics (DPc_{jt}). Regression results evidence that product characteristics are mostly negative and significant in times of crises. It means that industries based on durable/non-consumable products negatively impact firm profitability in times of crises, what is expected. Interesting to notice that this observation is not fully applicable to developed countries, where some positive relationships were observed in times of crises for ROS. In this case, it is arguable that there are market and/or economic forces, not represented in this study, driving durable product's industries to certain stability or even improvement in times of crises along with the business environments in developed countries. This is a subject to further investigation. So, results for product characteristics corroborate to findings in Kolasa et al. (2010) and economic expectations.

6.4 – Conclusions

This second empirical chapter presented a descriptive analysis of dependent variables, commonly seen in research. As expected, dependent variables' data held assumptions of the worst scenarios for firm profitability in times of crises. During crises, the business environment is riskier, pushing firms to assume fewer risks due to less predictability of the near future. How severe and for how long a crisis will remain? These are the questions surrounded by lots of uncertainty. In turn, industries' ambiguity in returns confirms the theory that industries do not respond in accordance with the overall state of the economy. Industries' diversity among countries was also observed, together with a co-movement to lower/negative means when crises are influencing business environments. Persistence of Profit (POP) theory was also supported by empirical data in industry analysis as the most appropriate to explain firm profitability. Still, in times of crises, stock markets tend to react differently, depending on where they are located.

Furthermore, one of the objectives of this thesis is the identification of industry variables that would help investors to predict the adverse impacts in their investment in the case of a specific country crisis. Investor's "wake-up call effect" through the lens of industry parameters would be possible if independent variables' coefficients held significant and consistent over periods of single crises, non-crisis, and combined crises. Regrettably, with the chosen variables describe before, this objective is not possible to be achieved as it will be in next section.

CHAPTER 7

Empirical chapter – Firm profitability and regimes

7.1 – Introduction

The understanding of the influence of firm-level variables on firm profitability is the core of this thesis. In order to do it, Resource-Based View (RBV) is the line of study to model firm profitability derived from Resource Base (RB) theories. This theory suggests that differences in profitability's level between firms within the same industry are related to the internal factors (resources) of each firm. Rumelt (1991) is the seminal paper that adopted this perspective. Nevertheless, RBV and SCP are not completely different from each other. They share some common approaches such as the heterogeneity in the distribution of resources and capabilities among firms and the search to identify the reasons why some firms consistently outperform others. In addition, the applicability of these models in recession times provoked discussions that lead to a deeper, wider and more generic contemporaneous analysis of firm profitability in times of country crises. This chapter uses dynamic panel regressions to better describe the relationship between firm profitability and the business environment in times of crises and in times of non-crisis. Again, random effects models will be the base model to run the regressions and Hausman test will not guide which model to be used.

7.2 – Sample and data description

Firms' samples and data descriptions will be performed per groups of countries as a way to make easier the interpretation of results from later empirical tests.

7.2.1 – Developing Countries I

This group consists of nine countries: Brazil, Chile, China, India, Indonesia, Mexico, Russia, South Africa, and Turkey. In Phase I, 11 types of crises were identified with the absence of four: S8[101], S11, S13, and S14. This representativeness in types of crises was only possible due to the disturbed environment found in early the 1990s in Brazil and Mexico and due to the Asian Crisis in 1998 observed in Indonesia and its contagion to

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[101] This crisis was excluded due to low number of observations left after two cleaning process.

Russia. Turkey also presented a constant currency crisis' environment all over the 1990s and part of the 2000s. This "rich" and diverse environment as far as crises are concerned allows the study of the most severe one, S15, where all types of crises happen together. Russia and Indonesia in 1998 provide enough observations to perform this regression analysis and its results would be very important for this research. In Phase II, no debt crises were observed (and they did not in all other groups of countries in all phases), implying in a natural reduction of four types of crises (S3, S6, S10, and S15) and only one banking crisis occurred (Russia 2008-09), leading to four types of crises under analysis. As shown in Chapter 5, some miss-classification of regimes may occur due to unreconciled disagreements in crisis' identification (years and types of crises) between this thesis and studies performed by other authors. Thus, as was pointed out, it would be necessary to report these disputed classifications. This is the chapter for it. In addition to unreconciled disagreement, in order to be reported, it is necessary to identify the relevance (in percent) of the disagreement in terms of the number of observations it brings to the disputed classification. For this group of countries, relevant disagreements were observed in pure currency crises (S2) in Phase I (some authors missed a crisis identification mainly in India in 1998), pure debt crises (S3) in Phase I (authors missed a crisis identification in Indonesia in 2004), and S9 (currency crises and recessions) in Phase I (authors missed currency crises in Chile in 1998, 1999, 2001, and 2002). Disagreements' results on regressions are reported in section 7.3.2.1.

The first step, related to data cleaning procedures of independent variables, is performed and results are presented below, in Table 7.1. Following Jondeau et al. (2007), outliers are under acceptable levels of approximately 5% mainly for those types of crises with a large number of observations. In general, those regimes that presented outliers' levels well above 5% are samples with less than 300 observations.

After the first data cleaning, Table 7.2 below provides firm years' observations (sample sizes) per type of dependent variable (cleaned, as second procedure), per regime, and their phases. These are samples' sizes that later will be utilized to run regressions.

Table 7.1 – Independent Variables Sample Outliers – Developing Countries I

	Observ.	Phase I Outliers	%	Phase II Observ.	Outliers	%
S1	770	50	6.49%			
S2	2,135	89	4.17%	380	35	9.21%
S3	381	12	3.15%			
S4	1,436	63	4.39%	2,047	80	3.91%
S5	192	18	9.38%			
S6	845	38	4.50%			
S7	160	11	6.88%	248	11	4.44%
S8	24	3	12.50%			
S9	533	20	3.75%	959	60	6.26%
S10	237	7	2.95%			
S12	88	6	6.82%			
S15	191	16	8.38%			
S16	18,718	228	1.22%	13,564	450	3.32%
Total	25,710	561	2.18%	17,198	636	3.70%

Source: Author

Table 7.2 – Sample Sizes – Developing Countries I

SMR	Phase I	Phase II		ROE	Phase I	Phase II
S1	404			S1	688	
S2	716	300		S2	1,505	332
S3	165			S3	321	
S4	515	1,267		S4	721	1,885
S5	134			S5	123	
S6	515			S6	725	
S7	101	27		S7	137	223
S8				S8		
S9	385	603		S9	454	857
S10	130			S10	204	
S12	50			S12	63	
S15	119			S15	142	
S16	7,353	7,761		S16	10,045	12,410

ROS	Phase I	Phase II		FCF	Phase I	Phase II
S1	675			S1	113	
S2	1,524	334		S2	1,128	337
S3	325			S3	266	
S4	719	1.887		S4	632	1,702
S5	123			S5	77	
S6	719			S6	621	
S7	140	230		S7	109	197
S8				S8		
S9	467	868		S9	316	787
S10	207			S10	190	
S12	70			S12	27	
S15	146			S15	90	
S16	10,043	12,452		S16	11,515	11,089

Source: Author

It can be seen that ROE and ROS are the most representative groups in terms of observations. It is very rare to have no observation for ROE/ROS in a firm but it occurs for SMR or FCF, and this accounts for differences in sample sizes.

7.2.1.1 – Descriptive analysis

After the data cleaning process, the descriptive analysis of independent variables is performed and results represent the general characteristics of the entire sample. APPENDIX H shows the descriptive analysis of the main independent variables per country (split into crises and non-crisis periods), while APPENDIX I shows their descriptive analysis per regime (split into phases). First, APPENDIX H, Table H.1, shows that liquidity is much higher in times of non-crisis in almost all countries (except in China). However, differences in means are statistically significant only in three out of nine comparisons. Still, differences in the impact of liquidity on profitability are expected, mainly between crises and non-crisis periods. Results in APPENDIX I, Table I.1, provide an indication that it does happen, especially in Phase I but also in Phase II, where range, median, and mean are bigger in non-crisis period (S16) compared to all other crises periods (weighted average). With regard to leverage[102], similar results were observed. APPENDIX H, Table H.2, confirms the low statistical difference in means between crises and non-crisis periods. Leverage is higher in five countries in times of crises and in four in times of non-crisis. Still, leverage is expected to show no difference in relevance to profitability between crises and non-crisis periods. On the other hand, a difference in its intensity is expected. Descriptive statistics in APPENDIX H, Table H.2, provide a proper indication of what I expect for the variable leverage in the regressions. In times of crises, extreme values are more common because negative equity appears more often or, when equity is positive, the level of third-party capital tends to increase and to remain high. Comparing Phase I and Phase II (APPENDIX I, Table I.2), it is possible to see an increase in range in Phase II, especially for recession periods (S4) but also for non-crisis periods (S16). On the other hand, the mean and median behave similarly in both phases. Gross margin behaves as does liquidity. It is expected differences in differences in the impact of gross margins on profitability between crises and non-crisis periods when running

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[102] Here it is important to stress the possibility of having negative numbers in the sample for leverage. All of these reported negative numbers are related to negative equity values seen on firms. Negative leverage is seen as an extremely negative relationship between the third party and own capital, which would severely damage firm profitability.

regressions. However, descriptive analysis results are not fully compatible, as shown in APPENDIX H, Table H.3. Gross margins are mildly different between crises and non-crisis periods when looking at individual countries. In fact, with the exception of India, margins are different in just a few percentages. Similar results are seen in APPENDIX I, Table I.3, where crises and non-crisis periods present similar means, medians, and standard deviations in both phases, notwithstanding that range in times of non-crisis are much wider than in times of crises. The last independent variable, external dependence[103], is expected to observe differences in value relevance mainly in times of crises. Intriguing results are seen since APPENDIX H, Table H.4 reveals fewer firms' external dependency on financial support in times of non-crisis, possibly due to stronger and more stable cash flow generation. This is not fully observable when in times of crises, especially in the case for China and India, where, on average, the external dependency is more expected. Moreover, for the first time, negative and positive means and medians are seen depending on types of crises and phases of analysis as demonstrated in APPENDIX I, Table I.4. However, it is possible to mark a common pattern on non-crisis periods. In both phases, means and medians are negative, showing that firms are abler to finance themselves through their internal resources. In addition, firms are also more prone to invest (due to the perception of a stable business environment), as seen by the size of external dependence in maximum amounts, well above crises periods. Once it is observed the lack of a common pattern for crises periods, it can be interpreted that external dependence is behaving accordingly to what is expected.

The last two common firm-level variables to both phases (excluding dummies) are age and size. They were not submitted to the data cleaning process of outliers and the descriptive analysis can be interpreted as illustrations of the samples in use, having no power to add information and trends for future regression analyses. Both are not expected to show any difference in their impact on profitability between crises and non-crisis periods, but their intensities affect profitability. Similar analysis is applicable to those firm variables exclusive to Phase II: market share and diversification. Descriptive analyses of these variables do not add meaningful insights for future regressions. However, both variables are expected to behave differently as far as relevance to profitability in times of crises and in times of non-crisis is concerned. Non-crisis periods

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[103] Important to remember that the more negative is this value, the less a firm is externally dependent once it generates enough cash flow to support capital expenditures (CAPEX) in year t.

are where these variables are expected to significantly explain firm profitability. Finally, ownership, a dummy variable, is expected to have an influence on profitability only in times of crises.

7.2.1.2 – Correlation analysis

Considering both phases and all dependent variables jointly, Developing Countries Group I is composed of 68 regressions (48 in Phase I and 20 in Phase II) and, consequently, the same number of charts showing the pairwise correlation between independent variables. In order to avoid tedious and repetitive information, only correlations above 0.7 or below -0.7 will be reported. In fact, no high correlation is found in both phases. However, a weak correlation is found between concentration and market share (0.38[104] on average) and between market share and size (0.32 on average).

7.2.2 – Developing Countries II

This group of countries consists of two singular countries (Singapore and Hong-Kong) where only one type of crisis was found; recession periods (S4). As done in the previous group of countries, outliers were identified and removed for Phases I and II when observations exceed normalized Z score of 2.576 (1%, two tail distribution). After filtering, results are presented below, in Table 7.3:

Table 7.3 – Independent Variables Sample Outliers – Developing Countries II

	Phase I			*Phase II*		
	Observ.	*Number*	*%*	*Observ.*	*Number*	*%*
S4	2,923	82	2.81%	1,744	92	5.28%
S16	3,410	139	4.08%	3,823	167	4.37%

Source: Author

Following Jondeau et al. (2007), outliers are considered acceptable if under approximately 5% for the crisis and non-crisis periods. Then, after data cleaning procedures are applied to the dependent variables (second cleaning procedure), sample sizes are presented in Table 7.4:

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[104] This average used to report correlations is calculated using absolute values of pairwise correlations between independent variables.

Table 7.4 – Sample Sizes – Developing Countries II

	Phase I	Phase II			Phase I	Phase II
SMR				*ROE*		
S4	1,818	984		S4	2,502	1,553
S16	2,068	2,488		S16	2,802	3,527
	Phase I	*Phase II*			*Phase I*	*Phase II*
ROS				*FCF*		
S4	2,535	1,559		S4	2,040	1,501
S16	2,861	3,516		S16	2,193	3,302

Source: Author

As expected, ROE and ROS are the most representative groups in terms of observations but the number of observations for SMR increased considerably when compared to the previous group of countries, namely, Developing Countries I, where it is common knowledge that financial markets is not well developed.

7.2.2.1 – Descriptive analysis

Descriptive analyses for independent variables after removing outliers are presented in APPENDIX H (tables H.5, H.6, H.7, and H.8) and APPENDIX I (tables I.5, I.6, I.7, and I.8). First, liquidity shows statistically different means for both countries, but they move in opposite directions; Hong Kong has the higher level of liquidity in times of non-crisis, while Singapore has it in times of crises (APPENDIX H, Table H.5). Meanwhile, as found before, differences in the relevance of liquidity for profitability is expected, but mainly in times of non-crisis (APPENDIX I, Table I.5). Range, median, and mean are higher in non-crisis period (S16) when compared to recession periods. Different results are found for leverage. Although leverage is higher in Hong Kong in times of non-crisis and practically equal to levels in Singapore, none of the differences in means are statistically different, as demonstrated in APPENDIX H, Table H.6. Still, descriptive statistics in APPENDIX I, Table I.6 confirm our expectations regarding the behaviour of leverage only in Phase I. As reported in the previous group, in times of crises minima are more extreme given that negative equity appears more often. Moreover, when equity is positive, the level of third-party capital tends to increase and to remain high. These observations were not seen in Phase II. With regard to gross margin, similar results are found. Ranges in crisis periods are higher than in times of non-crisis. This is exactly what is expected since during recession periods the decline in output is remarkable, affecting directly firm productivity (APPENDIX H, Table H.7). In addition, corroborating the

previous descriptive analysis in Developing Group I, crises and non-crisis periods present practically identical means, medians, and standard deviations in both phases (APPENDIX I, Table I.7). It is expected to observe differentiated impact of the variable external dependence mainly in times of crises. Keeping in mind that the more negative it is, the less a firm is externally dependent, I note that means and medians show a tendency to self-fulfil in this group of countries (APPENDIX H, Table H.8). As shown in APPENDIX I, Table I.8, means and medians are all negative when looking at different regimes, confirming that the countries in groups Developing I and Developing II behave similarly, independently of the business environment where they are. The minima are key to be observed since they confirm that during crises periods firms tend to invest less and to generate less internal resources to finance their CAPEX.

7.2.2.2 – Correlation analysis

As in the previous group, no high correlation between two independent variables is observed for this group of countries in both phases. Conversely, moderate correlation is found between product characteristics and export orientation (0.6 on average in Phase I and 0.54 in average in Phase II).

7.2.3 – Developed Countries

This group consists of sixteen countries: Australia, Belgium, Canada, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, the UK and the US. No debt crises were identified for this group of countries at any phase and, in Phase II, no currency crises were also identified. These scenarios reduce considerably the number of combined crises. In Phase I, five types of crises were identified and in Phase II, only three.

Again, as informed by Chapter 5, some miss-classification of regimes may occur due to unreconciled disagreements in crisis identification (years and types of crises) between this thesis and studies done by other authors. For this group of countries, the relevant disagreement was observed in pure currency crises (S2) in Phase I (authors missed a crisis identification mainly in the US in 2004), and S12 (banking crisis, currency crisis, and

recessions) in Phase I (authors missed a currency crisis in Japan in 1998). Disagreements' impacts on regressions results are reported in section 7.3.

As in the case of the previous groups of countries, data were cleaned and filtered results are presented below, in Table 7.5:

Table 7.5 – Independent Variables Sample Outliers – Developed Countries

	Observ.	Number	%	Observ.	Number	%
S1	8,102	528	6.52%	9,215	234	2.54%
S2	5,017	137	2.73%			
S4	8,003	264	3.30%	6,933	328	4.73%
S7	5,816	287	4.93%	9,692	456	4.70%
S12	238	19	7.98%			
S16	68,431	2.557	3.74%	36,656	1.534	4.18%

Source: Author

Table 7.5 shows that two types of crises have a higher than acceptable percentage of outliers in the sample, 5% (Jondeau et al., 2007). The highest percentage belongs to a sample with less than 300 observations, as observed in Developing Countries Group I. In turn, the other high percentage is in a sample with a considerable number of observations. After the first cleaning procedure, Table 7.6 provides firms' year-observations (sample sizes) per type of dependent variable in use, already cleaned off their own outliers, per regime, and phases:

Table 7.6 – Sample Sizes – Developed Countries

SMR	Phase I	Phase II		ROE	Phase I	Phase II
S1	6,677	6,316		S1	7,044	8,633
S2	3,476			S2	4,611	
S4	5,378	5,477		S4	7,194	6,511
S7	4,833	6,673		S7	5,278	8,921
S12	190			S12	179	
S16	45,058	24,730		S16	57,955	33,530

ROS	Phase I	Phase II		FCF	Phase I	Phase II
S1	7,034	8,705		S1	4,904	8,404
S2	4,697			S2	4,459	
S4	7,371	6,500		S4	6,603	6,297
S7	5,293	8,983		S7	2,623	8,661
S12	209			S12	97	
S16	62,402	34,033		S16	10,124	32,415

Source: Author

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It can be seen that not only ROE and ROS have representative groups in terms of observations, but specially SMR with an equivalent number of observations. This is an important characteristic of this group and mirrors the developed stage of financial markets of countries in this group.

7.2.3.1 – Descriptive analysis

Without outliers and following the same procedure used for previous groups of countries, APPENDIX H and APPENDIX I show the descriptive analysis of the main independent variables per country and per regime, respectively. As presented in APPENDIX H, Table H.9, for liquidity, only five out of 16 countries` means are significantly different, while the majority of means (13) are higher in non-crisis periods. So, bigger median and mean in the non-crisis period (S16) compared to the average of all other crises' periods are expected. Corroborating previous findings in the last two groups, this expectation is confirmed, although differences in both phases are not substantive (APPENDIX I, Table I.9). Reported negative numbers for leverage seen in APPENDIX H, Table H.10, are related to negative equity values seen on firms. Differently from liquidity, half of the countries' means are significantly different between crises and non-crisis periods, and crises periods present higher levels of leverage when compared to non-crisis periods. Also, in accordance with findings for previous groups of countries, in times of crises, extreme values are more common given that negative equity appears more often or, when equity is positive, level of third-party capital tends to increase and to remain high. In addition, the mean and median remain higher in times of crises. The proxy used for productivity (gross margin) shows different patterns among phases and mixed results, as was previously seen in the other two groups of countries (APPENDIX H, Table H.11). When comparing countries' means, only in four cases differences are statistically significant. Half of the means are higher in times of crises. APPENDIX I, Table I.11 shows that gross margin means and medians are higher during times of non-crisis in Phase I, while in Phase II the opposite occurs for medians. However, it is possible to observe that ranges in times of non-crisis are wider than in times of crises. External dependence is the last independent variable to be analysed, and puzzling results are seen as demonstrated in APPENDIX H, Table H.12 and APPENDIX I, Table I.12. Again, negative and positive means and medians are seen depending on the types of crises and phases of analysis. As shown in APPENDIX H, Table H.12, only six countries presented

statistically different means in split comparisons. On average, the data show that crises periods lead firms to use more internal resources to finance their investments, and external dependence is negative in almost all medians and most of the means. Negative averages medians in times of crises are higher than in times of non-crisis. Positive mean in times of non-crisis shows a propensity to invest using leverage due to the perception of a stable business environment, something that does not happen in developing countries.

7.2.3.2 – Correlation analysis

As in previous groups, with the set threshold of +0.7 and -0.7 to consider the correlation between variables high, no high correlation is found between any variable at any time. Consistently, product characteristics and export orientation show a moderate correlation in both phases, 0.53 in average in Phase I and 0.51 in average in Phase II. In addition, a weak correlation between age and size is observed in both phases (0.32 in average in Phase I and 0.36 in average in Phase II), between market share and size (0.32 in average in Phase II), and between concentration and market share (0.44 in average in Phase II).

7.3 – Empirical results

This section is at the core of this thesis. Here, regression results will provide the basis for the interpretation of findings, contextualizing theoretical points derived from previous studies, contributing to current knowledge about crises and firm profitability.

7.3.1 – Firm profitability and regimes

This section is dedicated to the thorough analysis of the effect of crises on firm profitability. The aim is to recognise types of single and/or combined crises that harm firm profitability the most, answering research question number six. As commented before, only a few studies were dedicated to understanding the behaviour of firm profitability in times of crises and in times of non-crisis. In their vast majority of these studies, the type of crisis was identified solely as pure recessionary periods (hereby S4 type of crisis). Unlike previous studies, country crises phenomena are understood in this research in a broader perspective, and not limited to a specific timeframe or to a specific

type of crisis. Country crises or its absence define the business environment, designated here by the general term "regimes".

Before starting the analysis, a statistical discussion is necessary to understand the best and most appropriate measure of central tendency to be used in this section, a vital tool for future inferences. As seen before, the main measure utilised for analysis is the mean. It is known that the mean is more appropriate to symmetrical or normally distributed data. Mean is susceptible to the influence of extreme values, those that are unusual if compared to the rest of the dataset. The median, on the hand, is less influenced by extreme values and retains its position irrespectively of extreme values. In a skewed distribution, the median is the most appropriate measure of central tendency. Contrasting with this common knowledge, Altman and Bland (1995) pointed out that separated samples taken from the same population will differ in their distribution in accordance with the size of the sample (randomly drawn). Still, the central limit theorem states that the means of random samples from any distribution will themselves have a normal distribution. So, the authors posited that "when we have a sample of hundreds of observations, we can often ignore the distribution of the data". Hence, when samples are represented by more than 100 observations, means will continue to be the main measure of central tendency, but medians will also be presented for the robustness of the analysis.

Dependent variables' datasets pooled under regimes are free of outliers and extreme outliers but, not occasionally, continue to hold high values in their distributions. Moreover, datasets that will be used here present excess of skewness and kurtosis in their distributions, as shown in descriptive statistics exercise made before. As a first example, APPENDIX J, Table J.1 shows ROE's distribution characteristics per regime. The set of information on the bottom is the pooled information from the groups of countries and will concentrate the main analysis about the impact of regimes on firm profitability. Unfortunately, for ROE there were no observation for S14 type of crisis and for the S13 type of crisis there were only four observations. The main statistical tool in this effort of analysis for a low number of observations will be conditioned to samples distributions' characteristics regarding normality. For samples with more than 30 and less than 100 observations, the median will be the measure of central tendency if the distribution presents signal of non-normality (excess of skewness but not an excess of kurtosis, common to almost all distributions). On the other hand, if close to normality, the mean

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will be the measure of central tendency. In doing so, looking at the overall ROE's distributions, S14 and S13 will not be considered for analysis. S8 will be analysed through its median (due to excess of skewness) and S11 through its mean. The first analysis is dedicated to a comparison of means, between types of crises' means and the already presented non-crisis period mean (hereby called S16 regime). In ROE's distributions presented in APPENDIX J, Table J.1, from the total of 13 types of crises with representative samples for Developing Countries I Group, ten of these crises' cases have lower means compared to non-crisis mean (0.11, in Table 7.7). Also, from these 13 regimes, five of them are statistically significant at 1% (S2, S6, S7, S12, and S15), four are significant at 5% (S1, S4, S5, and S10), and four are not statistically different from times of non-crisis (S3, S8, S9, and S11). The same non-significance is applicable for the solo type of crisis registered for Developing Countries II Group (S4). In turn, Developed Countries Group shows that, from the total of six possible distributions (S6 is not possible due to small sample size), only S9 has a lower mean than S16 mean (0.00) but three differences are statistically significant at 1% (S1, S7, and S12), having the other three not statistically different from times of non-crisis (S2, S4, and S9).

The second possible analysis is the difference in means between groups of countries. Out of six possible comparisons between Developing Countries I Group and Developed Countries Group, differences in S1, S4, and S9 means are statistically significant. Developing Countries II Group's solo regime (S4) is statistically different from the other two groups of countries. The last analysis respects to the identification of crises that harms the most ROE, one of the main issues of this research. Following the established criteria and looking at overall numbers, only S8 distribution should be analysed through its median, having means as the measure of central tendency for all the others. In doing so, S15 (banking, currency, debt crises and recession) is the worst type of crisis, followed by twin crisis (S5). On the other extreme, S6 (bank and debt crises) is the less harmful type of crisis for ROE. If an exercise of simple mean of means is made for single, double, triple and all types of rises, the worst business environment is the one posed by all types of crises together (-0.22), followed by a business environment composed of double crises (0.07), and single crises (0.07). There, recessions are in a privileged place. It appears combined or alone in top harmful types of crises, followed by banking crises and currency crises.

The second set of firm profitability index to be analysed will be ROS. As seen before, it has a lot of similarities to ROE, but interesting differences also appear. APPENDIX J, Table J.2 clarifies these similitudes and differences. Equally to ROE, S14 type of crisis returns no observation and S13 type of crisis returns only a few observations and so they are not considered for analysis. Due to excess of skewness and low number of observations, S8 and S11 are analysed through its median. Here, country groups' comparisons of types of crises means against the non-crisis mean (S16 regimes) are unfavourable to non-crisis period. From the total of 13 types of crises in Developing Countries I Group, only four of them have lower means compared to non-crisis mean (-0.07). Also, from these 13 regimes, six of them are statistically significant at 1% (S1, S2, S8, S10, S11, and S15), two are significant at 5% (S3 and S9), one at 10% (S4), and four are not statistically different from times of non-crisis (S5, S6, S7, and S12). Again, the same non-significance is applicable for the single type of crisis registered for Developing Countries II Group. Interesting to notice, Developed Countries Group has only S2 with lower mean than S16 mean (-1.67[105]) and all differences are statistically significant at 1%. Comparing Developing Countries I Group and Developed Countries Group means, regimes S1, S2, S4, S6, and S7 have statistically significant differences at 1% and S9 and S12 are not statistically different. As in ROE, Developing Countries II Group's single regime (S4) is statistically different from the other two groups of countries. For the identification of crises that harms the most ROS, it was established that S8 and S11 regimes are better represented by their medians as the measure of central tendency. Then, the bottom of APPENDIX J, Table J.2 shows single currency crises (S2) as the worst type of crisis. In the second place, another single crisis, banking crisis, followed by S7 (banking crisis and recession). On the other extreme, S13 (although a low number of observations) and S8 are the less harmful regimes for ROS. At this time, banking crises appear, combined or alone, as the worst crises for ROS, followed by currency crises and recessions. The worst business environment is the one posed with single crises (-0.59), followed by a business environment composed of all types of crises (-0.38), and then followed by double crises (-0.09).

The third measure of firm profitability to be analysed is SMR. This market measure has already demonstrated different characteristics in its distributions when compared to the

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[105] This average is highly influenced by considerable low average means presented by representative number of observations in Australia (-6.09).

other profitability measures taken from financial statements. Following the criteria presented before to choose the best measure for central tendency, no regime is analysed by its median, as demonstrated in APPENDIX J, Table J.3. Although there were identified observations for S14 (in Poland), they are not enough to be considered for analysis. The same is applicable to, and again, S13 regime. This time, country groups' comparisons of crises means against the non-crisis mean (S16 regime) are unfavourable to crises periods. From the total of 13 types of crises in Developing Countries I Group, only three of them have higher means compared to non-crisis mean (0.11). Similar predominance happens to the significance of these differences. From these 13 regimes, eight of them are statistically significant at 1% (S2, S3, S4, S5, S6, S7, S9, and S15), one is significant at 5% (S10), one at 10% (S1), and three are not statistically different from times of non-crisis (S8, S11, and S12). This time, significance at 1% is applicable for the solo type of crisis registered for Developing Countries II Group. For the Developed Countries Group, out of six relevant distributions, only S1 and S2 with higher means than S16 mean (0.06) and, again, all differences are statistically significant at 1% (as it was in ROS but not in ROE). When comparing Developing Countries I Group and Developed Countries Group means, except for S1 regime, all others have statistically significant differences. Mixed results are found in comparisons for Developing Countries II Group's single regime (S4). It is statistically different at 1% if compared to Developing Countries I Group but it is not, at any level, to Developed Countries Group. With regard to the level of prejudice to firm profitability, SMR is hardly affected by S12 regime (banking crisis, currency crisis, and recession), followed by S7 (banking and recession), and then by S4 (recession). On the other extreme, S5 (twin crisis) and S11 (banking, currency, and debt crises) are the less harmful types of crises for SMR. The absence of recessions in the less harmful regimes, allied to its presence in the top four worst types of crises indicates the importance of recessions to the stock market. On the other hand, debt crises are not that relevant to this market measure. Banking crises appear, combined or alone, as the second worst crisis for SMR. The worst business environment is the one posed with all types of crises (-0.07, in Table 7.8).

The last index utilized to analyse firm profitability is FCF. Again, no observations were taken for S14, but, for the first time, S11 also returned a non-significant number of observations, together with the already identified non-representative S13 distribution. Hence, they are not part of the analysis. Due to distributions characteristics and sample

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sizes, no other measure of central tendency is utilized but mean. APPENDIX J, Table J.4 better demonstrates the results. A comparison of types of crises means against non-crisis mean (in all groups) provides an almost tied result; ten lower returns against eight higher returns for crises periods. In this matter, for the first time, differences in means are not statistically different from any country in Developing Countries Groups I and II. On the opposite, Developed Countries Group presented four statistically different means at 1%, out of five possible distributions. Within groups' comparison, S4 from Developing Countries Group II is statistically different from the other two groups at 1% and regimes S2 and S4 are the ones statistically different from Developing Countries Group I compared to Developed Countries Group (also at 1% level). When identifying those crises that harm the most FCF, S15 (all types of crises) is, by far, the worst business environment for cash generation. In the second place, a triple crisis that frequently appeared as top crises in the previous analysis, S12 regime (banking and currency crises and recession). It is, then, followed by a double crisis, by S9 (currency crisis and recession). On the other extreme is again, as it was in ROS, S8 (currency and debt crises) as the less harmful type of crisis for FCF. Again, recessions are the worst types of single crisis for FCF, followed by banking crises. Dominantly, the worst business environment is the one posed with all types of crises (-0.72), followed by a business environment composed of triple crises (-0.22), and single crises (-0.10). Table 7.7 summarizes returns.

Looking at overall returns on the bottom of Table 7.7, ROE returns only five (out of 13 possible) lower means in times of crises (S4, S5, S7, S10, and S15) than in times of non-crisis, representing a low percentage of 38%. ROS had an even lower percentage (8%) with only one regime (S2) with lower means in times of crises. On the other hand, SMR was diametrically different from ROE with eight types of crises (S1, S4, S6, S7, S9, S10, S12, and S15 – 62%), and FCF is also highly different from ROS, with nine types of crises (75%) with lower means in times of crises. Still, some types of crises consistently return higher returns compared to times of non-crisis for the four dependent variables in use. This is the case for S3, S8 and S11 in overall data. In common, it can be seen the presence of debt crises in all of these types of crisis. On the opposite side, some regimes produce consistently lower returns when compared to times of non-crisis. This is the case for S2, S7, and S15 in Developing Countries I Group. These results suggest the lower impact of debt crises and the disruptive power of recessions and currency crises on firm profitability. This impression about debt crises and recession is corroborated with a

simple analysis of top harmful types of crises on firm profitability presented before for each dependent variable. Crises with recessions

Table 7.7 – Summary of returns per regime

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S15	S16
Developing countries (I)	ROE	0.03	0.06	0.13	0.14	-0.06	0.20	0.02	0.09	0.11	0.02	0.09	0.01	-0.22	0.11
	FCF	-0.36	-0.31	-0.20	-0.31	0.89	-0.18	-0.33	1.00	-0.20	-0.15		0.31	-0.72	-0.27
	ROS	0.04	-0.16	0.03	-0.03	0.01	-0.13	-0.15	0.09	0.05	0.06	0.06	0.13	-0.38	-0.07
	SMR	0.08	0.03	0.26	-0.03	0.63	-0.05	-0.13	0.01	0.03	0.03	0.39	0.10	-0.07	0.11
Developing countries (II)	ROE				0.08										0.09
	FCF				-0.25										-0.30
	ROS				-0.20										-0.23
	SMR				-0.14										0.10
Developed countries	ROE	0.10	0.03		-0.00			0.03		-0.02			0.04		-0.00
	FCF	-0.05	0.18		-0.06			-0.07		-0.50			-0.10		0.07
	ROS	-0.68	-2.31		-0.59			-0.61		0.00			0.01		-1.64
	SMR	0.07	0.23		-0.14			-0.19		-0.16			-0.28		0.06
Overall	ROE	0.09	0.04	0.13	0.03	-0.06	0.20	0.03	0.12	0.10	0.02	0.09	0.04	-0.22	0.03
	FCF	-0.06	-0.02	-0.20	-0.13	0.89	-0.18	-0.08	1.00	-0.20	-0.15		-0.22	-0.72	-0.04
	ROS	-0.64	-1.31	0.03	-0.43	0.01	-0.13	-0.60	0.09	0.05	0.06	0.06	0.02	-0.38	-1.12
	SMR	0.07	0.16	0.26	-0.13	0.63	-0.04	-0.19	0.10	0.02	0.03	0.39	-0.23	-0.07	0.07

Source: Author

appear in the top five harmful types of crises in 14 out of 20 possible (70%) cases, followed by banking crises with 12 (60%), currency crises with 9 (45%), and debt crises with 8 (40%). Furthermore, if instead of an analysis of top five most harmful, an exercise of the mean of means is utilised, results are consistent, as demonstrated in Table 7.8 below:

Table 7.8 – Mean of means

	Means				Mean of means
	ROE	**ROS**	**SMR**	**FCF**	
Banking Crises	0.025	-0.237	0.563	-0.062	0.072
Currency Crises	0.032	-0.140	1.002	0.122	0.254
Debt Crises	0.069	0.011	0.667	-0.050	0.174
Recession	0.019	-0.134	-0.562	-0.249	-0.231

	Means				Mean of means
	ROE	**ROS**	**SMR**	**FCF**	
Single	0.075	-0.587	0.091	-0.102	-0.131
Double	0.069	-0.087	0.092	0.213	0.072
Triple	0.087	0.142	0.080	-0.218	0.023
All	-0.217	-0.382	-0.070	-0.719	-0.347

Source: Author

On the top right of the table, mean of means by type of single crises (composed or not with other types of crises) are presented. There can be seen the major negative impact of recessions over firm profitability. On the bottom of the table, another conclusion can be made. If the same exercise (mean of means) is done considering concomitance of crises in their impacts, a business environment with all types of crises produces the worst results for firm profitability, followed by single crises, triple crises and double crises. So, against natural thinking, crises' effects are not linear in terms of impairment to profitability. More crises together do not mean more damages on firm profitability. Some possible explanations can be addressed based on previous information. First, the already observed positive impacts that, mainly, currency and debt crises can bring to the business environment. Second, as demonstrated before, crises are never equal. The severity (level of intensity) in each crisis varies from country to country and from time to time. Krugman et al. (1999) have already concluded similarly when suggested different impacts of currency crises in developing and developed countries (Chapter 2). Lastly, criteria utilized to identify crises[106] in this research may interfere on results, especially: 1) the 5% threshold of total sovereign debt default to classify a debt crisis' year, 2) a year equal to or with more than 6 months in crisis to classify this year as a full crisis' year, and 3) the necessity to have depreciation of nominal exchange rates against the US dollar and against a basket of currencies, both trespassing the threshold set as two standard deviations from the trend.

The second analysis made is a comparison of means between groups of countries. As demonstrated below:

Table 7.9 – Comparison of means

	Means						*T-Test*			
	Developing I						**Developing I vs. Developed**			
	ROE	**ROS**	**SMR**	**FCF**			**ROE**	**ROS**	**SMR**	**FCF**
S1	0.03	0.04	0.08	-0.36		S1	-2.79	19.64	0.88	-0.97
S2	0.06	-0.16	0.03	-0.31		S2	1.48	18.94	-21.67	-4.98
S4	0.14	-0.03	-0.03	-0.31		S4	11.12	14.99	17.00	-3.66
S7	0.02	-0.15	-0.13	-0.33		S7	-0.16	6.07	2.16	-1.01
S9	0.11	0.05	0.03	-0.20		S9	2.33	0.38	9.80	1.21
S12	0.01	0.13	0.10	-0.49		S12	-0.82	0.86	11.77	-0.36
	Developing II						**Developing I vs. Developing II**			
	ROE	**ROS**	**SMR**	**FCF**			**ROE**	**ROS**	**SMR**	**FCF**

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[106] Chapter V, section 5.3 – Methodology - Identifying country crises.

| S4 | 0.08 | -0.20 | -0.14 | -0.25 | S4 | 3.60 | 14.99 | 17.00 | -3.66 |

	Developed					**Developing II vs. Developed**			
	ROE	**ROS**	**SMR**	**FCF**		**ROE**	**ROS**	**SMR**	**FCF**
S1	0.10	-0.68	0.07	-0.05	S4	-5.86	-9.55	0.66	2.87
S2	0.03	-2.31	0.23	0.18					
S4	-0.00	-0.59	-0.14	-0.06					
S7	0.03	-0.61	-0.19	-0.07					
S9	-0.02	0.00	-0.16	-0.50					
S12	0.04	0.01	-0.28	-0.10		*Blue mark- significant at 10%, 5%, or at 1%*			

Source: Author

On the left side, means are summarized by regimes and groups of countries. On the right side, t-tests between means are presented. In this matter, S4 type of crisis deserves some comment. With the exception of SMRs between Developing Country Group II and Developed Country Group, all other comparisons demonstrated to be statistically different. It suggests that recessions produce different outcomes on firm profitability depending on where the firm is located. Also, market returns seem to be equally priced in developed countries and the special group of developing countries (i.e. Singapore and Hong Kong). It is worthwhile to see remarkable differences in currency crises (S2) effects on firm profitability between Developing Countries Group I and Developed Countries Group. Contrarily, banking crises appear to be fairly similar in their effects between Developing Countries Group I and Developed Countries Group. Finally, SMR and ROS are the two types of dependent variables with more significant differences in means between Developing Countries Group I and Developed Countries Group.

7.3.2 – Regression analysis

In this section, regression analyses are performed per regime in order to find out which variables under consideration are best and able to explain the behaviour of firm profitability in times of crises and in times of non-crisis.

Most of the answers for the research questions presented in Chapter 1 are concentrated on regression results from Model 2. The analyses that follow will be based on the countries' groups defined in Section 4.6.

7.3.2.1 - Developing Countries I

Due to natural volatility and inconstancy of any country's business environment, it is possible to observe the absence of panel data in five types of crises in Phase I (S5, S7,

S10, S12, and S15). All of these crises occurred in just one specific year but maybe in one or more countries. For instance, S15 (all types of crises together) happened in Russia and Indonesia only in 1998 and S5 (twin crises) occurred only in 1997 in Indonesia and only in 2000 in Turkey. Consequently, OLS is used to obtain coefficients' estimates. Results in APPENDIX K, Table K.1, suggest that there is a significant positive relationship between lagged ROE and ROE in times of crises and in times of non-crisis in Phase I. Out of 11 crises types, there are eight with highly significant and positive coefficients as well as with significant coefficient in non-crisis period. It is important to observe that lagged ROE increases its importance to explain ROE in times of crises, when observed coefficients are above the coefficient observed in the non-crisis period. On average the coefficient is 0.39 in time of crises (also, five types of crises with coefficients higher than the coefficient in times of non-crisis) against 0.34 in times of non-crisis. In Phase II (APPENDIX K, Table K.5), this lagged ROE's behaviour is partially confirmed once coefficients remained significant in 100% of the cases in crises' periods but the coefficient in times of non-crisis lost its significance. Still, a negative and significant (at 10%) relationship in one crisis' coefficient (S7) is observed. More stable results are found in leverage. When this variable is significant (88% of all regressions, considering both phases and periods) there is always a negative relationship between leverage and ROE. Still, average coefficients in times of crises are higher than coefficients in times of non-crisis (as well as the number of types of crises compared to non-crisis periods), suggesting that leverage is worst for ROE in times of crises. Similar stability is found for liquidity, which presents itself also negatively significant in times of non-crisis and positively significant in times of crises in both phases. Gross margin also deserves attention for ROE. Similar to leverage, the variable is significant but positively related to ROE in times of crises and in times of non-crisis in both phases (76% of all regressions). However, coefficients in both phases are mostly lower in times of crisis when compared to non-crisis periods. External dependency also exhibits a negative relationship to ROE in times of crises and in times of non-crisis in both phases. Market share presented a positive relevance, especially in times of non-crisis.

With respect to ROS, in APPENDIX K (on the top of Tables K.2 - Phase I and K.6 - Phase II) it is possible to see some differences and some similarities in the relationship between independent variables and this dependent variable when compared to ROE. Lagged ROS behaves similarly to lagged ROE in Phase I, positive and significant but

now much higher in times of crises. In Phase II, with the exception of negative significance for S7, all other crises present positive and significant coefficient but mostly lower than in times of non-crisis. Gross margin keeps its significance and intensity (almost all regressions showing positive and significant coefficients) for ROS but, now, clearly gross margin loses its significance in times of crises (mean and absolute values are lower in times of crises), suggesting that productivity is more important to profits in stable environments. One percentage positive change in gross margin would lead to an increase of 74% in ROS for this group of countries in Phase I and 49% in Phase II when in times of non-crisis. On the other hand, leverage is negatively significant in Phase I in times of crises and in times of non-crisis, but it is not that significant and relevant in Phase II. Some other variables also appear influencing ROS. Size is positively significant in times of crises and in times of non-crisis in both phases. However, this variable is more important in times of non-crisis. Liquidity also presents itself positively significant and intense to explain ROS in times of crises and in times of non-crisis (stronger in crises` periods). As in ROE, external dependency appears negatively significant to ROS in both phases and both periods (crises and non-crisis).

With regard to SMR, some interesting differences appear in relation to ROE and ROS analyses and they are shown in APPENDIX K, Tables K.3 and K.7. Understanding that this dependent variable derives from financial market rather than firms' financial statements, it is fair to expect external factors (externalities) to the firms' environment influencing regression results. Lagged SMR and gross margin are variables that are positively significant and intense to explain SMR in both phases. However, they are not consistent between phases. In Phase I, while the first is stronger to explain profitability in times of non-crisis, the former is stronger in times of crises. The exact opposite happened in Phase II. Likewise, leverage, a common variable to explain profitability under ROE and ROS, does not heavily influence stock prices, being negatively significant only in non-crisis' period in Phase II and with mixed results in Phase I.

Results for the last dependent variable for Developing Counties Group I are demonstrated in APPENDIX K, Tables K.4 and K.8. Results are not promising and the significance of chosen independent variables is disappointing to explain FCF. Only 26 coefficients are found significant in both phases for FCF. Out of these 26, eight are significant at 10% and at 1% (30% for each one). External dependency calls attention due to its importance

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in times of crises and in times of non-crisis. In both phases, there is a constant negative relationship of this variable to FCF, exhorting the adverse consequences on profitability if the firm is dependent on an ultimate parent firm located abroad. In addition, gross margin also presents some importance to FCF in Phase I. The other variables present an erratic and inconsistent pattern. Interesting to notice that, in Phase II, a scenario with non-crisis showed the importance of five variables to explain FCF, something not present in any other regime.

In conclusion, the two variables that led us to split the analysis into two phases (market share and diversification) do not behave as expected. Market share is positive and significant for ROE in periods of recessions, of currency crises, and in times of non-crisis. However, for the other regimes, market share does not seem to be important. Diversification results are the worst. This variable is significant only for S7 in ROS (significant at 10%). Hence, results for both variables evidence their low significance to explain profitability in Developing Countries Group I.

Finally, in relation to the disputed regimes reported in section 7.2.1, they have been relabelled in light of the regression results. Hence, the doubtful S2 regime for India (1998) would become a S16, the doubtful S3 regime for Indonesia (2004) would also become a S16, and the doubtful currency crises S9 regime in Chile (1998, 1999, 2001, and 2002) would become an S4. When comparing results after re-running regressions, negative non-significant lagged ROE coefficients found in S4 become positive and significant coefficients found for the other crises as well as the non-crisis period. In addition, the sign of leverage changed from positive to negative in S3 and lost significance in S9. Both changes go against what was seen for previous coefficients, mostly negative in times of crises and in times of non-crisis. On the other hand, change in liquidity coefficient occurred in S3 (from negative non-significant coefficient to a positive and significant one), which is more in line with others observed relevant coefficients for crises periods. The main change in ownership is related to new negative and significant coefficient found for non-crisis periods (S16) and external dependence coefficient is negative and significant for the crisis period S9. New coefficients result for ROS also go against what was observed and expected for some independent variables. For instance, leverage loses its significant negative coefficients in S3 and S9. In the opposite direction, two crises (S2 and S9) move to positive and significant signs in liquidity coefficients, corroborating

previous findings. Gross margin also has a positive and significant coefficient, the one related to S9. When SMR is under scrutiny, emphasis should be given to the loss of importance of liquidity in times of non-crisis. No relevant changes are observed when coefficients in FCF are compared. Size and ownership become significant in times of non-crisis (the first positively and the second negatively), while gross margin loses a positive and significant coefficient in times of crises (S3). In summary, when rerun regressions with these new datasets, a comparison between independent variables coefficients from those regimes that changed lead to some interesting results but that, in essence, did not modify conclusions and expectations presented before. When verified changes were significant, they went most of the time against the patterns and expectations originally presented. So, it seems that original macro and microeconomic environments are mostly in line, although disagreements persist.

7.3.2.2 – Developing Countries II

All results related to this group of countries are shown in the middle of tables presented in APPENDIX K. Starting with ROE, Tables K.1 and K.5 suggest that there is a significant positive relationship between lagged ROE and ROE in times of recessions and in times of non-crisis, but only in Phase II and stronger in times of crises. In turn, there is a negative relationship between leverage and ROE in recessions and in the non-crisis period in both phases. However, contradicting what was observed for the last group of countries and expectations, the coefficient in times of non-crisis is higher than the coefficient in times of recessions in Phase I. In Phase II, leverage damages more profitability in times of crises than in times of non-crisis. Although with expected signs, contradicting results are also found for gross margin between phases, where a higher coefficient in times of crises in Phase I is found and the opposite happens in Phase II. Similarly, contradicting coefficients among crises and non-crisis periods as well as among phases lead to imprecise conclusions about size, age and liquidity. Furthermore, it can be said that ownership and diversification are not significant at any time. Low significance of coefficients is found for market share.

Regarding ROS, the middle of Tables K.2 and K.6 in APPENDIX K do not show similar results as in ROE. For instance, lagged ROS is significantly positive in both phases but stronger in times of non-crisis. Size and liquidity become positively significant to ROS

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in both phases, in times of crises and in times of non-crisis. Similar to lagged ROS, they are stronger to explain ROS in times of non-crisis. Age, market share and diversification are not significant at all. Gross margin behaves as expected, positively significant in both phases, in times of crises and in times of non-crisis. It is more important to explain ROS in times of non-crisis in Phase II, while coefficients in times of crises and in times of non-crisis are almost equal in Phase I. External dependency is negatively related to ROS in times of crises in both phases and only in Phase I for non-crisis periods.

The financial market in Singapore and Hong-Kong are considerably different from the previous group of countries. Singapore and Hong-Kong are recognised as one of the leading international financial centres in the world[107]. Then, SMR analysis (APPENDIX K, Tables K.3 and K.7) would bring interesting inputs to understand the relationship between this measure of profitability and firm variables in a developed financial market context. Lagged SMR appear positively significant in recession times and in times of non-crisis in both phases, being stronger to explain profitability in times of non-crisis. Against expectations, leverage is found not significant at any circumstances and in both phases. Market share and diversification are identical to leverage. Gross margin behaves as expected only in Phase II, where coefficients are significant and positive in times of crises and in times of non-crisis. In Phase I it is significant only in times of crises. Age is also positively significant only in times of crises. Finally, external dependency is negatively significant to SMR in times of crises.

Results for FCF are demonstrated in APPENDIX K, Tables K.4 and K.8. It can be said that regression results are not satisfactory. Only three coefficients are found significant in Phase I (one at 10%) and five coefficients are found significant in Phase II (three at 10%). Nevertheless, a consistent negative relationship to external dependence is observed, as it was in Developing Countries I.

7.3.2.3 – Developed Countries

As in Developing Countries I Group, OLS regression, rather than panel data analysis, is mandatory for S12 type of crisis for this group of countries in Phase I, owing to the lack

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[107] A list of top ten financial markets in the world include London, Zurich, New York, Chicago, Tokyo, Frankfurt, Toronto, and Shanghai.

of data for most countries. Most of observations for this crisis came from Japan in 1998. In APPENDIX K the regression results for this group of countries can also be found. Starting with ROE (bottom of Table K.1 and Table K.5), leverage is strongly negative in times of crises and in times of non-crisis. It reached significant coefficients in 100% of regressions in both phases. Coefficients in times of crises are higher than in times of non-crisis only in Phase II, showing some contradictions among phases. Size is another important variable that explains ROE in developed countries. In both phases, coefficients present themselves positively significant in all regressions[108] and, identical to leverage, contradictions in intensity between crises and non-crisis periods are observed. The variable age also behaves similarly in both phases, positively influencing ROE in times of non-crisis. Gross margin is strongly positive significant in times of non-crisis, having coefficients performing similarly in both phases, more representative to ROE in times of crises. Liquidity negatively influences profitability, especially in times of crises. Contradicting what was observed in Developing Group I, lagged ROE presents an erratic relationship to ROE, sometimes positive and sometimes negative. Market share and diversification are not significant at all.

When analysing ROS (bottom of Table K.2 and Table K.6, in APPENDIX K) and comparing the results with those of ROE, different relationships between independent variables and this dependent variable can be observed. First, lagged ROS is significantly positive relative to ROS in times of crises and in times of non-crisis in 100% of regressions. Moreover, it is most important to explain ROS in times of crises than in times of non-crisis in Phase I but it is not clear in this way in Phase II. Against expectations, leverage is positively significant to explain ROS in times of non-crisis in Phase I and in the solo significance in Phase II (S4). Size is positive and significant in times of crises and in times of non-crisis in both phases, but with no clear predominance of one period over the other. Again, but now as expected, gross margin is the most significant variable for ROS. Also, it is much more powerful to explain profitability in times of non-crisis (especially in Phase I). Similar to what happened in Developing Countries I, in times of non-crisis one percentage positive change in gross margin would lead to an increase in 149% in ROS for this group of countries. External dependence is negative and significant to ROS in times of crises and in times of non-crisis. Market share appears significant to

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[108] See final comments about doubtful reported regimes in the end of this section.

ROS in crises periods. However, signs are not following a common pattern. Concentration also can be considered a negative factor to ROS since it appears significant in times of non-crisis and in at least one period of crisis (S7).

For the financial market dependent variable, SMR, results from regressions can be seen in APPENDIX K, at the bottom of Tables K.3 and K.7. There, it is possible to observe that lagged SMR is positively significant in both phases and business environments, but stronger in times of non-crisis. Leverage remains negatively significant mainly in times of non-crisis in both phases. Size keeps its positive significance to profitability in developed markets and liquidity appears positively significant in times of non-crisis in both phases. In turn, gross margin remains strongly positive and significant to explain SMR in times of crises and in times of non-crisis in both phases, but with more importance to times of crises. Market share negatively influences SMR in times of banking crises and in times of non-crisis, being stronger in times of banking crises. Diversification presents mixing results. External dependency also is negative and significant to SMR in times of crises and in times of non-crisis in both phases and in almost all regressions (90%).

As being demonstrated in previous groups of countries, regressions for FCF do not revert in insightful information about its determinants with the chosen set of independent variables. As demonstrated in APPENDIX K, the bottom of Tables K.4 and K.8, some can be said about lagged FCF, external dependency, and size. The first variable presents a negative relationship to FCF in both phases and periods. Size presents itself positively correlated to FCF, especially in Phase II. Preserving its consistency among groups, external dependency keeps its negative significance to profitability.

As in Developing Countries I, disputed regime classifications reported in Topic 7.2.3 are now rearranged following what they should be. The disputed S2 regime in the US (2004) would become a S16 and a doubtful currency crisis S12 regime in Japan (1998) would become a S7. US 2004 data is very representative in S2, accounting for 3,809 observations out of 4,880 in total (78%). So, it is expected serious changes in coefficients in S2 but not in S16. There, this number of new observations represents only 5.8% of the total. On the other hand, the observations of the year 1998 in Japan represent almost the totality of S12 (233 observations of 238). After extracting these observations from S12, only five were left (Sweden 1993), and no statistical estimation was possible. This crisis disappeared

from the analysis in Developed Countries Group. Liquidity and age lose their importance in S2 for ROE, but only the result concerning liquidity can be considered abnormal since this variable is negative and significant in all other business environments for ROE. When in ROS, liquidity again loses its negative significance (also against what was observed to other crises and non-crisis periods), ownership gains relevance and significance (although in no other business environment these variables were seen as significant), and external dependency loses its significance (same abnormality attributed to liquidity). On the other hand, SMR in S2 saw the gain in significance of age, now in line with the other crises but with a negative sign (the other three were positive in times of crises). The only change out of S2 is observed in size for FCF in S16. This variable become positive and significant. In the end, doubtful regimes reported at the beginning of this section did not provide any empirical evidence about the necessity of permanent changes in regimes' database. So, as in Developing Countries I, it seems that macro and microeconomic environments are in line although disagreements in currency crises' identification persist.

7.4. – Interpretation of regressions results and discussion

This section is dedicated to an overview of regression results and it aims to consolidate findings presented in previous sections. Firms' empirical model used ten firm independent variables that are going to be discussed in detail in the following paragraphs.

First, the importance of lagged profitability ($Profit_{ict}$) is well established in the literature about firm profitability. McDonald (1999) found out high explanatory power (positive and significant) for lagged profitability on firm profitability. Similar strength was found in Goddard et al. (2005), Nunes et al. (2009), Stierwald (2009), and Yazdanfar (2013). These positive and significant coefficients for lagged profitability were mostly found in studies where there was no mention of whether the dependent variable was being explained in a tranquil or in a disturbance environment. In this research, it was assumed that these studies intended to understand the phenomena irrespective (for whatever reason) of the business environment surrounding firms. On the other hand, Tan (2012) was the only study where lagged profitability was found not significant and Dell'Ariccia et al. (2008) found it negative and significant. Hence, this variable is expected to be found positive and significant only in times of non-crisis. However, this is not what was observed in this thesis. Regression results suggest that this variable has a predominant

positive and significant impact in most of the dependent variables (84% of those positive and significant coefficients) under analyses in times of crises and in times of non-crisis. However, it is not possible to be more precise or even point out a general trend regarding its strength among business environments. It varies among phases and among groups of countries. Still, dynamic models are known to be able to capture the persistence nature of profitability by incorporating lagged variable into the model estimation. In the case of this thesis, it is more than support of the POP theory. It can also be argued that lagged variables with positive and significant coefficients across different business environments represent a contagious pessimism/optimism in the present rooted in the past (previous year). Confidence seems to act as a valuable factor in the determinants of firm profitability across business environments, driving expectations about the future anchored in the present. Then, a persistent dependence of current profitability on prior profitability is found, independently of the dependent variable in use and the business environment. Finally, lagged profitability is mostly found positively associated with profitability at time t, but it suffers a specific problem in this research. Once the sample period was split in accordance with a classification about types of crises (15 types) and non-crisis period (S16), it is possible that some lagged dependent variable did not belong to the same business environment as the other variables in regression (for instance dependent under S7 and lagged independent under S1). Anyhow, is not believed that this imperfection would interfere in results, which clearly points out contagious pessimism/optimism in the present rooted in the past, as it did in literature review and current knowledge about firm profitability in times of non-crisis.

In the literature, leverage (Fl_{it}) was found negative and significant in Scott and Pascoe (1986), Goddard et al. (2005), Nunes et al. (2009), Asimakopoulos et al. (2009), Demirhan and Anwar (2014), and Tan (2012). On the other side, Gale (1972) and Stierwald (2009) found it positive and significant and in Bruni et al. (2014) and Forbes (2004) found leverage not significant. Intuitively, it is fair to associate leverage to bad outcomes in terms of profitability, although current knowledge does not immediately lead to this perception. In any case, leverage is expected to be found negative and significant in both environments. The results of this research confirm these expectations and may provide a different point of view that can help better understand this variable in its relation to profitability. Empirical evidence verifies that leverage is negative and significant in 91% of those negative and significant coefficients presented in all samples. From this

percentage, the majority of cases are situated in ROE (52%) regression, evidencing the importance of capital structure strategies to profitability. Leverage also presents mixed results for ROS that may be related to individual firms' costs and expenses structure, widely heterogeneous but with a strong impact over firms' net income. Moreover, it is not significant in most of the cases when SMR is under analysis, yielding an interesting conclusion about the behaviour of financial markets against the level of firms' indebtedness. Leverage has the power to amplify/multiply shareholders' reach in investments opportunities but it is not, necessarily, translated into more profits. Rather, it can restring the benefits to the power derived from the increase in business' size. In addition, the results found in this thesis clearly assert that firms' capital structure influences profitability. The higher the indebtedness, the worst would be firm profitability since unequivocally leverage is negative and significant to profitability in all times and almost all regressions in ROE. In the end, considering the proximity and similarities between ROA and ROE, it is reasonable to admit that leverage effects on profitability are mostly dependent on the type of dependent variable that is under scrutiny.

Size (LnS_{it}) is variable present at the beginning of studies of Resource-Based Theory (RBT) as the main source of firms' differences in profitability. It is a variable positively connected to profitability in Gschwandtner (2005), Nunes et al. (2009), Yazdanfar (2013), Dilling-Hansen (2005), Hardwick (1997), Stierwald (2009), Bruni et al. (2014), Tan (2012), Dell'Ariccia et al. (2008), Kolasa et al. (2010), Clarke et al. (2012), and Asimakopoulos et al. (2009). As a matter of fact, Gale (1972) connected size to market share, saying that bigger firms increase their market share and Gschwandtner (2005) emphasized the importance of size in POP theory (persistence of profit). On the other hand, Gale (1972), Bricongne et al. (2012), Békés et al. (2011), and Paunov (2012) found size as not significant in their studies. The set of positive and significant references to size in the literature encompasses studies considered "neutral" as far as the business environment, i.e., where it is not specified whether the business environment is a crisis or not, as well as those that focus on a specific type of crisis and its effects on profitability. Some of these studies support the theory that "the greater is the firm, the greater are the advantages that come with economies of scale", with size being an entry barrier that allows few competitors to generate more profits. Muller (1986) stated that "[u]nder the industry approach, when an industry's technology dictates scale economies, the size of the firm determines its costs. Only if it is big enough does it have low average costs". On

the other hand, the author recognised that "[u]nder the firm approach, efficiency determines size. The more efficient companies with superior products grow to be larger than other firms". Size is also associated with cheaper and easier access to credit and financial markets products. Authors like Goddard et al. (2005), Pi and Timme (1993), and Jensen and Murphy (1990) related size to lower profitability due to problems occasioned by agency theory. Although admitting fluctuation in results, Forbes (2002) concluded her study by affirming that the larger the firm the worst would be the performance. Hence, some ambiguity is evidenced for this variable in current knowledge but it is expected this variable negative and significant in times of non-crisis and positive and significant in times of crises. Results in this thesis partially reflect current knowledge and expectations. This variable is mostly positive and significant (in 93% of cases) but not well distributed among groups of countries and dependent variables. Regression results for developed countries are found to be fairly stable to evidence positive significance of size in times of crises and in times of non-crisis in main dependent variables (ROE, ROS, and SMR). However, there is no clear understanding in which environment this variable is more important for ROE but some bias in importance to crises periods can be seen to SMR and even FCF. Nevertheless, this difference in influence between business environments is something that can be comfortably concluded for ROS, especially for developing countries (the two groups). There, it is clear that size helps more ROS in times of non-crisis than in times of crises. Perhaps in stable environments, bigger firms in developing countries are able to increase their net income through more productivity, as will be seen ahead with similar conclusions related to gross margin variable, although the average correlation between the two is positive but lower than 0.2 in both phases. Still, for countries where the financial market is developed (Developed Group and Developing II Group), size is evidenced as a positive and important market parameter for stock returns in times of crises and in times of non-crisis. So, to developed countries and SMR size is significant irrespective of the business environment, while to ROS and developing countries size is more significant in times of non-crisis than in times of crises. Expectations about its negative influence on firm profitability are not observed at any time.

Market Share (MS_{it}) is considered an important firm characteristic to explain the persistence of profit (POP) in Resource-Based Theory. Previously, the first wave of IO, called Harvard tradition, believed that market power impedes competition and allows

above normal persistence of profits. Shepherd (1972) and Gale (1972) highlighted strong positive relevance of market share to firm profitability. Weiss (1979), Ravenscraft (1983), Scott and Pascoe (1986), and Goddard et al. (2005) found the variable positive and significant for profitability. Conversely, Mc Donald (1999) found it not significant. Then, it is important to stress that there is no record of negative and significant correlation of market share and profitability among previous studies and, so, it is expected positive and significant for non-crisis periods. Empirical analyses in this thesis find evidence that, in general, market share presents an erratic relationship to profitability. In addition, it is found negative significance for developed countries in times of crises and in times of non-crisis. Some positive relationship is found in developing countries, mainly for ROE and in times of crises.

Diversification (D_{it}) was found negative and significant in Scott and Pascoe (1986) and not significant in Ravenscraft (1983). The theory behind the support of this variable's significance to profitability is related to a possible synergy between different lines of business, decreasing research and development (R&D) costs, sharing firms' scarce resources, and lowering advertising expenses. In the world of financial investments, diversification means possibilities to risk reduction and less volatility in gains. The drawback is the potential reduction of capital gains. This trade-off between risk and return seems to be also behind the understanding of this variable as important to profitability. Maybe this strategy applies more as an attempt to keep profits constants, probably ignoring or subtending impacts of business cycles on profitability. Like market share, diversification is expected to be positive and significant in times of non-crisis. However, results in this thesis show diversification as a variable with very low significance to profitability. Again, like market share, diversification does not influence firm profitability in developing countries and has some negative impact on firm profitability in developed countries. Diversification and market share's correlations are considered quite weak (maximum of 0.19 in Developing Countries I, 0.08 in Developing Countries II, and 0.05 in Developed Countries). The obvious benefit of not having all your revenues coming from a specific industry or a few specific industries does not bring profitable returns to firms but maybe it can avoid significant losses. In addition, it does not protect investors from economic cycles since no evidence of a stable and significant relation to profitability at any kind of business environment was found. Nevertheless, diversification has its importance to business strategies because risk can be really lowered by it. In the end, the

problem lies in knowing in which sector/industries diversification should be made. Are they correlated? Are they crises immune? Is it possible to keep synergies even when it is previously known which industries are less correlated and crises immune? Probably, these questions were not on the table when strategic decisions were made towards firms' diversification. This thesis would help as a step ahead in this direction.

Liquidity (Liq_{it}) was found positively significant in Goddard et al. (2005), Bruni et al. (2014), and Demirhan and Anwar (2014), and neutral in Nunes et al. (2009). Liquidity can be interpreted as the possibility of a firm to, endogenously, generate cash to face temporary financial constraints occasioned, for instance, by a country crisis. It reduces the risks of a firm being unable to cover short-term commitments. An adequate portion of capital held in liquid assets may help future investments in long-term opportunities for growth. Conversely, excess of liquidity may contribute to agency problems between managers and shareholders, where profitable projects can be undermined in favour of firms' growth. Although the literature points to liquidity being beneficial to profitability, and it is expected that this variable behaves positively to profitability in times of non-crisis, results in this thesis do not confirm this. The above cited literature utilised 100% developed countries' samples in their research and found a positive influence of liquidity on profitability. Results in this thesis indicate a mixed relationship to profitability. For instance, non-crisis periods present the same number of positive and negative significant coefficients when considering all dependent variables and groups of countries. In general, 37% of significant coefficients are found negatively related to profitability in both phases. Of the remaining coefficients, 71% are done in Phase I (15 coefficients), mostly in developed countries. In turn, positive coefficients represent 63% of significant coefficients, divided into 50% for each phase. Theory suggests that a high level of liquidity can provide reassurance to short-term lenders to firms, because it decreases firms' interest costs and increases their possibilities to smooth unexpected events. On the other hand, excess of liquidity may represent financial losses to shareholders given that non-cash assets do not generate financial gains. However, these pros and cons on their own do not clearly impact firm profitability.

For age (Ag_{it}) the literature found a negative and significant relationship to profitability in Bruni et al. (2014) and Yazdanfar (2013), and positive and significant in Clarke et al. (2012) and Paunov (2012). It was found non-significant in Stierwald (2009). Those that

negatively associate age to profitability also associate lower sales growth rate and older firms. Those that positively associate age and profitability argue that firms that are more mature in the market and have accumulated more know-how over time, possess a better reputation, and have greater access to business networks. However, more information and know-how may imply less appetite for risk and, consequently, less openness to new challenges. On the contrary, young firms are abler to adapt to a changing environment and are less resistant to taking business risks but may have less access to financial market and credit. Either way, age is expected positive and significant in times of crises. The ambiguity showed in literature is also found in this thesis once significant regression coefficients are majorly positive (81%) but contradictory signs are also found in different regimes. In Phase II there is a clear positive connection with SMR and developed countries. Nevertheless, this performance is not confirmed in Phase I where some negative relationship occurs in almost all dependent variables and periods of time. Age is a common part of several studies using firms' growth rate, profitability, survival, and innovation as an independent variable. Nonetheless, there is no explicit connection with developed countries in these studies, although they were made mainly utilizing firms' data from developed countries. Moreover, in these studies, a strong connection between age and size in developed countries is reported. Here, the correlation coefficient between the two is considered weak, the average of 0.32 and 0.36 in Phase I and Phase II, respectively. In conclusion, this positive connection may be possibly restricted to developed countries in Phase II and can be account for by to the development of the financial market and to the comfort older firms can provide to lenders, offering more suitable collaterals or occasioned by stable and historic relationship between lenders and borrowers. Similar results found for the variable size in the same groups of countries reinforce this possibility.

Productivity is positively and highly significant in Stierwald (2009) and the most important variable in Yazdanfar (2013). Productivity was derived from cost function estimation in Stierwald (2009), while in Yazdanfar (2013) a proxy was utilised by dividing sales value by labour and capital costs. Previously, Jovanovic (1982) and Demsetz (1973) had already emphasized the importance of productivity to profitability through, respectively, its importance in the efficiency of available resources and production costs (operations and management). This thesis also utilised a proxy for productivity due to availability of data. Gross margin (GM_{it}) produces robust and

consistent regression results. As expected, it is virtually positive and significant in all groups of countries, phases, business environments and dependent variables. The literature argues that there is a decline in productivity during recessions because the decline in employment is smaller than the decline in output. This thesis does not fully agree with this affirmative given that regression coefficients for gross margins showed non-conformity in strength between crises and non-crisis periods in both periods. Nevertheless, there is some bias towards gross margin being more significant to profitability in times of crises, contradicting what was also expected. The literature reviewed above is specific for recession periods, but if S4 is isolated and compared to S16, non-conformity remains in most of the cases. A study from McGrattan and Prescott (2014) already challenged this assumption and this research is congruent with their findings. However, observed coefficients are representative in absolute terms. It was rare to found a significant coefficient with less than 0.1 in relevance. Some of them were higher than 1, meaning that a 1% change in gross margin leads to 100% positive change in profitability, real and direct evidence of productivity gain to profitability. However, its strength between crises and non-crisis periods was different for each type of dependent variable under analysis. For ROE, it presented mixed results. For ROS, gross margin appeared most of the time stronger in times of non-crisis, while the opposite happened for SMR, i.e., this variable was mostly found stronger in times of crises. Furthermore, gross margin is connected to size in ROS as previously seen. So, interesting conclusions can be made in a case-by-case basis, per groups of countries, type of crisis or non-crisis periods, or dependent variables.

Traditionally, ownership (DO_{it}) is seen as a positive factor for those firms located in developing countries when facing crises. More specifically, firms that are foreign-owned when in financial constraints, provoked by countries' crises, perform better than their local competitors in terms of profitability. Foreign-owned firms overcome liquidity constraints through ultimate parent company support with intra-lending activities, as well by being an exports destination. This variable was found positive and significant in Desai et al. (2008), Blalock et al. (2007), and Kolasa el al. (2010) and non-significant in Clarke et al. (2012). On the other hand, it was found negative and significant in Bruni et al. (2014) and Varum and Rocha (2011). Hence, the literature is not consistent about the scope of this variable to explain firm profitability, neither is the empirical evidence in this thesis. Regression results are very clear in terms of the contradictory signs revealed and

the low frequency of significant coefficients in ownership to explain firm profitability. Sparse and disconnected significant coefficients are found, having almost half of them significant only at the 10% level. The idea of the ultimate parent company located abroad being a financial safe port, risk-adverse inductor (due to unfamiliarity with host business environment), and ready to offer external market to drain production find no scope when it comes to explaining profitability.

External dependence (Fd_{it}) was originally thought as an important industry variable to explain the growth and development of industries in Rajan and Zingales (1998). The idea behind this connection is related to benefits that lower costs to finance investments, in places where a developed financial market exists, would bring to long-run economic growth. Hence, countries with less access to international markets would have more difficulty to properly finance their innovation and investment projects. Further empirical studies referenced this variable to a firm level and found it negative and significant, as in Braun and Larrain (2005), Békés et al. (2011), and Dell'Ariccia et al. (2008). It is important to highlight that given that this variable can be negative or positive, care should be taken about regressions' conclusions. As an intrinsic characteristic, external dependence is able to measure a condition of a firm (CAPEX is covered or not by internal resources) as well as its intensity towards this condition (degree of dependence in currency terms). Still, their descriptive analyses show negative and positive medians and means over the groups of countries. As a consequence, regression coefficients are very close to zero. So, if external dependence coefficient is fixed, then for each unit of change in this coefficient, the dependent variable practically does not change. Consequently, positive coefficients mean that the more dependent a firm is on external resource to finance its investments, the better it is to profitability. On the contrary, negative coefficients mean that the more dependent a firm is on external resource to finance its investments, the worst it is to profitability. With regard to regression results, this variable produces consistent results towards its damage to profitability when a firm is dependent on external funds. As expected, negative and significant coefficients were found not only in times of crises but also in times of non-crisis, in developing and developed countries, and in Phase I and Phase II. Predominantly, firms' external dependency is clearly worse for those firms located in developed countries. In almost all types of crises and in all non-crisis periods developed countries coefficients are negative and significant. It means that

firms not able to generate their own resources in developed countries are harmed in their profitability's measures.

7.5 – Conclusions

The aim of this research is to identify the determinants of firm profitability in 27 countries, grouped in three groups, from 1990 to 2014, and over distinct business environments (crises and non-crisis periods). For this purpose, in previous sections, firms-level data were utilised and regression results were obtained and analysed group by group and per type of dependent variable. An interpretation of results and comparison to current knowledge, as well as direct answers to questions, were also provided.

However, another important conclusion come from coefficients of independent variables in regressions. Satisfactory levels of significance, as well as low levels of R^2, were found during empirical tests. Low R^2s are not necessarily a bad outcome. In fact, previous literature about firm profitability already produced low R^2s, as in Scott and Pascoe (1986), Bruni et al. (2014), Tan (2012), Claessens et al. (2011), Kolasa et al. (2010), Blalock et al. (2007), Clarke et al. (2012), and Bricongne et al. (2012), all presented in APPENDIX C. Low R^2 means that it has been hard to predict firm profitability, especially in times of non-crisis. Even though it is possible to draw some important conclusions about how changes in independent variables in use are associated with changes in firm profitability, if coefficients are statistically significant, then they may fairly represent the mean change in the response for one unit of change in the coefficient while holding constant other coefficients in the model. Additionally, it is not the intention and the aim of this research to produce precise coefficients. This thesis looks for changes in the importance of variables in accordance with changes in the business environment. So, signs and significance are the most important aspects of regressions. Here, the F-test of overall significance, which determines whether model and response variable's relationship is statistically significant, is the most important information to be observed.

In general, it is found that more independent variables explain the dependent variables in times of crises than in times of non-crisis. In addition, it reveals a persistent presence of omitted variables in times of non-crisis given that their R^2s are much lower than in times

of crises (an overall average of R^2 in times of crises is 1.1 times the R^2 in times of non-crisis), as demonstrated in Table 7.10:

Table 7.10 – Summary of R^2

	Phase I					Phase II			
	ROE	ROS	SMR	FCF		ROE	ROS	SMR	FCF
S1	0.312	0.599	0.141	0.067					
S2	0.394	0.414	0.249	0.019		0.275	0.253	0.381	0.036
S3	0.244	0.273		0.366					
S4	0.107	0.448	0.206	0.028		0.169	0.276	0.252	0.018
S5	0.663	0.268	0.663	0.118					
S6	0.041	0.200	0.221	0.016					
S7	0.481	0.500	0.154	0.146		0.318	0.111	0.644	0.058
S8									
S9	0.605	0.185	0.338	0.060		0.366	0.270	0.246	0.022
S10	0.427	0.250	0.237	0.103					
S12	0.531	0.647	0.424	0.757					
S15	0.659	0.307	0.072	0.266					
S16	**0.379**	**0.113**	**0.143**	**0.003**		**0.099**	**0.237**	**0.112**	**0.004**
S4	0.142	0.202	0.352	0.008		0.196	0.213	0.435	0.020
S16	**0.041**	**0.293**	**0.164**	**0.005**		**0.057**	**0.070**	**0.268**	**0.017**
S1	0.140	0.263	0.212	0.002		0.019	0.357	0.188	0.005
S2	0.049	0.333	0.148	0.004					
S4	0.100	0.317	0.114	0.007		0.083	0.131	0.290	0.005
S7	0.213	0.208	0.081	0.009		0.059	0.295	0.262	0.002
S12	0.572	0.731	0.394	0.082					
S16	**0.060**	**0.283**	**0.178**	**0.001**		**0.067**	**0.377**	**0.098**	**0.001**

Source: Author

Variables ROE, ROS, and SMR presented acceptable average R^2 when in times of crises (averages of 0.287 for ROE, 0.322 for ROS and 0.279 for SMR). However, their performance in times of non-crisis does not show the same levels. As expected, FCF performed poorly, not mattering if in times of crises or in times of non-crisis. ROS and SMR show the lowest discrepancy in R^2 between times of crises and times of non-crisis, below 1 (100%) times higher in crises periods over non-crisis periods. Still, ROS shows the highest average (0.304) and the lowest coefficient of variation (0.49), demonstrating a lower dispersion of its R^2s. Individually, the highest R^2 is seen at S12 in FCF (Developing Countries I, Phase I), closely followed by S12 in ROS (Developed Countries, Phase I). In this sense, Phase I and Developing Countries I provided higher averages coefficients, while S12 gives the highest average (0.517), followed by S5 (0.428) and S6 (0.119) gives the lowest average coefficient of determination.

These observations evidence the necessity for further investigation of the key drivers of firms' FCF and the fact that other firms' dependent variables are well explained by the firms' independent variables derived from financial statements. It also can be argued that ROE, ROS and SMR are also determined by other specific and wide variety of firms' tangibles and intangible variables not presented in financial statements and neither in the models[109]. Nevertheless, this R^2 analysis opens further possibilities to improvement in the knowledge with regard firm profitability in times of non-crisis. Still, it is also interesting to notice the variance in R^2 between dependent variables in the same business environment (e.g. observed R^2s in ROE, ROS, SMR and FCF in S4 for Developing Countries I). Understanding that these differences are mainly due to the change in the dependent variable observations (independent variables are exactly the same and samples are similar), this can be interpreted as a sign that, depending on the type of crises, more or less omitted firms' variables increase or decrease their importance in explaining firm profitability, especially when the choice to run random models 100% of time allows the presence of high-level firm characteristics (time-invariant) in the error term. This finding agrees with McGahan and Porter (1997) and McGahan (1999) when these studies highlighted the importance of firm effects over industry effects in explaining profitability but affirmed that firm effects have a large transitory component if compared to a large permanent effect on industry's effects. Finally, it is possible to assure that variables in use in this thesis do better determine profitability than in previous studies in the field. A possible explanation lies in the combination of control variables related to industries and countries to the models, something that did not appear frequently in previous studies. In addition, the importance and significance of lagged variable in models related to crises periods were neglected in previous literature dedicated to understand firm profitability in times of crises.

In this sense, a source of potential problems to regression results provided on this chapter is related to the inclusion of lagged dependent variables in the models and problems with endogeneity. The literature is clear about lagged independent variables and their correlations with the error term. Although this concern is valid for a vast majority of studies, this is not the case in this thesis. By running random effects model in 100% of

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[109] As an example, strategy is known as an important variable to explain firm profitability but there is no variable to incorporate these firm characteristics that would fit into a linear regression. So, it composes the error term.

the time, independently of results from Hausman test, it is found just a few cases of correlations between the error term and lagged dependent variable that can be considered in maximum, weak, as demonstrated in Table 7.11:

Table 7.11 – Summary of correlations between the error term and lagged independent variables

	Phase I				Phase II			
	ROE	ROS	SMR	FCF	ROE	ROS	SMR	FCF
S1	0.000	0.021	0.000	0.271				
S2	0.016	0.010	0.020	0.000	0.214	0.415	0.030	0.067
S3	0.011	0.029	0.000	0.000				
S4	0.057	0.102	0.000	0.004	0.054	0.034	0.016	0.000
S5	0.000	0.000	0.000	0.000				
S6	0.000	0.000	0.040	0.032				
S7	0.000	0.000	0.000	0.000	0.271	0.439	0.000	0.033
S8								
S9	0.181	0.018	0.054	0.000	0.048	0.007	0.022	0.000
S10	0.000	0.000	0.000	0.000				
S12	0.000	0.000	0.000	0.000				
S15	0.000	0.000	0.000	0.000				
S16	**0.134**	**0.037**	**0.052**	**0.024**	**0.092**	**0.071**	**0.040**	**0.025**
S4	0.064	0.104	0.046	0.049	0.166	0.180	0.018	0.000
S16	**0.098**	**0.200**	**0.000**	**0.000**	**0.081**	**0.113**	**0.027**	**0.006**
S1	0.112	0.031	0.020	0.094	0.058	0.127	0.048	0.040
S2	0.027	0.029	0.008	0.000				
S4	0.045	0.067	0.014	0.017	0.114	0.308	0.024	0.000
S7	0.142	0.237	0.074	0.002	0.176	0.167	0.047	0.059
S12	0.000	0.000	0.000	0.000				
S16	**0.099**	**0.189**	**0.000**	**0.027**	**0.120**	**0.165**	**0.055**	**0.049**

Source: Author

As can be seen, just a few cases register some correlation that may bring some concern, although none of them should be considered high. The highest correlation, a moderate 0.439 (ROS, S7, Phase II, Developing Countries I), presents a significant negative coefficient that should be greeted with care. The second highest (ROS, S2, Phase II, Developing Countries I) is not significant.

Finally, another important aspect reported at the methodological chapter and that deserves attention in conclusions is the choice to run Random Effect models in 100% of the cases to better represent the interest of this research. The worry about losing important theoretical variables (ownership, product characteristics, and export orientation) also helps the decision to Random Effects models in 100% of the cases. As demonstrated

above, there is no correlation between lagged dependent and the error term that would lead to an endogeneity problem between these two components in any dynamic panel regression. Second, no correlation between error terms and independent variables was found in the panel estimations. The highest correlation observed was 0.16 with leverage happening in Developed Countries, Phase I, ROE in S7. In addition, Hausman test would choose Fixed Effects models in 80% of the cases. If the Hausman test guided the decision and Fixed Effect was adopted instead of Random Effects, variable age would be dropped 16 times in Phase I and 16 times in Phase II, variable ownership would be dropped 37 times in Phase I and 43 times in Phase II, variable product characteristics would be dropped 52 times in Phase I and 44 times in Phase II, and variable export oriented would be dropped 49 times in Phase I and 44 times in Phase II. The drop of these last two control variables for firms' regressions represents 100% of the cases in Phase II, 94% of the cases for export oriented in Phase I, and another 100% of the cases for export orientation in Phase I. Thus, it is demonstrated that the loss that would come with the extractions of these important control and interest variables if fixed effects models were in place, as well as the possible loss that would come with the elimination of higher-level entities, the time-invariant part of observations that can influence lower-level entities (time-variant).

CHAPTER 8
Conclusions

8.1 - Introduction

This thesis investigated the relationship between firm profits and country crises from the perspective of the strategic management paradigm. Our analysis builds on Forbes' (2004) critique that establishes the necessity of having more than one model to understand firm characteristics, when explaining the impacts of crises on firm profitability. This thesis first identified the main firm and industry-level indicators that would help investors predict adverse impacts on investments in case of a specific country crisis. It also highlighted that the range of types of crises increased substantially in the past four decades.

In this regard, results from firms and industries regressions demonstrate that most coefficients are not stable among crises periods, among non-crisis periods, and between groups of countries. This instability in coefficients can be considered natural, since they reflect instability in parameters that comes from the macroeconomic environment. A consistent explanation for such discrepancies in coefficients lies on the changes in the level of intensity of crises, and of the diverse characteristics of the periods of crises, which were identified in the literature review. Nevertheless, some insightful conclusions were obtained regarding an individual dependent variable, a specific group of country, or a type of crisis or non-crisis periods. Furthermore, one of the most desirable phenomena searched in this study is related to changes in strength and signs in the same coefficient when in times of crises and in times of non-crisis. As seen, changes in strength were observed in some variables, which represent powerful information for, among other purposes, model profitability in different business environments. On the other hand, some regression coefficients changed their signs between crises and non-crisis periods. For instance, in ROE for liquidity in Developing Countries I (both phases), in ROS for leverage in Phase I for Developed Countries, and in SMR for liquidity in Phase I for Developing Countries I and Developed Countries. These examples are remarkable since the independent variable would provide a strong influence on profitability depending on the time where the business environment is. Hence, close attention should be given to

these variables, since they have the power to influence strategic decisions in a way to avoid their prevalence in firm profitability during crises periods.

The section below will address research questions, followed by a brief restatement of main findings and by contributions to current knowledge. The final section presents limitations and launches ideas for future studies.

8.2 – Research questions

This last chapter summarises the answers to the research questions presented in Chapter 1. Empirical results provided evidence to support that firm profitability is differently affected by the business environment in which firms operate. A discussion on each question follows below.

Question 1: Are lagged dependent, leverage, size, liquidity, age, productivity, market share, and diversification significant to explain firm profitability in times of non-crisis? Previous studies dedicated to model firm profitability within the strategic management field (SCP and RBV) suggested lagged profitability, leverage, size, liquidity, age, productivity, market-share and diversification as key variables to explain profitability. From these variables would be derived a model to explain profitability in times of non-crisis, owing to the fact that no author mentioned the business environment as an important variable or that they assumed that this variable was controlled for. The empirical results in this thesis contradict this assumption and the possibility of having the better or the best set of independent variables to predict firm profitability in times of non-crisis. I found evidence that no model is able to perform effectively in different countries and at different times. However, some firm-level variables remain steadily significant irrespective of country and time, but they are not fully matching to those identified in the SCP and RBV theories.

The question identified eight firm-level variables as the best to explain firm profitability in times of non-crisis. First and most importantly, regression results in this thesis found little scope to assert that market share and diversification are able to explain firm profitability in times of non-crisis. On the other hand, lagged profitability was significant and positive, as expected, and the empirical evidence strongly supported that this variable

explained firm profitability. Leverage was also expected to be negatively significant in times of non-crisis and regression results confirmed that it is negative and significant only when the dependent variable is ROE, confirming the importance of capital structure to firm profitability. The coefficient of size was, as expected, positive and significant to firm profitability, but especially for developed countries. For developing countries, this variable is clearly positive and significant when the dependent variable is ROS. In those countries, it is stronger in times of non-crisis than in times of crises. Regression results for liquidity contradict expectations about its positive influence on firm profitability. Empirical evidence provided puzzling results that do not provide a clear direction on the importance of this variable to profitability. In the literature, the variable age was imprecise about its sign on profitability but widely considered significant. In this thesis, it behaves similarly to size in developed countries and in Phase II, being positive and significant to firm profitability in ROE, ROS, and SMR. Recent studies were able to measure firms' productivity in a more objective way and to confirm its positive significance for profitability. In this thesis, gross margin represents productivity and the empirical evidence in this thesis suggests that this variable is extremely significant and positive to firm profitability in times of non-crisis. Finally, against expectations, external dependency appeared negatively significant to explain firm profitability in times of non-crisis in several regressions.

Question 2: Are leverage, size, age, productivity, ownership, and external dependence significant to explain firm profitability in times of crises?

More recently, the importance of the business environment to firm profitability was emphasized in several studies that moved away from SCP and RBV lines of thoughts about the predictors of firm profitability. These studies incorporate some variables such as ownership and external dependence, as well as leverage, size, age, and productivity. By excluding those variables more related to market share, the basis for studies in SCP, it would derive a model to explain firm profitability in times of crises. As in Question 1, empirical results do not support the assumption and the possibility of having the best or a better set of independent variables to predict firm profitability in times of crises. This highlights the fact that no model is able to perform well in out of sample data coming from different countries and at different times. Still referencing Question 1, some firm-level variables remain significant to explain profitability in times of crises, but they are different from those suggested by the literature. First, leverage was expected to be

negatively significant in times of crises and empirical results confirm that it is strongly negative and significant when the dependent variable is ROE, enhancing the importance of capital structure in times of crises. Size was expected to be positive and significant and regression results supported this expectation only in developed countries. However, when the dependent variable is ROS, size is also positive and significant in developing countries, but in less intensity in times of crises. Size and age have, in fact, similar importance and significance to firm profitability. Age was also found positive and significant only for developed countries, with obscure results to developing countries. Productivity was represented by gross margin and regression results confirm this variable as extremely significant and positive to firm profitability in times of crises, especially when the dependent variable is ROS. On the other hand, ownership was expected positive and significant in times of crises once it was seen as a guarantee of support from the ultimate parent in difficult times. Conversely, evidence in this thesis go against this expectation, disclosing its general irrelevance to firm profitability. In the end, lagged profitability contradicted the expectation and appeared significant and positive to explain firm profitability in times of crises.

Question 3: Do any independent variables common to models of crises and non-crisis (leverage, size, age, and productivity) improve or decrease their significance between the two models (thus presenting difference in relevance to profitability)?

The idea behind this question is to understand the behaviour of independent variables identified as relevant to explain firm profitability in periods of crises and non-crisis, in terms of coefficients' strength and signs. Variables such as leverage, size, age, and gross margin, are expected to be significant to both business environments, namely crises and non-crisis, and their significance and strength vary when in these different business environments. The empirical evidence from regressions demonstrates that leverage is a variable with erratic behaviour among crisis/non-crisis phases, types of dependent variables, and groups of countries. Closer to what is expected, gross margin produces different impacts on firm profitability but also depends on the dependent variable under analysis and their phases. Gross margin in Phase I is stronger in times of crises for Developing Countries II and Developed Countries, something that does happens in Phase II. As expected, for ROS, some consistency among phases is observed for Developing Countries I and Developed Countries, as far as gross margin is concerned. Gross margin is stronger in times of non-crisis. Different results are found for SMR where Developing

Countries II and Developed Countries have gross margin consistently stronger in times of crises. Similar consistency can also be seen for the variable size when as an explanatory factor of ROS. This variable explains more firm profitability in times of non-crisis than in times of crises in developing countries. Finally, the explanatory variable age, which is common to both phases, crises and non-crisis, did not provide robust results regarding different behaviour when in different business environments.

Question 4: Which set of firm and industries variables better explain the impacts of crises on firm profit? Are they the same in times of non-crisis?

This question was originated in the theory explaining the impact of industry characteristics on firms 'profitability and it builds on Questions 1, 2 and 3. It aims to unfold industry-level variables that better explain firm profitability in times of crises and in times of non-crisis. Model 1 (Chapter 6) is specific for industries and presents three independent variables of interest, export orientation, concentration, and product characteristics. Export orientation was important mainly to developed countries, negatively influencing firm profitability in ROS but positively in SMR. Hence, due to instability in signs found for both dependent variables and the low relevance delegated to the other two groups of countries, it is not possible to specify if this variable increases or decreases its influence on firm profitability depending on the business environment it is surrounded. Similarly, concentration found some significance only when profitability is measured by SMR, although coefficients' signs are mixed when this variable is significant. So, no clear-cut conclusion is possible to be made regarding concentration. In turn, product characteristics were mostly found negatively related to firm profitability in times of crises, supporting Question 4.

Question 5: Do different types of crises call for a different set of independent variables to explain firm profit?

Based on the literature about the effects of crises on firm profitability and understanding that two crises combined would produce different outcomes to profitability than the simple sum of individual outcomes, different types of crises would call for a different set of independent variables to explain firm profit. Still, different countries would also call for different independent variables. Results in this thesis strongly support this proposition. When looking at Table 7.38, there are more independent variables explaining dependent variables in times of crises than in times of non-crisis. It reveals a persistence of omitted

variables in times of non-crisis, given that their R² are lower than in times of crises. Here, it is evidenced the first great difference between crises and non-crisis periods, showing the necessity to bring more variables to non-crisis model other than those also present in times of crises. Regressions were not run on a country-by-country basis, but in groups of similar countries. If an illustrative exercise is made, consisting of grouping regression coefficients per group of countries, dependent variable and types of crises, Tables 8.1, 8.2, 8.3 and 8.4 would provide some interesting insights, as follow:

Table 8.1 – Coefficients in ROE grouped by groups of countries

ROE	Phase I								Phase II									
	Lag	Lev	Sz	Liq	Age	GM	Own	Ex.D	Lag	Lev	Sz	Mkt	Div	Liq	Age	GM	Own	Ex.D
S1																		
Developing I	0.43	-0.04			-0.00	0.20		-0.00										
Developed	0.12	-0.02	0.01	-0.02	-0.00	0.26		-0.00	-0.02	-0.03				-0.06		0.42	0.14	-0.00
S2																		
Developing I	0.32	-0.11	0.02			0.14		-0.00	0.10	-0.06		0.51				0.25		
Developed		-0.05	0.02	-0.02	0.00	0.15		-0.01										
S4																		
Developing I		-0.04		0.02		0.15			0.05	-0.05	0.01	0.27				0.34	-0.07	-0.00
Developing II		-0.24	0.03			0.26		0.00	0.19	-0.06		0.28		-0.01	0.00	0.27		-0.00
Developed	0.03	-0.08	0.04	-0.02	0.00	0.36	0.08	-0.01	0.03	-0.07	0.04				0.00	0.18		-0.00
S7																		
Developing I	0.54	-0.07	0.02		0.00			-0.01	-0.13	-0.09	-0.05					0.80		
Developed	-0.13	-0.08	0.03	-0.01	-0.00	0.27		-0.00	-0.11	-0.13	0.05			-0.05		0.50		-0.00
S12																		
Developing I	0.58			0.09		0.50												
Developed	0.80	-0.01					0.07											
S16																		
Developing I	0.34	-0.03	0.00	-0.00		0.21		-0.00		-0.04	-0.01	0.48		-0.02		0.48	-0.03	-0.00
Developing II		-0.05	-0.01	-0.03		0.17		-0.00	0.03	-0.09	0.02					0.53		
Developed	-0.02	-0.08	0.03	-0.01	0.00	0.25		-0.01	0.14	-0.06	0.03				0.00	0.17	-0.05	-0.00

Source: Author

Table 8.2 – Coefficients in ROS grouped by groups of countries

ROS	Phase I								Phase II									
	Lag	Lev	Sz	Liq	Age	GM	Own	Ex.D	Lag	Lev	Sz	Mkt	Div	Liq	Age	GM	Own	Ex.D
S1																		
Developing I	0.44	-0.03	0.01	0.02	-0.00	0.28		-0.00										
Developed	0.72		0.00	-0.00		0.10		-0.00	0.22		0.08	-1.26		-0.03	0.00	1.01		-0.02
S2																		
Developing I	0.62	-0.01	0.01		0.00	0.12		-0.00		0.01		0.30		0.06		0.10	0.05	
Developed	0.25		0.07	-0.05		1.35		-0.02										
S4																		
Developing I	0.31		0.01	0.03		0.22		-0.00	0.03	-0.00	0.02			0.02		0.33		-0.00
Developing II	0.09	-0.02	0.03	0.01		0.26	-0.04	-0.00	0.06		0.04			0.02		0.46		-0.00
Developed	0.19		0.06	-0.04	0.00	1.14		-0.02	0.10	0.01	0.03	0.95		0.05	0.00	0.36	0.11	-0.01
S7																		
Developing I	0.45	-0.02	0.02	0.02		0.13		-0.01	-0.19	-0.03			0.16	0.06		0.37		
Developed	0.07	-0.00	0.00	0.01	-0.00	0.13		-0.00	0.15		0.07	-0.47	-0.15	0.03	0.00	0.82		-0.01
S12																		
Developing I	0.56			0.06				-0.01										
Developed	0.70	-0.00				0.02	0.02											
S16																		
Developing I	0.01	-0.05	0.03	0.00		0.74		-0.00	0.28		0.02			0.02		0.49		-0.00
Developing II	0.26		0.05	0.02		0.25		-0.00	0.09		0.07			0.06		0.71		
Developed	0.09	0.00	0.07	-0.02	0.00	1.49		-0.01	0.18		0.06			-0.05		1.05	-0.05	-0.01

Source: Author

Table 8.3 – Coefficients in SMR grouped by groups of countries

SMR	Phase I								Phase II									
	Lag	Lev	Sz	Liq	Age	GM	Own	Ex.D	Lag	Lev	Sz	Mkt	Div	Liq	Age	GM	Own	Ex.D
S1																		
Developing I	0.12					0.33												
Developed	0.22		0.01		0.00			-0.00	0.10		0.02	-0.39		0.02		0.04		-0.00
S2																		
Developing I	0.14	-0.04	0.03			0.24			0.39							0.09		-0.01
Developed	0.12		-0.01			0.04	-0.05	-0.00										
S4																		
Developing I	0.16			0.05					0.16		0.03				0.00	0.19		
Developing II	0.09		0.02		0.00	0.07		-0.00	0.04		0.03			0.02	0.00	0.27		-0.00
Developed		-0.00	0.04		0.00	0.17		-0.01	0.21		0.01	0.03		0.02	0.00	0.21		-0.00
S7																		
Developing I	0.11		-0.05															
Developed		-0.00	0.02		0.00	0.14		-0.00	0.11		0.02	-0.04		0.03	0.00	0.13		-0.00
S12																		
Developing I																		
Developed	0.35	-0.02		-0.04	-0.00	0.32												
S16																		
Developing I	0.24			-0.01	0.00	0.27		-0.00	0.06	-0.01	0.02			0.02	0.00	0.30		
Developing II	0.10		0.03						0.19		0.02					0.26	-0.08	
Developed	0.40	-0.00	0.01	0.01	-0.00	0.08		-0.00	0.15	-0.00	0.02	-0.12		0.02	0.00	0.08		-0.00

Source: Author

Table 8.4 – Coefficients in FCF grouped by groups of countries

FCF	Phase I								Phase II									
	Lag	*Lev*	*Sz*	*Liq*	*Age*	*GM*	*Own*	*Ex.D*	*Lag*	*Lev*	*Sz*	*Mkt*	*Div*	*Liq*	*Age*	*GM*	*Own*	*Ex.D*
S1																		
Developing I																		
Developed	-0.09		0.10					-0.02	-0.03		0.06							0.41
S2																		
Developing I			0.23															
Developed																		
S4																		
Developing I						2.46					0.21							-0.03
Developing II	-0.04			0.29												1.47	0.75	
Developed			0.11					0.02								0.78		
S7																		
Developing I				-0.54	0.01	3.00		-0.24										
Developed								-0.02	-0.04	0.06								-0.01
S12																		
Developing I																		
Developed																		
S16																		
Developing I				-0.08	0.84			-0.01	-0.02	-0.07	0.12						-0.35	-0.01
Developing II								-0.01						-0.12		1.57		-0.03
Developed	-0.02		0.08		0.25				-0.04	0.05								-0.01

Source: Author

These tables provide evidence that the dispersion in coefficients' signs, their significance and their influence on main dependent variables, supporting the necessity of having different independent variables to different types of crises when trying to predict the effects of crises on firm profitability.

Question 6: Do different types of crisis produce different outcomes on firm and industry profitability? Is there a type of crisis that harms the most firm and industry profitability? Does a combined crisis hit harder firm profitability than a single crisis? If yes, which combinations?

This question addresses the issue of whether different types of crises produce different outcomes on firms and industry profitability. If so, there may be a type of crisis that harms most firms and industry profitability. Still, as I infer from the literature review[110], a combined crisis is expected to hit harder firm profitability than a single crisis. The empirical evidence in this thesis confirms the expectation in several aspects. First, all types of crises (S15) produces the worst results for firms and industry profitability, followed by single crises. However, both ranks do not follow the same order (i.e. the third position is triple for firms and it is double for industries), evidencing that linearity is not

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[110] Mainly works performed by Kaminsky and Reinhart (1999), Bordo et al. (2001), and Laeven and Valencia (2013).

present when crises are together. Data also supports that Real Estate as the most sensitive industry to crises, whilst Utilities are the most resilient to crises. Second, regression results evidence that not all types of country crises affect firm profitability with the same severity, having geographic location as an important factor of diversity. Third, data suggests the lower impact of debt crises and the disruptive power of recessions on firm profitability. This result confirms what Zarnowitz (1992) observed: "[b]usiness profits show very high conformity and much greater amplitude of cyclical movements than wages and salaries, dividends, net interest, and rental income".

8.3 – Research findings

Our main findings suggest that RBT should supplement and not supplant the traditional and well-established IO framework. This point of view is sustained by recent changes perceived in SCP models. Currently, SCP modelling studies (identified with IO theory) are more prone to remedy some identified weaknesses in this theory, such as 1) more focus on profitability and less on performance, which is a vague word sometimes associated by economists to social performance, 2) firm-level variables influence industry outcomes and vice versa, so firms' differences should not be treated only as "random noise", 3) the human dimension influencing strategies and choices, represented by managerial decision making processes, should be more visible, and 4) a less static environment, where changes in industry concentration may occur. As emphasized in Slade (2004), "[t]he empirical IO literature has moved from an examination of many markets using the same model to an emphasis on case studies that are fine tuned to fit particular markets and are much more data intensive". Second, it seems that there is, no longer, reconciliation needs regarding which factor explains the most firms' performance variance. For instance, as a result of an intense work in comparing seminal papers (Schmalensee (1985), Wernerfelt and Montgomery (1988), Rumelt (1991), Roquebert et al. (1996), and McGahan and Porter (1997)) regarding variance-decomposition literature to explain firm profitability, McGahan and Porter (2002) concluded their work enlightening that differences between RBV and SCP approaches can be reconciled. They continued saying that both industry and firm specific effects affect firm profitability and they are related to each other in complex ways. Moreover, other contributors used both firms and industry variables in a variance-decomposition technique to assess which one explains the most firm profitability but the outcomes of the analysis were, sometimes,

conflicting. However, using more recent and extensive data, wider variety of economic activity, and more refinements or alternative indicators[111], new variance-decomposition literature has confirmed the importance and significance of the firm effect on firm profitability. Interesting to notice, similarly significant is the error term (the unexplained variance in profitability) of the models which is, most of the time, dominant over industry and firm variables. Therefore, there is no dominant theory or model that explains firm profitability under normal business conditions. In this matter, a thorough and up to date revision of papers in strategic management allowed Bourgeois III et al. (2014) set an interesting and also unique point of view, that "strategists tend to find strong BU effects [firms effects], while economists tend to find strong industry effects" and the reason may lie on another interesting comparison made by Nelson (1991). For this author, "economists tend to see firms as players in a multi actor economic game, and their interest is in the game and its outcomes, rather than in the particular play or performance of individual firms", whereas strategists are concerned with the performance and behaviour of individual firms, acting in their own interests.

In the literature of crises, it is clear that two crises are not identical and, additionally, crises have different sources and consequences depending on the country where they develop. It has not been identified one simple rule that would embrace all observed crises events as well as all countries in the study. Crises were understood as abrupt changes in parameters of normality. These parameters were established in economic, financial, political and social arenas. This thesis considered economic and financial aspects of crises and studied their effects on firm profitability. The political and social aspects are still there, present in the countries' business environment but were intentionally left behind due to the difficulty to capture the exact moment a political or social crisis start and end. Moreover, the social and political aspects of crises are highly subjective to identify, and there is no consensus in the literature about their emergences and their ends. Despite this, political issues were heavily mentioned in the crises I studied. Politicians can promote lending practices not technically sound and with a poor risk assessment, something that may contribute to an increase in non-performing loans, one of the triggers for banking crises. Gordon Brown's "light touch regulation" is a stark example of how political interventions can lead to crises, in this instance, the 2008 financial crisis in the UK. In

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[111] Studies over Schmalensee (1985) and Rumelt's (1991) work raised questions about applied data and method (Powell, 1996).

addition, the importance of a country's defence of its currency relies on political decisions about fighting or not against speculators. Political instability could thus be a pre-condition for currency crises if economic fundamentals are exposed to speculative attacks. Similarly, politicians can influence currency crises when postponing necessary adjustments in the exchange rate as a way to avoid undesirable impacts (notable unemployment) due to, for instance, elections that are coming. The Mexican debt crisis in the 1980s was attributed to political turmoil faced by the country at that time. Still, unfavourable political environments may lead to a lack of credibility by investors and provoke liquidity crises, closing the country's ability to borrow on international capital markets and to roll over its debts. Presidential elections and their uncertainty to the business environment were also remembered as a political factor that would influence debt crises. Similarly, political disunity and conflicts may surge when there is a necessity for a fiscal adjustment as a way to avoid debt crises. Certainly, the lack of willingness to pay is possibly the most representative and concrete event connecting crises to political problems. Macroeconomic volatility is one reason for slow economic growth and recessions and political issues were attributed as a cause outside economic environment. Weak institutions that do not constrain politicians and political elites boost political instability and recessions. In the end, political crises were classified (as wars and social disturbances) as powerful events to shock a country's environment. As seen, political reasons are widely commented in literature review of countries' crises as a subjective but very strong factor triggering crises. However, a definite conclusion was not reached yet. This thesis assumes that the political environment and occasional political crises are the spring for financial crises. Eventually, the social component is believed to be part of political decisions, motivating politicians' decisions towards available options.

The multi-dimensional aspect of crises was upheld by the results of Chapter 5, which supported the clustering behaviour of crises suggested by Reinhart and Rogoff (2009). Developing countries tend to be more exposed to crises than developed countries, especially crises involving debt default. Developed countries remain more subject of single crisis type of crisis while developing countries are more affected by combined crises, confirming the less stable business environment found in this group of countries. With regard to crises combination, banking crises and debt crises appeared less together while banking crises and recessions are the most frequent combination. In fact, recessions are present in 40% of combined crises and debt crises appear combined in most of the

time. These findings confirm the trigger characteristic of recessions and point out debt crises as a crisis in the wake of other crises. Chapter 5 was also able to provide an analysis of the effects of crises on GDP growth. There, it was confirmed recessions as the top harmful type of single crises to GDP growth. In addition, a combined crisis with recessions is worst for GDP growth than a pure recession. Debt and currency crises can bring benefits in terms of growth to GDP.

The descriptive analysis of dependent variables in Chapter 6 allowed some important conclusions about firm profitability and crises. First, data supported a high level of accuracy in determining countries' crises years. Statistically different returns between crises and non-crisis periods were observed in almost all dependent variables. Furthermore, as expected, crises compromise firm profitability and bring more uncertainty in the business environment. Still, firms under a less turbulent environment (tranquil, non-crisis) are more prone to assume more risks, performing more in accordance with their own internal capabilities and resources. This interpretation found scope in a study performed by Nelson and Winter (1982, cited in Rumelt et al., 1991) where the authors thoroughly analysed the sources of firm differentiation. For them, concepts of tacit knowledge and routines are in the dynamics of Schumpeterian competition. In a struggle to improve or to innovate, firms search for better methods with a partial understanding of the causal structure of their own capabilities. The idea is that organisational capabilities are based on routines which are not completely and explicitly comprehended, developed and bettered with repetition and practice. This historical learning-by-doing process represents the current capability of a firm, making it impossible to simply copy a firm's best practice even when it is observed.

Against natural thinking, crises' effects on firms and industry profitability are not dependent on the number of crises happening at the same time. However, an environment with all crises together produced the worst results to firm profitability. Results also suggest the lower impact of debt crises and the negative power of recessions on firm profitability. With regard to industry profitability performance over the crises, empirical evidence supported that Real Estate as the most sensitive industry to crises while Utilities as the most resilient to crises. Corroborating the findings for firms, crises also compromise industry profitability but they do not produce more dispersion in returns. The S15 regime (all crises together) is the worst business environment for most firms and

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industry profitability in this research, while a recession is the worst type of crisis for firm profitability and currency crisis is the worst type of crisis for industry profitability. In the end, profitability's patterns change in accordance with country, time, and type of profitability index. So, effective models to firm profitability must account for these nuances, otherwise they will be useful only for in-sample, rather than out-of-sample, applications.

In Chapter 7, regression results evidenced the positive importance of lagged profitability, productivity (measured by gross margin), and external dependency in times of crises and in times of non-crisis when explaining firm profitability. Leverage is important to explain profitability when the capital structure is under consideration, especially in times of crises when it tends to harm more firm profitability than in times of non-crisis. The variable size appeared important depending on the dependent variable and the group of countries, but mostly with a positive impact on profitability. In turn, the variable age is mainly important to developed countries. Firms' liquidity and ownership did not produce consistent results to be considered important variables to explain profitability. Market share and diversification, variables that are widely seen in the literature as important to explain profitability, did not perform as expected. Diversification is virtually irrelevant for firm profitability at any time, country and dependent variable, while market share presented an erratic relationship to profitability. With regard to industry variables in Chapter 6, export orientation produced a similar interpretation as given to size, appearing important to explain industry profitability depending on the dependent variable and group of countries. Product characteristics also demonstrated their importance, depending on the group of countries firms are located into, but mostly negative in times of crises. Concentration seems to be an important variable only for countries with developed financial market. Another important finding was the lack of insightful independent variables to explain firm profitability in times of non-crisis. However, an exception may be applied to ROE, ROS, and SMR, where average regressions R^2 were considered to be at acceptable levels, evidencing the importance of firms' financial ratios to predict firm profitability even for the variable derived from financial markets (SMR, calculated using the price of the stocks). Regression results demonstrate the instability in coefficients among crises periods, among non-crisis periods, and between groups of countries. In the end, this research confirmed that profitability is a fairly unpredictable firms' measure due to general low R^2 or adjusted R^2 found in regression results. Possibly, the causes of

unpredictability lie on the micro-link of tacit knowledge and routines as a source of firms' competitive advantage and their differentiation, as pointed out above by Nelson and Winter (1982, cited in Rumelt et al., 1991).

8.4 – Research contributions

This research examined the profitability differential among firms that can bring to the surface the set of characteristics that may help firms better perform in a crisis period. This *ex-ante* exercise could help a manager how to best strengthen potentially vulnerable aspects of the business that would deserve closer attention, boosting the odds of better reaction to an adverse business environment. Perhaps the major contribution of this research would be the broader scope and concept of countries' crises and the way they, alone or together, affect firm profitability. It is the understanding that the business environments surrounding firms can be composed of more than one source of parameter instability, and this cannot be relegated, no matter what the object of study is. A combined crisis really is a different crisis, different from the sum of individual crises. In addition, this thesis provides the first assessment of parameter instability for firm profitability models, bringing the possibility of having different profitability models applicable to different business environments and following the Rational Expectation's model in economics. In accordance to Knoop (2010), "rational expectations mean that individuals form their expectations by making an optimal forecast of the future using all currently available information". So, it is both forward and backward looking based on all currently available information to the public. For Rational Expectation economists, changes in technology and tastes are the root causes that lead to an economy to fluctuate at a natural rate. If the environment changes, a model built on the basis of past and observable variables is no longer valid. Coefficients of this model are in fact not invariant to economic changes and economic agents react and behave differently to the way they did in the past in this new macroeconomic environment (Lucas, 1976 cited in Kim, 1988).

Still, when using three layers (firms, industries and countries) of data, it was possible to better understand the impacts of the business environment on firm profitability, giving a step ahead in comprehending what type of crisis harms the most firms and industry profitability. To the best of my knowledge, no previous study understood the business environment not limited to, but heavily composed of country crises. Although some of

them recognized the business environment as a key driver of profitability, the business environment was, mostly, a subjective and abstract subject. Previous research was limited to analyse a specific country crisis in a specific period of time. This approach would lead to incorrect conclusions once, as seen, not occasionally a crisis occurred together with another crisis (1/3 of the time), provoking the worst business environment most of the time. Comparability is, then, compromised.

This study also amends a previous work performed by Bruni et al. (2014) where the authors try to answer a similar question presented in this thesis but restricted to Italy; "Did different types of firms perform differently under the economic crisis?" The authors were worried about different types of firms performing differently under recent economic crisis (recessions only) in Italy. They focused on the recent financial crisis (2008-09) but were able to provide an analysis of their dependent variables in times of crises (2008-2012) and in times of non-crisis (2004 to 2007), briefly touching on one of the major contributions of this research. Nevertheless, their analyses ignored a banking crisis that occurred in Italy from 2008 to 2009. Their answers evidenced the importance of variables such as age, ownership, liquidity, and size to firm profitability. Despite some evident intersections and different results found when compared to this thesis, their conclusions would best help my conclusions and contributions when they say that their work "enriches our understanding on the determinants of firms' performance during the recession", or "[f]rom a policy perspective this is a potentially important result because it suggests that policies facing the economic crisis should not be of the "one for all" or "one for always" type but should take into consideration the experience of firms that were relatively successful in weathering the crisis", or that "the role of characteristics that may possibly help enterprises to perform well in a slowdown period". Especially the last conclusion is a true hope for future research in the fields of strategy and risk assessment.

As mentioned by Herrmann (2005), nowadays, research in the strategy management field should be able to provide models that can be incorporated by firms through dynamic and interactive process, assimilated by the managerial audience. This research goes towards it in the sense of disclosing the necessity to have a dynamic approach to set firms' strategy based on the business environment conditions (crises and non-crisis periods). In order to model profitability and boost firm performance, the understanding of regime change models, as presented in stock return forecasting models, would be a good way to follow.

8.5 - Research limitation and recommendations

This research examines firm profitability in times of crises and in times of non-crisis following a predetermined set of questions. However, due to the amount and amplitude of data, it was, without a doubt, reaching some edges in its original scope that, if trespassed, would lead to puzzling results and interpretations. This thesis is an in-sample investigation that does not intend to forecast firm profitability neither performs out-of-sample tests. This is an extension of this study that requires further developments and technical refinements. Another important limitation is related to the sample of firms under investigation. Access to financial information is crucial. As a consequence, inferences about firms that do not disclose financial information would be considered speculation. Small and medium enterprises (SMEs), and privately owned firms would enter this category.

Apart from limitations, this research also identified some topics that are worth further investigation. First, the risk of a country' business environment was not quantified, although theoretical pillars were set in place, or translated into the probability of occurrence of a recession, a banking crisis, a currency crisis, or a debt crisis, alone or combined. Some prediction about crises occurrence is highly appreciated and a county-specific recognition about their commonalities in crises would be a way to help reduce the risk of a future crisis as well as better handles the outputs of such catastrophic event. Second, the analysis made in Chapter 7 was mostly done in crises versus non-crisis dichotomy. However, due to the richness of the data in use and the range of crises identified, it is possible to perform further individual analysis per type of crises, depending on specific interests of the reader. This menu of options is being offered by this research and it is understood as an authentic contribution to current knowledge concerning crises and firm profitability. Third, works by Porter (1980) identified two industry variables that would influence profitability that were dropped due to data limitation. First, the age of the industry matters. More mature industries show lower profits but less volatility in their returns. New industries usually promote higher returns to their participants, they are very hard to read and forecast their performances, until a point where they accommodate, providing similar returns as any other mature industry. Once the period of analysis comprehends more than 20 years, such movement may occur

and, in theory, could be captured by industry's sales growth pattern. Still, an interesting temporal correlation between industry growths and industry concentration may occur and deserves some future attention. In the so-called "declining industries", those industries that have experienced an absolute decline in unit sales over a sustained period (Porter, 1980), it is common to find a decrease in industry concentration occasioned by declined industry sales growth. It is also necessary to bear in mind that poor sales performance should not be related to short-term discontinuities, as recessions, strikes, material shortages, or business cycles. In the proposed models, macroeconomic fluctuations were captured by country control variables. Second, government actions may affect directly or indirectly industry profitability. Governments can impact entry barriers, influence competition as a buyer or a supplier by the policy they adopt, regulate markets (setting limits on firms' behaviour), and provide subsidies. These examples of government measures can be, for instance, an answer for specific political demand instead of an economic measure for some kind of market adjustment. The government role is necessary to be looked over all the time. The fourth improvement may be related to the way data is tested. It would be possible to analyse country crises effects on firm profitability using country by country data, instead of pooled them in groups as it was done here. This approach would better explain the relationship between firm profitability and country crises if it is understood the inappropriateness of pooling different countries under the same analysis when crises are mainly country specific. As a consequence, only industry-specific variables would be necessary to be controlled and different outcomes may appear. Furthermore, in literature and for developing countries in this thesis, industries based on durable/non-consumable products are negatively impacted by their profitability in times of crises. This observation is not fully applicable to developed countries in this thesis, requiring further investigation. Finally, the importance of political crises and social unrest are understood as important factors to better assess the impacts of the business environment on firms and industry profitability. They were not covered in the literature review, neither represented with variables in regressions.

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APPENDIX A

A.1 – Australia

Macroeconomic and market data are abundant to Australia. Consequently, it was possible to cover the proposed period of analysis, comprehending from 1975 to 2014 (40 years). Australia is one of the most stable and crisis' immune country in the sample, showing crisis resilience even to the latest and severe the 2008-09 Financial Crisis, where the country did not even face an economic depression (as many others did). In addition, it was not identified one single banking crisis, neither a debt crisis. However, some sparse cases of recessions and currency crises were identified.

In accordance with Economic Cycle Research Institute (ECRI), Australia had more frequent recession periods during the 50's and the 1960s. For the period under analysis, only two periods of recession occurred; one from June 1982 to May 1983 and another one from June 1990 to December 1991. Considering that two or more quarters (six or more months) or a year with at least five months with a yearly economic contraction (negative GDP growth) are enough to classify a year as a crisis' year, four years of recessions were identified; 1982, 1983, 1990, and 1991. Moving on, the absence of a banking crisis is remarkable. Laeven and Valencia did not identify any banking crisis in Australia for the period of 1975 to 2014. Nevertheless, banking system was not immune to some disturbances. In accordance with Caprio et al. (2005) database of banking crises, between 1991 and 1992 non-performing loans rose to 6% of assets and two large banks received support from government to cover losses (State Bank of Victoria and the State Bank of South Australia). However, these authors classified this banking crisis episode as non-systemic. In contrast to absence of banking crisis, currency crises were identified in 1985, 1993, 1998, and 2001. These crises had low duration (only one year) and they were considered low in intensity (accumulated Z score of 10, 9.6, 9, and 8.6 points, respectively)

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is very positive for Australia. Currency crises showed 88% in agreement, banking crises 89% and debt crises 100% (there was no crisis identified in both sides). Disagreements in currency crises are limited to 1976 and 1983 when Bordo and Schwartz (2000) found

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currency crises unmatched to methodological procedures in this thesis and the opposite happened in 1993, 1998, and 2001 (no other author found currency crises these years). Banking crises disagreements are restricted to the period 1989 to 1992 when Reinhart and Rogoff (2009) considered these years as systemic crisis' years in the banking system.

Once single crises were identified and confronted satisfactorily to other authors' findings, a timeline analysis showed no occurrence of combined crises, as demonstrated in APPENDIX B. In fact, only two types of crises were identified; recessions (S4) and currency crises (S2). Australia showed a large dominance of non-crisis period (S16). with the country staying 80% of the years in this stable business environment.

A.2 – Belgium

Belgium is also a country of low intensity disturbances in the business environment. As Australia, the country is well served in terms of data and it was possible to cover the desirable period (1975 to 2014). Recessions in repetition, one period of currency crisis, and a single banking crisis were identified. No debt crisis was found as it will be a characteristic for all developed countries, with exception to Poland in the beginning of 90's.

In accordance with OECD - CLI (Composite Leading Indicators), recession' periods were frequent in the period of analysis and presented a relative long duration. There were nine episodes of recessions encompassing 18 years[112] (average of two years per crisis episode) over a total of 40 years. The same source identified only three crises episodes in the period of 1961 to 1973. On the other hand, just one episode of currency crisis occurred with Belgium Franc from 1982 to 1983 with low intensity (accumulated Z score of 19.6 in total and average 8.4 per year), as shown in Graph A.1:

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[112] Recessions were from April 1974 to July 1975, from July 1976 to August 1977, from March 1980 to April 1983, from February 1984 to February 1987, from February 1990 to April 1993, from December 1994 to July 1996, from September 1997 to November 1998, from April 2000 to August 2003, from February 2008 to April 2009, and from May 2011 to May 2013.

Graph A.1 – Currency crises in Belgium

Source: International Financial Statistics – IMF and author
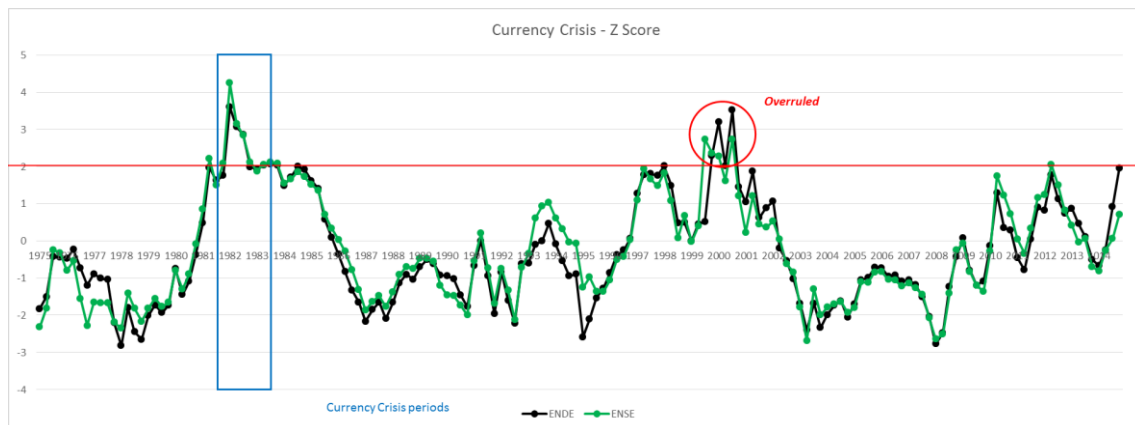
Belgium, as many others in the region and for some in the selected sample of countries (France, Germany, Ireland, Italy, Netherland, and Spain), joined the Euro in 1st of January of 1999. If strictly following the methodology adopted to identify currency crises, in the first years after adoption of the Euro would show a currency crisis (2000). However, this supposed currency crisis was overruled due to biased results produced by the straight application of method constant in Ishihara (2005). This type of error can be produced when there are less than 20 quarters (five years moving average basis) previously to the application of Z score formula, which is the case for the Euro from Q1 1999 to Q4 2003. A closer attention was given to Euro countries and comparisons to other methodologies were made as way to eliminate false positive currency crises episodes' identification. Utilizing the same database (IFS - IMF), two other methodologies[113], from Reinhart and Rogoff (2009) – R&R, and from Frankel and Rose (1996) – F&R, were chosen and replicated, and their results were compared to the results found by the straight application of Ishihara's Z score formula. The percentage of agreement from 1999 to 2003 was 80%, due to the absence of 2000 as a crisis' year for both R&R and F&R. From 2004 to 2014 the agreement was 100%. In other words, the year 2000 was not a crisis year and its positive identification with Ishihara (2005) was overruled by the evidences. In regard of banking crises, following Laeven and Valencia (2018), due to the 2008-09 Financial Crisis, there were recapitalizations of four banks (Ethias, Fortis, KBC Bank, and Dexia) and asset guarantees were given to other financial institutions (as Fortis SPV and Fortis portfolio). So, a banking crisis was identified by the authors from 2008 to 2012.

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[113] More details about these methods are disclosed in the conclusions of this chapter.

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is outstanding for Belgium. Currency crises showed 98% in agreement, banking crises 100% and debt crises 100% (there was no crisis identified in both sides). Once single crises were identified and confronted convincingly to other authors' findings, the final step is to look at combined crises. As demonstrated in APPENDIX B, single crises did not interpolate very often. It was registered five types of crises (S1, S2, S4, S7, and S9), where two types represent combined crises (S7 and S9), with predominance of single recession periods (45%). Apart from it, in majority of time the country was in a tranquil business environment (S16), representing 15 years of non-crisis out of 40 years (38%).

A.3 – Brazil

Macroeconomic and market data are also abundant to Brazil. Consequently, it was viable to cover the proposed period of analysis of 40 years. For the first time it was possible to register the four types of single crises at the same year. Still, small and sparse recession periods with continuous banking, currency and debt crises between middle 1980s and middle 90's are remarkable. The frequency of crises diminished after 2000 but their combination in pre-2000 period provided some interesting material for this research. Although data are sufficient and readily available, it was found a limitation when dating recession's periods. The main source, ECRI, started to date business cycles in Brazil after 1981 (with the first trough dated in December of 1983), leaving a backward hole of six years. So, as a way to amend this shortcoming, two other sources were used to understand what happened in this uncovered period; Campelo Jr. et al. (2013) and Vieira and Pereira (2013). Campelo Jr et al. work is based on CODACE (Brazilian Business Cycles Dating Committee) methodology that closely follows NBER practices to date recession' periods. These authors found its first peak (when the analysis started) in October of 1980 and the trough in February 1983. In turn, Vieira and Pereira were able to reproduce NBER methodology with the virtue of going backward to 1900. This study was vital to see that, previously to 1981, the indication of the closest recession period is dated between the 3rd quarter of 1963 to the 2nd quarter of 1964. The following recession period was found between the 1st quarter of 1981 and the 4th quarter of 1983 (coinciding to ECRI). These studies gave comfort to set a recession period between 1981 and 1983 as the first one in the chosen timeframe for Brazil. Then, following information from ECRI, recessions in

Brazil were short but constant[114] until 2003. Interesting to notice that Brazil went in recession due to the 2008-09 Financial Crisis for just five months in 2008 (onset in August 2008), and only one month in 2009 (recession ended in January 2009), but it was not enough to categorize neither 2008 nor 2009 as crisis' years. In regard to banking crisis, in Laeven and Valencia's works there was only one continuing crisis comprehending from 1990 to 1998. However, some other historical events deserve some attention. For instance, Reinhart and Rogoff (2009) emphasized the taking over by government of three large banks (Comind, Maison, and Auxiliar) in 1985. After it and in accordance with Caprio et al. (2005), Laeven and Valencia (2008), and Reinhart and Rogoff (2009), deposits were converted in bonds in 1990 as a way to provide liquidity to public financial institutions. Later, in the period of 1994 to 1999, Caprio et al. (2005) mentioned that LC[115]$ 19 billion was place in four banks as measures of recapitalizations ($3 billion for Banco Economico, LC$3 billion for Bamerindus, LC$8 billion for Banco do Brasil, and LC$5 billion for Unibanco) due to arrears and in liquidation loans caused by, among other facts, trade account deterioration, rise in the interest rate, and derived credit restriction that followed (Laeven and Valencia, 2008). Moreover, in 1994 seventeen small banks were liquidated and eight state banks were placed under federal administration (Reinhart and Rogoff, 2009). An intervention of Central Bank of Brazil in 43 financial institutions was necessary, when non-performing loans in the banking system reached 15% in the end of 1997. Public banks did not recover until 1999 but private banks returned to profitable activities in 1998 (Caprio et al., 2005 and Reinhart and Rogoff, 2009). Moving on, currency crises are in particular interest once it had the power to evidence the overall business environment of the country along the years in study. The country went into a long period of currency crisis, from 1981 (coincident to the onset of a recession) to 1995 (almost coincident to the ending of a debt crisis). Alone, this outstanding period in a currency crisis is not able evidence the damages to real economy. In this research, the depth of this crisis is measured by the accumulated Z score over these 15 years of crisis. As result, it is registered 327 accumulated Z score points, an impressive average of 21.8 points (peaks in Q1 1990 and Q2 1994). Evidently, this out-of-control currency crisis, together with intercalate recession periods, nested the occurrence of another crisis, a

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[114] Recession period were from February 1987 to July 1987, from August 1989 to March 1992, from March 1995 to September 1995, from October 1997 to April 1999, from February 2001 to December 2001, from October 2002 to June 2003, from August 2008 to January 2009, and from January 2014 until publication of the study (ECRI report in July 2015).
[115] Local Currency (LC)

continuous debt crisis that dragged for almost the same period. Following Beers and Nadeau (2015) database, the debt crises comprehended the period of 1983 to 1994. These 12 years in debt crisis was a lot intense. The average percentage of debt under default for the entire period (against gross external debt position – World Bank) was 46%, one of the biggest in the sample. In the peak in 1990, the country was able to have debts in default around 118% (corresponding to US$ 142 billion), mainly owed to banks in the form of loans (49%). This peak-year is also the peak-year of currency crisis, as demonstrated in Graph 6. As well as crises, during the period under analysis the country received external support, joining IMF programs in 1983, 1988, 1992, 1998, 2001, and 2002. Furthermore, it had hyperinflation periods from 1988 to 1990 and from 1992 to 1994 (Reinhart and Rogoff, 2010) and a very high inflation[116] period from 1981 to 1997.

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions), the agreement percentage is satisfactory for Brazil. Currency crises showed 73% in agreement, banking crises 92% and debt crises 90%. The major disagreements for currency crises are concentrated on the continuous period found in this research (1981 to 1995). Other authors could not find crisis in the years of 1981, 1984, 1985, 1988, 1989, 1993, and 1994. As a robustness check, if it is taken the same database utilized (IFS - IMF) in this research and replicate it over other methodologies (Reinhart and Rogoff, 2009 and Frankel and Rose, 1996), results in currency crises agreements increases to 83% for Frankel and Rose and 85% to Reinhart and Rogoff. Likewise, Manasse et al. (2003) identified 1995, 1998, 1999, and 2000 still as debt crisis years. In accordance with the database utilized[117] debt in default were identified in 1995 but in small amount (US$ 5 billion), not enough to transpose the set threshold (5% of gross external debt position). The same explanation is applicable to the years of 1998, 1999 and 2000 (with, respectively, US$ 4 billion, US$ 2 billion, and US$ 2 billion). In regard to banking crises, the period comprehending 1990 to 1994 was classified as a "borderline case" by Laeven and Valencia (2013). In accordance with these authors, this remark should be done in cases where their definition of banking systemic crises almost met. It means that there were some cases where the authors lowered their requirements regarding policy interventions[118] from at least three to at least two,

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[116] Considered annual inflation over 100%.
[117] Beers and Nadeau (2015) in Bank of Canada - Credit Rating Assessment Group (CRAG).
[118] Reminding as: 1) deposit freezes and/or bank holidays, 2) significant bank nationalizations, 3) bank restructuring gross costs (at least 3% of GDP), 4) extensive liquidity support (5% of deposits and

generating a banking crisis that, for the purpose of this research, may did not have the power to affect microeconomic environment. Though, attention should be given to 1990 to 1994 banking crisis in Brazil.

Once single crises were identified and confronted sufficiently to other authors' findings, the final step is to look at combined crises. The richness in the number of years in crisis (60%), combined with the appearance of all types of crisis, lead to an intriguing scenario pointed out in APPENDIX B. Out of 15 possible combinations of crisis, Brazil had 10 types of crisis (exceptions for S3, S5, S6, S10, and S14). Not occasionally, 1990 (as well as 1991) was an all of type of crises' year (S15), a rare and interesting period to be observed when looking at its effects on firm profitability.

A.4 – Canada

Canada is much alike Australia when crises are under perspective. Macroeconomic and market data are abundant and so was possible to fully cover the proposed period of analysis (1975 to 2014). The country is very stable (2nd most stable in the sample, together with India), having no cases of banking or debt (as expected) crises registered. However, some sparse periods of recessions and only two episodes of currency crises were identified.

Following ECRI, the country had three double year recession's episodes for the period under analysis. Before the earliest episode in the sample (1981 to 1982), the country faced an economic downturn during the end of 1956 until the beginning of 1958. It had been a long period of economic stability that finds echo in present times. The first crisis was dated from April 1981 to November 1982, followed by another one from March 1990 to March 1992, and finally the last one from January 2008 to July 2009 (effects of Financial Crisis). Again, stability is a mark for Canada. Currency crises were identified just twice, in 1978 and between 1993 and 1994. These crises had, respectively, medium and low intensity. The first reached an accumulated Z score of 11.7 points and the second reached 19.3 points (average 9.7). Interesting to notice that between 1981 and 1991 ENDE (Canadian dollar against US dollar) and ENSE (Canadian dollar against basket of currencies) followed different pathways, having, sometimes, crisis in one exchange rate but not in the other. Shifting to banking system overview, in accordance with Caprio et

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liabilities to non-residents), 5) significant guarantees put in place, and 6) significant asset purchases (at least 5% of GDP).

al (2005) database of banking crises, a part of having fifteen members of the Canadian Deposit Insurance Corporation failure[119], there was a non-systemic banking crisis in Canada between 1983 and 1985. Further, in accordance with Laeven and Valencia (2008, 2010, 2013 and 2018), there was no systemic banking crisis identified under the period of 1975 to 2014. Comparing these sparse single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is very positive for Canada. Currency crises showed 88% in agreement, banking crises 92% and debt crises 100%. The major disagreement in currency crises was from 1993 to 1994, where this research found currency crises but Glick and Hutchison (1999) found the crisis only in 1992 (solely this study found a crisis in this period).

As seen, single crises were properly identified and confronted favourably to other authors' findings. So, it is possible to check the occurrence of combined crisis, as demonstrated in APPENDIX B. Naturally, the possibilities of different types of combined crises were lower for Canada and, in fact, they did not occur. It was found only single crises (S2 and S4) and, corroborating to already mention stability, the country remained under favourable business environment (S16) for 78% of the time in the sample timeframe.

A.5 – Chile

Chile holds some similarities with Brazil beyond geographic location. The proposed period for analysis could be covered due to the amount of macroeconomic and market data available to be used. As Brazil, it was possible to register the four types of single crises at the same time and similar limitation about dating recession' periods were found. Even though and unlike Brazil, recession' periods were longer, banking crises were shorter and less recent, and currency crises were sparser. On the other hand, debt crises behaved comparatively, but Chile had shorter and less severe than in Brazil.

A limitation to date recession' periods was a reality. The main source, OECD – CLI, started to date business cycles in Chile only after 1995[120]. So, there would be a long-regressed period of more than 20 years uncovered. Hopefully, works have been done to fulfil this gap in literature. The most suitable and completed works were made by Male

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[119] Including two banks, Canadian Commercial Bank and Northland Bank of Canada. Both failed in 1985.
[120] Recession periods were from December 1997 to April 1999, from March 2001 to October 2003, from February 2008 to May 2009, and from January 2013 until date of publication (December 2015).

(2010) and Mejía-Reyes (2004). These authors followed a technique[121] to identify peaks and troughs comparable to Burns and Mitchell[122] and NBER's methodology, having their results a good match to OECD - CLI outcomes after 1995. In case of Chile, Male's analysis started in 1979 and went until 2003 and Mejía-Reyes (1999) started in 1960 until 2001. Previous to the period under analysis, Chile experienced a hyperinflation episode in 1973 and 1974. The military took power in September 1973 and some stabilization measures were given to the economy, perceived only after 1977. Then, in accordance with Mejía-Reyes (2004), Chile experienced a recession period from September 1971 to August 1975. After 1976 and before 1995, the country experienced a disturbing period in the 80`s where both authors found recession periods from 1981 to 1982, and from mid-1984 to mid-1985. In addition, Male found an isolated recession in 1990 (from the 1st to 3rd quarter) and also imprecisely pointed out a recession period that would start in 3rd quarter of 1992 and ended in the 2nd quarter of 1993. Once months were not precisely informed and current methodology imposes at least six months to be considered a year in crisis, these years (1992 and 1993) were overruled as recession periods. Consequently, careful should be taken when analysing this period with microeconomic data on hand, as it will be for firm profitability in later chapters.

Banking crises episodes were originally identified by Laeven and Valencia's works in 1976 and between 1981 and 1985. However, their work did not understand 1986 as crisis' year due to limitation of five years maximum per continuous banking crises imposed by their methodology[123]. When comparing to other authors' findings, at least two of them (Caprio and Klingebiel, 2003 and Demirguc-Kunt and Detragiache, 2005) classified 1986 as a banking crisis' year. For these reasons (limitation and positive comparison), 1986 was considered a year in banking crisis for Chile. Moreover, the root of this crisis was well analysed in Diaz-Alejandro (1985). To the authors, from 1977 to 1982 the country liberalized its financial system and opened up its capital account, closely controlled by government authorities since 1930. As a consequence of this liberalization, a massive capital inflow increased bank assets and triggered asset prices boom. Not so late, bank

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[121] Harding and Pagan (2002) – 'Dissecting the cycle: a methodological investigation', and Harding and Pagan (2006) – 'Synchronization of Cycles'.

[122] Burns and Mitchel (1946) – 'Measuring Business Cycles'.

[123] As a general rule, the authors specified the end of any banking crisis "as the year before both real GDP growth and real credit growth are positive for at least two consecutive years" (Laeven and Valencia, 2013), GDP growth (in local currency and constant prices) data was taken from World Economic Outlook (WEO) database of the IMF, and (bank) credit to private sector (in local currency) was taken from IFS – IFS (line 22D).

failures started to happen and the system collapsed in 1981. Bailouts provided by central government led to a growing fiscal deficit, financed with inflation tax. Later on, a speculative attack to Chile's currency led a currency crisis that started in the end of 1982 and forced the country to abandon its peg. In sequence, there was a debt crisis originated by the excess of foreign currency indebtedness. In this way, it seems that the sequence was originated by the lower activity presented in real economy, as can be seen by the starting point of a recession in the end of 1980. After the economy shows signs of lower activity, banks felt the effects on asset prices, bursting the bubble and triggering a banking crisis in 1981, followed by a currency crisis in 1982 and a debt crisis in 1983, escalated until 1990 (Beers and Nadeau, 2015). This period of debt crisis registered an average of 36% of debts in default (against gross external debt position – World Bank) which is a significant percentage in the sample. In addition, an isolated debt crisis in 1975 was also identified with low intensity. Going back to banking crises and banking system, the entire mortgage system became insolvent in 1976 (Caprio et al., 2005). In 1980, interventions happened in four banks and in four financial institutions. Together, these banks and financial institutions held 33% of loans in the banking system (Reinhart and Rogoff, 2009). As explained before, in the end of 1981, a six-year period of expansionary policy finished abruptly and the country went into a costly economic crisis that reflect in the banking system which helped to aggravate the crisis. Unsound financial practices among financial institutions are in the root of the causes but protection was placed to depositors (Laeven and Valencia, 2008). Later, in 1983, another seven interventions occurred in banks and in one financial institution. This time, 45% of banking system assets was under threat and in the end of this year the amount of non-performing loans reached 19% (Reinhart and Rogoff, 2009). However, at this time, depositors were only partially compensated (Laeven and Valencia, 2008).

Briefly commented before, a currency crisis in Chile was developed inside financial turbulent years of the 1980s (from 1983 to 1986). This crisis accumulated a Z score that hit 45 points, an average of 11.3 points per year. However, this was not the most severe currency crisis for the period under analysis. In the end of the 1970s the country faced a currency crisis which the accumulated Z score hit 52.4 points, an average of 13 points per year. Subsequent currency crises were less severe. The ones identified in 1991, from 1998 to 1999, from 2001 to 2002, and in 2014 presented, respectively, accumulated Z scores of 8.6, 22.3 (average of 11.1), 17.9 (average 9), and 9.7 points. Another component of the business environment in Chile is the financial support received from international

community. The country received IMF rescue packages from 1974 to 1975, in 1983, in 1985, and in 1989, all of them deeply connected to the worst period just disclosed, where all types of crises came together. With respect to the occurrence of single crises just identified, a comparison to other authors' outcome would enhance the results. As usual, the list of authors is detailed in conclusions of this chapter and the agreement percentage is considered very adequate for Chile. Currency crises showed 70% in agreement, banking crises 95% and debt crises 98%. As seen, currency crises disagreements demand more detailed information. Major disagreements came from 1982 to 1984, from 1998 to 1999, and from 2001 to 2002. For the first period, three[124] studies found the onset of this crisis in 1982 but did not mention its end (here identified from 1983 to 1986). Maybe, here lies the problem. These studies were more interested in identifying the starting dates, not mattering, for their specific academic purposes, the ending date of each crisis. This is not the case. Here, the other two crises episodes were just identified in this research. There, it could be due to low intensity of currency misalignment to previous patterns, a methodological issue. Anyway, if the same dataset utilized (IFS - IMF) is replicate it over other methodologies (Reinhart and Rogoff, 2009 and Frankel and Rose, 1996) results in currency crises agreements increases to 73% for Frankel and Rose and 75% to Reinhart and Rogoff.

Single crises were satisfactorily identified and their combinations are interesting all over the timeframe. As shown in APPENDIX B, the 1980s were quite a disturbing period for the country, having the power to produce two years of the worst possible environment in this research, all crises happening together in 1984 and 1985. Now a day, the business environment is plainer and more stable, although the economy still suffers some natural adjustments and meets some recessions in its way. As such, it was registered nine types of crises, where six were combined crisis. However, due to recent stability, in majority time the country felt a business environment without crises (40%).

A.6 – China

People's Republic of China was established in 1949. The country is the only country in the sample that does not follow a traditional capitalist regime, having a market-oriented economy where public sector plays a dominant position and where a central command

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[124] Laeven and Valencia (2008), Bordo and Schwartz (2000), and Kaminsky and Reinhart (1999).

responsible to plan the economy exists. Therefore, data will be always a question mark when coming from official sources and, currently, it has been a major subject of debate. Apart from it, macroeconomic data are available mainly after the 1980s and market data will show some issues, allowing partial coverage of the chosen period, from 1984 to 2014. With regard to its crises, if the country is compared to others in the sample and not mattering doubts that would come due to the source of data (official authorities), this is one of the most stable country with a very few crises in this 31 years of analysis; a year of recession (1989), another different year in banking crisis (1998), and three occurrences of currency crisis in different years (from 1984 to 1986, from 1990 to 1991, and in 1994). During this period of analysis, China received an IMF package in 1986 but no debt crisis was registered. However, this lack of country crises cannot be readily translated into a stable and secured business environment, a statement that goes beyond the analysis proposed by this research.

In fact, the starting year was driven by the availability of data sources to date recessions' years. As in Brazil, the main source utilized to date recessions in China was ECRI, which started to date business cycles in China after 1984. No other reliable source was found in literature to fill the gap. So, the unique recession year was identified by ECRI from August 1988 to December 1989. Similarly, the single banking crisis year was identified by Laeven and Valencia in 1998 mainly due to insolvency of four large banks (Bank of China, the Agricultural Bank of China, the China Construction Bank, and the Industrial & Commercial Bank of China). At that time, they held 68% of banking system's assets, with non-performing loans at 50% at peak of this banking crisis (Caprio et al., 2005). The more frequent type of crisis, currency crises happened three times in China. At this time, a brief review of Chinese's exchange rate regimes for the period under analysis is a good measure. Until 1994 China operated dual-track exchange rate regime, where existed two different exchange rates for the Yuan. After January 1994, there was a unification of these two rates and a nominal devaluation of 50% against US dollar occurred (went from Yuan/USD 5.8 in Q4 1993 to Yuan/USD 8.71 in Q1 1994). From 1994 to 2005 the Yuan remained "pegged" to US dollar and a fixed exchange rate of Yuan/USD was set around 8.28, having interventions from China Central Bank to keep it stable around this chosen value. From July 2005 on, China adopted a managed floating exchange rate regime with reference to a basket of currencies, a de-pegged movement for the Yuan that, then, registered an appreciation of 26% until December 2014. These movements are clearly connected to the identified currency crises periods for China in

this research. The devaluation in 1994 is marked as a currency crisis with an accumulated Z score of 13.4. Also, the de-pegged movement is seen in 2005 when the Yuan/USD went from 8.28 to 8.09 (a devaluation of 2.3% in the Q1 2005) after a consecutive period of 46 quarters with a very low fluctuation around the chosen exchange rate. Moreover, the methodology found two other crises episodes, between 1984 and 1986 (with accumulated Z score of 29.7 and average of 9.9), and between 1990 and 1991 (with accumulated Z score of 18.6 and average of 9.3), both with low intensity.

A comparison to other authors' outcome would enhance the results of single crises just identified in previous paragraphs. The list of authors is detailed in conclusions of this chapter and the agreement percentage is considered very positive for China. Currency crises showed 85% in agreement, banking crises 95% and debt crises 100%. Interesting to notice that, for the covered period, no author was able to find a currency crisis in China. Again, if a robustness check is done with the same dataset utilized (IFS - IMF) but replicating Reinhart and Rogoff (2009) and Frankel and Rose (1996) methodologies, results in currency crises agreements increases to 90% for both tests. Frankel and Rose´s methodology would be able to find 1984 but not 1985 and would be able to find 1994 but not 1990 and 1991. In turn, Reinhart and Rogoff' methodology would be able to find 1984 and 1986, but not 1985, would be able to find a crisis in 1989 but not in 1990 and 1991, and would find one in 1994.

Once single crises were adequately identified and confronted to other authors' findings, an overall analysis of combined crises is the final step. As said before, the country remained in a non-crisis (S16) environment for the vast majority of time (74%). In fact, there was no combined crisis, just single crisis with predominance of currency crises (19%), as shown in APPENDIX B.

A.7 – France

As others developed countries in the sample, France is a country with low disturbances in the business environment, with a window of exception for the last the 2008-09 Financial Crisis. The country is very well served in terms of macroeconomic and market data and it was possible to cover the desirable period (1975 to 2014). Recessions were observed with more constancy until 1984, a currency crisis occurred and a single, but prolonged, banking crisis was identified as a consequence of last Financial Crisis (this is especially valid for European countries). As expected, no debt crisis was found.

In accordance with ECRI, there were three recession periods from 1975 to 1984; the first from September 1974 to July 1975, the second from August 1979 to June 1980 and the last from April 1982 to December 1984. After it, another recession period occurred from February 1992 to August 1993, and finally[125] the one that arouse on the onset of the 2008-09 Financial Crisis, in a double deep case (from February 2008 to February 2009 and from April 2011 to November 2012). Before this period, ECRI identified only one recession period from November 1957 to April 1959 (ECRI dates recession periods in France since 1948). In between the last two recession periods, there was a significant banking crisis that befell the majority of developed countries in Europe. Although this was the only case pointed out as a systemic banking crisis by Laeven and Valencia, between 1994 and 1995, Credit Lyonnais, one of the biggest banks in France, experienced serious solvency problems, showing losses estimated in EUR 10 billion (Caprio et al., 2005). As empirical evidences of 2008 banking crisis, recapitalizations occurred in three banks (BNP, Sociétié Générale, and Dexia) and there was a government's guarantee on asset provided to Financial Security Assurance Inc. (Laeven and Valencia, 2013). In regard to currency crises, the French Franc currency crisis in 1981-1983 period hit 30 points in accumulated Z score, an average of 10 per year, considered a low intensity crisis. As mentioned before, there was an overrule currency crisis attributed to Euro in 2000 and it was adjusted after evidences of a false positive identification by this research's methodology.

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is excellent for France. Currency crises showed 95% in agreement, banking crises 95% and debt crises 100% (there was no crisis identified in both sides).

Once single crises were identified and confronted convincingly to other authors' findings. APPENDIX B demonstrates the way they occur in concomitance. Single crises did not interpolate very often, only 10% of the time and in two different ways (S7 and S9). Recessions had predominance in single crises periods (15%) but France remained in a stable a tranquil business environment (S16) in majority of time, representing 27 years of non-crisis out of 40 years (68%).

A.8 – Germany

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[125] In fact, ECRI pointed out a recession from August 2002 to May 2003 that, accordingly to the methodology in place, does not configure any of these years as crisis' years.

Germany is much alike France in frequency, time of occurrence and type of observed crises. In general, it is a very stable country, one of those European countries that suffered the less in recent the 2008-09 Financial Crisis. Data is abundant and readily available, being possible to cover in full the proposed period. Recession periods occurred all over time, with a considerable duration (three out of five with three years of duration) but intercalated to time considerable non-crisis periods. This pattern had changed due to the 2008-09 Financial Crisis, when the country went in a banking crisis and faced a recession at the onset of the crisis. A Currency crisis in Germany occurred in the 1980s and the country did not experience any debt crisis for the period under analysis. In accordance with ECRI, there were three periods of three years in recession, separated by around seven years broken by the occurrence of the 2008-09 Financial Crisis. Contrary to other European countries, Germany did not experience a double deep in its economy, having just one recession period registered in 2008. The first recession period was from August 1973 to July 1975, followed by another one from January 1980 to October 1982. Later on, a recession period occurred from January 1991 to April 1994, from January 2001 to August 2003 and finally from April 2008 to January 2009. Previously to the period under analysis, only one recession was registered by ECRI, from March 1966 to May 1967. Similar unicity had banking crises, registered also only on the onset of the 2008-09 Financial Crisis. Although Laeven and Valencia (2018) identified the solo banking crisis between 2008 and 2009, isolated problems showed up in late 1970s. This problem in banking industry in Germany happened when the so-called Giro-institutions[126] face problems. However, it was not considered a systemic crisis in the banking system (Caprio et al., 2005). On the other hand, due to the 2008-09 Financial Crisis, federal and state recapitalizations and guarantees for capital support were provided to several financial institutions and the recapitalization of Norddeutsche Landesbank Girozentrale was placed (Laeven and Valencia, 2013). Still, asset purchase programs cost 11% of GDP and asset guarantee (Bad Bank Act), which includes guarantees issued by the Stabilization Fund, cost another 6% of GDP. The already commented incorrect single Euro currency crisis identified in 2000 was overruled, having, then, only one currency crisis detected to German Mark in 1984. The Mark´s crisis in 1984 was, in the horizon of this research, the weakest identified currency crisis. The crisis occurred only in the second half of 1984,

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[126] Giro-institutions are community bodies of saving banks. They are public-law institutions but, unlike commercial banks, they are not subject to business restrictions and are oriented to common welfare.

but, due to the methodology applied, 1984 was considered a year in crisis. The intensity for this crisis is less than 8 points in accumulated Z score and hit only 7.5 points.

To conclude, a comparison of these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter) would be interesting. After adjustments and a closer analysis, the agreement percentage is considered very solid for Germany. Originally, currency crises showed 98% in agreement, banking crises 89% and debt crises, surprisingly, only 55%. First, the apparent discrepancies between other studies and Laeven and Valencia in banking crisis identification are specific for the year of 2007 and for the period from 1977 to 1979 (briefly commented above). Reinhart and Rogoff (2009) was the only study that found a crisis starting in 2007 (instead of 2008) and considered a systemic banking crisis from 1977 to 1979. Their conclusions detune from the main source and from other eight different authors, so they were not considered strong enough to overrule what were considered by Laeven and Valencia. Second, a study from Borensztein and Panizza (2008) disclosed that Beim and Calomiris[127] considered East Germany in debt crisis from 1949 to 1992. However, Germany reunification occurred in 1990 and no other author found similar debt default in their studies. So, this debt crisis was disregarded and the agreement increased to 100% for debt crises in Germany.

Finally, APPENDIX B demonstrates the way identified single crises occur in concomitance. Single crises interpolated only once, in 2008, when the country faced a recession together with a banking crisis (S7). As France, recessions (10 years in total) had predominance in single crises periods (25%) but Germany remained in a stable a tranquil business environment (S16) in majority of time, representing 25 years of non-crisis out of 40 years (63%).

A.9 – Hong Kong

Hong Kong is a special administrative region of China, a highly autonomous territory constituted in July, 1st 1997 after 1984 Sino-British Joint Declaration. The country has a free market economy (guaranteeing the rights and freedoms of its people), enjoys independent political and judicial systems, but has China controlling country's defence and foreign affairs, a one country two system reality. Macroeconomic and market data

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[127] David Beim and Charles Calomoris, 2000 - "Emerging Financial Markets".

are trustful and available only after the 1980s. However, the main reason to cover only 31 years (1982 to 2012) is the poor coverage to date recession periods in Hong Kong. From this time window perspective, the country is the 4th most stable country in the sample (1st is Australia, 2nd are Canada and India) with some small and sparse recession periods registered and only one currency crisis. No banking or debt crises were identified. Recession periods were dated by Cheng et al. (2012). This study was published by Hong Kong Monetary Authority, which helps to enhance credibility, and, to date recessions in Hong Kong (only), it used methods from US Conference Board of composite indices of coincident and leading economic indicators. However, the dilemma was the limited period under analysis, exactly from 1982 to 2012. The country registered only four single years of recessions and one double recession year. The first recession was identified from Q1 1985 to Q3 1985. The second from Q1 1989 to Q4 1989, the third from Q3 1997 to Q1 1999, followed by another near one from Q4 2000 to Q1 2002, and the last one from Q4 2007 to Q1 2009. Although no relation of causality is expected, recession periods seem to be well marked to GDP growth downturns. In addition, no systemic banking crises were registered by Laeven and Valencia. However, some disturbances in the banking system occurred. The period between 1982 and 1986 registered failure of nine deposit-taking institutions, of which seven banks were liquidated or taken over (including the third largest local bank. the Overseas Trust Bank). Later, Peregrine Investments Holdings, one of the largest investment banks in Honk Kong failed in 1988. Caprio et al., (2005) did not consider these failures as a systemic bank failure and so did not Laeven and Valencia's works. Currency crises require previous information about the exchange rate regimes adopted by Honk Kong authorities. Hong Kong dollars (HKD) floated from 1973 to 1983, when a currency crisis (precisely identified in this research) happened and the regime has changed. From October 1983 on, it was adopted a fixed (to the US dollar) regime that held the exchange rate around HKD 7.8/USD. Moreover, the single currency crisis was marked by monetary history of the country. The history of exchange rate regime in Hong Kong, reinforce the methodological necessity of having the two currency parameters (ENDE – US dollar, and ENSE – basket of currencies) above the threshold (2 standard deviations) to categorize a year in a currency crisis. For instance, a currency crisis would be detected from Q2 1999 to Q4 2000 if only US dollar was taken as parameter. In this period, the currency went from HKD 7.76/USD to HKD 7.8/USD, a depreciation of only 0.5%, a completely immaterial change in exchange rate, not able to produce real effects on the economy. As usual, if a robustness' test, utilizing same

database and two different methodologies is made (as it was done previously to Brazil. Euro currency countries, and China), R&R methodology would have 100% agreement and F&R would have a high agreement (98%) but it would fail to register 1983 as a crisis year. More than ever, the chosen methodology to identify currency crises seems to be well fitted to the search for the effects of these crises on real economy (firm profitability) if some punctual qualitative adjustments are made.

Hence, single crises were exposed. Now, it would be important to validate the findings by comparing the results to other author's outcomes. The list of authors is detailed in conclusions of this chapter and the agreement percentage is consistent for Hong Kong. Currency crises showed 98% (it seems that some authors used F&R methodology and did not identify 1983) in agreement, banking crises 84% and debt crises 100% (there was no crisis identified in both sides). Regarding banking crises agreement, Laeven and Valencia did not consider from 1982 to 1986 (cited above) as a systemic banking crisis period, in opposition to the majority of other authors. Once single crises were identified and consistently confronted to other authors' findings, APPENDIX B gives the overall spectrum of Hong Kong crises, combined or not. As expected, there was no single year in a combined crisis' year, having the vast majority of time showing the country in a very stable business environment, non-crisis period reached 78% of the time.

A.10 – India

Macroeconomic and market data are readily available and it was possible to cover the full proposed period (1975 to 2014). Although considered a developing country and understanding that this evidence makes the country more vulnerable to the business environment disturbances, this association is not fully true to India. The country showed one of the biggest tranquil period (S16) in the sample, from 1999 to 2012 (1st was in Japan and 2nd was in China). However, from 1991 to 1998 the country faced an agitated period with two currency crises, a banking crisis and two recessions' years. Surprisingly again, no debt crisis was registered, despite of immaterial debt defaults amounts registered by Beers and Nadeau (2015) in 1992 and 1993. In this regard, India received financial help from IMF in 1981 and in 1991.

In accordance with ECRI, the country had only three single years' episodes of recessions for the period under analysis. The first was from April 1979 to March 1980, the second from March 1991 to September 1991 and the third from May 1996 to November 1996.

Before the earliest recession episode in the sample (1979), the country faced several economic downturns in short period of time; in 1965, 1966, 1972, 1973, and 1974, an economic instability that was left in the past. Furthermore, Graph 23 shows a single banking crisis, identified by Laeven and Valencia, in 1993. In this regard, between 1993 and 1996 the amount of non-performing assets of 27 public banks was estimated in 20% (Reinhart and Rogoff, 2009). At the end of 1998, this percentage decreased to 16% and lower to 12.4% at the end of 2001 (Laeven and Valencia, 2008). This tendency continued for the years that came but, after 2009 suffered a reversal in this trend, increasing from 2.21% in 2009 to 4.35% in 2014. Moving on to currency crises analysis, India's Rupee does not behave similarly against dollar (ENDE) and basket of currencies (ENSE). Sometimes Z score surpasses threshold for one exchange rate but not the other. Adherence between the two is reached with more frequency in earlier times. This behaviour is not a constant in our sample and attention should be given when testing this exchange rate's fluctuation on micro economy. India adopted a pegged to US dollar exchange rate regime since August 1979 (Reinhart and Rogoff, 2002). The first crisis in 1983-1984 reached 18 points in accumulated Z score (average of 9 points, low intensity), the second, a three years' period from 1991 to 1993, reached 28.4 points in accumulated Z score (average of 9.5 per year, but very intense in 1991 – 12 points – and less in 1992 and 1993), and two other single years' crises in 1998 and 2013 having, respectively, 10.3 and 9.8 accumulated Z scores.

Once single crises were just identified, a final comparison to other authors' outcome would enhance the results. As usual, the list of authors is detailed in conclusions of this chapter and the agreement percentage is considered good to India. Currency crises showed 83% in agreement, banking crises 84% and debt crises 95%. So, a more detailed explanation of discrepancies is demanded. First, in the case of currency crises, Glick and Hutchison (1999) found currency crises in 1976 and in 1995 that was not identified in this research. The discrepancy in 1976 can be caused by a strong deviation from the trend observed only for ENDE. Apparently, there is no reason for the discrepancy in 1995. On the opposite, no author was able to find currency crises periods between 1983 and 1984, and in 1998. Moreover, the already know robustness' test utilizing same database and two different methodologies did not help at this time. When applying R&R and F&R methodologies, results did not improve (maximum of 85% in agreement), suggesting that Ishihara's (2005) methodology may failed to properly identify some currency crises in India. Second, some authors considered that banking crisis in the 90's lasted from 1993

to 1997 instead of only 1993 as determined by Laeven and Valencia, Demirguc-Kunt and Detragiache (2000) went further, with a banking crisis lasting from 1991 to 1997. Finally, debt crises' discrepancy is uniquely because Reinhart (2010) considered the years 1975 and 1976 as a debt crisis period and there was no similar evidence in Beers and Nadeau's (2015) database. Summarizing, identified single crises pointed a disturbing decade (90's), having 1991 as a tough year to India, a year that pave a twin crisis in 1993. The rest of the time showed very stable decades with some noise in sparse single crisis. When analysing these crises together, APPENDIX B gives a closer picture to what was already said until here. Only two years, out of nine in crisis, presented combined crises, a very low percentage (22%). In the end, due to previous agreement percentages shown before, a closer attention should be given in later tests on firm profitability.

A.11 – Indonesia

Macroeconomic and market data are readily available for Indonesia. However, for the purpose of the thesis, Indonesia presented a similar issue as Honk Kong which is the poor coverage to date recession periods. The main and only reliable source for dating recession periods in the country is OECD – CLI, which coverage started in 1990. Hopefully and differently from Honk Kong, the coverage goes until 2014. As widely commented in the news and studied in academic papers, the country suffered a tremendous financial crisis that started in 1997[128]. In theory, this period of intense losses went over in 2004, after the payment of almost all sovereign debt in arrears. On the edges, the country is marked by some recession periods and a unique banking crisis. The first recession period started in 1990 and ended in March 1993. Later, although Indonesia faced a severe financial disruption after 1997, only two single years of recessions were identified, having 1998 (from August 1997 to October 1998) a year showing a concomitant vertiginous fall in GDP growth. The other recessions, in 2003, started in March 2003 and ended in April 2004, followed by a double years' crisis from May 2008 to June 2009 and the last one from February 2013, continuing until at least the date of publication of the study (OECD, 2015). As seen, a banking crisis probably marked the onset of Asian Crisis (in fact a twin crisis). This crisis was originated by the excess of foreign currency indebtedness and it was related to the low financial market development of Asian Tigers countries at the time

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[128] Indonesia is the only country in the sample that belonged to the Asian Tigers (together with Thailand. Malaysia and South Korea) that occasioned the Asian Crisis in 1997.

of the crisis. This low development forced countries to borrow abroad to support investments, supported by a solid fiscal position presented at that time. With cheap and constant money coming from abroad, financial institutions engaged in risky lending, assuming that they would be bailed out by central government. However, this support, at the time it was needed, did not happen. This massive capital inflow boosted consumption and grew current account deficits and, at the time speculators realized that country`s currency was overvalued, a speculative attack took place. A currency crisis that followed hit even harder the already tottering banking system. Due the exhaustion of foreign reserves, banks received no official support. One year later, a debt crisis was installed as a consequence of fiscal unbalance and exponential increase in government debt burden (Beers and Nadeau, 2015). Compared to Brazil and Chile, debt default against gross external debt position (World Bank) in Indonesia was not so high. As expected, the country receives an IMF package in 1997 and in 1998. Going backwards to banking crisis, Laeven and Valencia registered a solo 1997-2001 episode. Although reliable, their work did not identify 2002 as crisis' year due to limitation of five years' maximum per continuous banking crises imposed by their methodology (as previously commented in Chile's analysis). Then, when comparing to other authors' findings, four of them (Caprio and Klingebiel, 2003, Reinhart and Rogoff, 2009, Caprio et al., 2005, and Demirguc-Kunt and Detragiache, 2005) understood 2002 as a banking crisis' year, being reasonable enough to consider these years as year in banking crisis for Indonesia. However, the 1997-2002 episode was not the only disorder episode in the banking system. In 1992, Summa Bank collapsed and triggered bank runs in three other smaller banks (Reinhart and Rogoff, 2009). In addition and following Caprio et al. (2005) database of banking crises, state banks held more than 70% of non-performing assets in Indonesia's banking system in 1994. These non-performing assets represented 14% of total banks assets and was necessary a recapitalization of five state banks, costing almost 2% of GDP. However, this collapse was not considered as a systemic failure to the authors. Later and already in crisis (between 1997 and 2002), Bank Indonesia closed 70 banks and nationalized other 13 (out of 237, or 35%). Non-performing loans peaked 65% to 75% of total loans in the market, ending the crisis period in about 12% in February 2002. After this turbulent period, non-performing loans followed a positive trend, towards acceptable levels.

Apart from a hiccup in 2005 (when it reached 7.33%), non-performing loans begun to rise more recently (after 2013) but continues in low levels (2.32% in 2015). However, banking system was well positioned and capitalized to absolve non-performing loans and

credit quality problems that arouse mainly from corporate sector. Following word Bank Database, bank capital to asset ratio increased from 8.69 in 2005 to 12.75 in 2015.

Currency crises were crucial to the development of Asian Crisis but it also showed presence more recently. The currency crisis episode that took place between 1997 and 1998 in Indonesia was the most severe in the whole sample, hitting 22.9 point in accumulated Z score in 1997 and 22.7 in 2008. However, the peak of disorder, which was in Q1 1998, is much lower than the two episodes registered in Brazil (1990 and 1994). The last observed crisis was mild if compared to previous one (below 8 points) and was concentrated in the second quarter of 2013. Indonesia presented the four types of crisis in a short period of time, making difficult a vast agreement and precision among studies. However, after reasoning eventual differences, the finding here compared to those from other authors is considered satisfactory for Indonesia. Currency crises showed 90% in agreement, banking crises 84% and debt crises 93%. In fact, banking crises showed concentration in disagreements in a specific period of time, from 1992 to 1996. For instance, Demirguc-Kunt and Detragiache (2005) found a crisis starting in 1992 and ending in 2002, while the majority identified the period 1997 to 2002 as the proper period for this banking crisis (as pointed out here). Similar disagreements are seen for debt crisis period. Manasse et al. (2003) believed that debt crisis stated in 1997 and ended in 2001. Laeven and Valencia (2008) found two distinct episodes in 1999 (a default) and 2002 (a restructuring), and the overall range was from 1997 to 2002. As such, the years of 1997 was not identified as a crisis' year in this research and, on the other side, the years of 2003 and 2004 was not considered as crises' years to the other authors.

To conclude, APPENDIX B shows the combination of crises in Indonesia for the period of 1990 to 2014. As Brazil, the richness in the number of years in crisis (60%), combined with the appearance of all types of single crisis, lead to an intriguing scenario. Differently from Brazil, only five types of combined crisis appeared (S5, S6, S9, S10, and S15). Remarkably, the year of 1998 showed an all of type of crises' year (S15), a rare and interesting period to be observed when looking at its effects on firm profitability. In this case, twin crisis in 1997 triggered a debt crisis and push the country to recession in 1998, leading the country to register a GDP negative growth of -13.13%. The business environment in Indonesia was marked by a high level of uncertainty period in the end of 90's and beginning of 00's and more constant and predictable periods on the edges.

A.12– Ireland

As usually seen in European countries, macroeconomic and market data are abundant to Ireland. So, it was possible to cover the period of analysis of 40 years, comprehending 1975 to 2014. Ireland business cycles and financial crises are similar to those found in Belgium. High frequency of recession periods, currency crises that stopped happening in the 1980s and a banking crisis that came with the 2008-09 Financial Crisis is a general spectrum for the country. No debt crisis was found for this period but sovereign debt defaults occurred in 2013, in an amount of USD 88 billion, representing 4.25% of gross external debt position (World Bank) and very close to threshold (5%).

In accordance with OECD – CLI, recession' periods were frequent in the period of analysis and with a relative long duration. As Belgium, there were nine episodes[129] of recessions encompassing 22 years (average of two and half years) over a total of 40 years. The same source identified four crises episodes in previous period, from 1961 to 1974. A banking crisis starting in the onset of the 2008-09 Financial Crisis hit Ireland and Laeven and Valencia (2018) identified the country in a banking crisis from 2008 until 2012. Recapitalizations' programs took place after 2008 in banks as Bank of Ireland, Allied Irish Banks (AIB), Anglo Irish Bank, EBS, and Irish Nationwide Building Society (INBS). In addition, injections of capital were made due to Prudential Capital Assessment Review (PCAR) stress test results. As well as recapitalizations, National Asset Management Agency (NAMA) placed asset guarantees and purchases in financial institutions in the same period (Laeven and Valencia, 2013). In February 2013, The European Central Bank approved a deal to liquidate Anglo Irish Bank. This bank was nationalised in the beginning of 2009 and is marked by been heavily exposed to property lending. Currency crises in Ireland are restricted to Irish Pound, once there was an overrule currency crisis attributed to Euro in 2000 and it was adjusted after evidences of a false positive identification by this research's methodology. Currency crises occurred in 1975-1976 and in 1981-1983 periods. The first crisis hit 25 points in accumulated Z score, an average of 12.5 per year, considered a noisy crisis, something that did not happen to the second, 26.5 points in accumulated Z scores and average of only 8.8.

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[129] Recession periods were from April 1974 to August 1976, from June 1978 to May 1980, from February 1982 to July 1983, from February 1985 to September 1986, from July 1990 to February 1994, from August 1995 to June 1996, from May 1997 to November 1998, from November 2000 to August 2004, from December 2007 to October 2009, and from October 2011 to February 2013.

Single crises were identified and, consequently, a comparison to other authors' outcome is part of the tests to provide power to results. When findings here are compared to those from other authors, it is considered very positive for Ireland, having currency crises 88% in agreement, banking crises 97% and debt crises 100%. A more detailed explanation of discrepancies is demanded for currency crises. Oddly, no other author was able to find a currency crisis in Ireland, despite of considerable devaluations of nominal exchange rate that happened from 1970 to 1984 (ENDE from 0.4155 in Q1 1970 to 0.494 in Q4 1975, 0.5874 in Q4 1976, and 0.881 in Q4 1983). Robustness' test utilizing same database and two different methodologies helped a little at this time. When applying R&R and F&R methodologies, results improved only in R&R (to 90%), able to found a crisis in 1975, 1976, 1981, and 1983 but finding crisis against US dollar in 1993, 1997, and 1999 that were not found here.

Once single crises were identified and confronted convincingly to other authors' findings, APPENDIX B exposes a timeline analysis of single and combined crises. The country stayed in a stable business environment (S16) for a little period of time, only 33% of the years. However, only two types of combined crises were identified; S7 and S9. Pure recessions (S4) periods are remarkable, occurring 38% of the time and importance should be given to recent banking crisis. Nevertheless, attention should be given to 2013. The country was closed to register a debt crisis and it was considered in a banking crisis which would easily transform a S7 type of crisis (double) to a S14 type of crisis (triple).

A.13 – Italy

Data in Italy is abundant and readily available, being possible to cover in full the proposed period. The country is similar to Germany and France in frequency, time of occurrence, and type of observed crises. In general, it is a very stable country, but, contrary to Germany and France, presented more drawbacks effects from the 2008-09 Financial Crisis in its economy than the others. As expected, no debt crises were observed, but the country received financial support from IMF in 1977. Recession periods occurred more constantly on the edges of the period under study. As many other Europeans countries, currency crises were left behind in the 1980s and Italy showed a considerable stable and almost non-crisis period between 1983 to 2007 (25 years). In accordance with ECRI, the first recession occurred from April 1974 to August 1975, the second from May 1980 to May 1983, and some years later, from February 1992 to October 1993. This stable pattern

changed due to the 2008-09 Financial Crisis, when the country faced double deep periods of recession (from August 2007 to March 2009 and from April 2001 until publication date – 2015). Previously to the period under analysis, only two other recession periods were registered by ECRI, in 1964 and 1971. Banking crises registered on the onset of the 2008-09 Financial Crisis was vigorous and continues to deliver adverse effects on the economy. Laeven and Valencia (2018) identified this solo banking crisis from 2008 to 2009, but this was not the only disturbance in Italian banking system. During 1990 and 1994, 58 banks were merged with other financial institutions (Caprio et al., 2005), but this event was not considered as a systemic problem to the authors. Italian Lira had three currency crises along the period under study and the incorrect single Euro currency crisis identified in 2000 was overruled. The first Lira crisis in 1976 was severe, with 15.4 points in accumulated Z score. Similar was the second but encompassing more years. The 1981-1983 Lira currency crisis had an accumulated Z score of 37.1, average of 12.4. However, the first year (1981) was outstanding, reaching 18.6 points, followed by a mild 1982 year (with 10.5 points), and a non-severe crisis' year in 1983 (8 points). The last crisis in 1993 had the same severity of the one in 1982 (10.4 points in accumulated Z score).

A comparison of these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter) shows an agreement percentage considered satisfactory for Italy. Currency crises showed 88% in agreement, banking crises 84% and debt crises 100%. First, the apparent discrepancies between other studies and Laeven and Valencia in banking crisis identification are specific for the period of 1990 to 1995. Glick and Hutchison (1999), Reinhart and Rogoff (2009), and Demirguc-Kunt and Detragiache (2005) considered these years as banking crises' years while Laeven and Valencia considered as a non-systemic banking crisis. In addition, it is necessary to provide more detailed information to currency crises' disagreements. Again, Glick and Hutchison (1999) considered two independent currency crises in 1992 and 1995, while here it was identified only one next to theses dates (1993). In addition, Laeven and Valencia (2008) understood that a currency crisis happened only in 1981, disregarding the two consequent years as crises' years (as understood here – 1982 and 1983 - inclusive). If applied R&R and F&R methodologies, results improved to 90% in both cases.

Once single crises were properly identified, combined crises are the interest in this last paragraph, APPENDIX B demonstrates that only one type of combined crisis happened during this period (S7), when the country faced a recession together with a banking crisis

occasioned by the 2008-09 Financial Crisis. As expected, recessions had predominance in single crises periods but with low advantage to currency and banking crises periods. As Germany, Italy remained in a stable a tranquil business environment (S16) in majority of time, representing 25 years of non-crisis out of 40 years (63%).

A.14 – Japan

It was possible to cover the entire proposed period due availability of macroeconomic and market data for Japan. The country had the 2nd biggest tranquil period (S16) in the sample, from 1975 to 1991, but registered a turbulent period from 1997 to 2004 where recessions in sequence, a small currency crisis, and a long banking crisis occurred, allowing the appearance of a triple crisis in 1988 (a rare event for developed countries). No debt crises were registered despite the high level of indebtedness of the country all over the period under analysis.

ECRI covers business cycles in the country since 1953 and it was identified the first period in recession from 1953 to 1954, having the following only from November 1973 to February 1975. Then, Japan exhibited another impressive period without a recession (more than 20 years). However, recessions were more frequent under the period of study, mainly after 1992. The first recession period was registered from April 192 to February 1994, followed by another one from March 1997 to July 1999. A year later, another recession period occurred from August 2000 to April 2003. Then, Japan was hit by the 2008-09 Financial Crisis and showed a sequential switching economic environment, between recession and non-recession periods (recessions from August 2010 to April 2011, from May 2012 to January 2003, and from March 2014 to August 2014). As seen, recessions became more frequent and happening in shorter periods of time. Moreover, Laeven and Valencia (2018) sustained a solo banking crisis developed from 1997 to 2001, circumscribed in this turbulent time. However, this banking crisis period suggested by Laeven and Valencia is not without contestation. As seen before for Chile and Indonesia, their work did not recognize 2002, 2003, and 2004 as crises' year due to limitation of five years' maximum per continuous banking crises imposed by their methodology. So, when comparing to other authors' findings, at least two of them (Caprio and Klingebiel, 2003 and Reinhart and Rogoff, 2009) classified this period as a continued banking crises' year. For these reasons (limitation and positive comparison), 2002-2004 was considered a continuation of 1997-2001 banking crisis for Japan. Still, Caprio et al. (2005) database of

banking crises suggested that Japan is in a systemic banking crisis from 1992 until the publication date of their paper (then, another year would be possible). They argued that the estimative of non-performing loans was 40 trillion yen (USD 469 billion), around 10% of country GDP, in 1995. Also, real estate prices and stock market declined sharply, impacting banks' financial statements, forcing them to make provisions for bad loans. The already fragile situation worsened in 1998 and in the upcoming years, when non-performing loans in the banking system were estimated in 88 trillion yen (USD 725 billion). At that time, this number corresponded to 18% of Japan's GDP. Still in this year, the government announced the Obuchi Plan, providing public funds to banks recapitalization, in order to protect depositors and to cover loan losses. Later in 1999, Mitsui Trust was merged with Chuo Trust and Yatsuda Trust was merged with Fuji Bank. In addition, Hakkaido Takushodu bank was closed and the Long Term Credit Bank was nationalized. Finally, as pointed out by the authors, non-performing loans were 35% of total loans in 2002. A total of seven banks were nationalized, 61 financial institutions were closed and 28 institutions were merged, generating an estimated cost of 24% of GDP. As mentioned before, there was a single currency crisis, occurred in 1998, which was not severe. The accumulated Z score hit less than 8 points (only 7.1) having the onset identified in the last quarter of 1997 and the end in second quarter of 1998. This currency crisis was identified on the methodological limits (at least two quarters above threshold) although the year (1998) had been presented as a problematic year to Japan.

Single crises were just identified and a final comparison to other authors' outcome would enhance the results. The list of authors is detailed in conclusions of this chapter and the agreement percentage is considered good to Japan. Currency crises showed 90% in agreement, banking crises 78% and debt crises 100%. Then, a more detailed explanation of discrepancies is necessary for banking crises. The period of disagreement goes from 1990 to 1996, and 2005, once, as previously commented, from 1997 to 2004 there was an agreement between the authors. When analysing year-by-year, on the extreme years (1990 and 2005) the only paper sustaining these years as banking crisis' years was Caprio et al. (2005), which considered a continued banking crisis from 1990 to 2005. From 1992 to 1996 other three papers understood the country also in a banking crisis; Glick and Hutchison (1999), Reinhart and Rogoff (2009), and Demirguc-Kunt and Detragiache (2005). In any case, a close attention should be given to those unrecognized banking crises' years in the analysis that follow to Japan.

Finally, when analysing these crises together, APPENDIX B gives a picture of what was said until here. Japan stayed most of time in a tranquil business environment (S16 with 65% of the years), having a tough year in 1998 when a triple crisis struck the country, being surrounded by double crises (S7). In the end, due to previous disagreement in banking crisis' years, a closer attention should be given in later tests on firm profitability.

A.15 – Mexico

Mexico is a lot alike Brazil. Macroeconomic and market data are abundant, been possible to cover the full proposed period of analysis. Again, it was possible to see the four types of single crises interacting at the same time in timeframe. The 80´s was remarkably a disturbance period with continuous banking, currency, and debt crises. Recession periods occurred all over the period under study but recent years represented a relief to business activity, once the frequency of crises diminished, mainly after 1997. Anyhow, the 1980s will provide some interesting material for this research.

Despite data are sufficient and readily available, it was found a limitation when dating recession's periods. The main source, ECRI, started to date business cycles in Mexico after 1979, leaving a backward hole of four years for this research. Naturally, a support from OECD - CLI is the first option and it responded positively, covering business cycles in Mexico since 1962, filling this gap, OECD - CLI indicated a recession period from the end of 1973 to July 1977, configuring a recession period from 1975 to 1977, being the first one in the chosen timeframe for Mexico. Still, there were other six not so durable recession periods[130]. In regard to banking crises, Laeven and Valencia's works identified two continuing crises comprehending 1981 - 1985 and 1994 – 1996 periods. Again, their work did not understand a continuation of the first banking crisis after 1985 (as many other authors did) due to limitation of five years' maximum per banking crises imposed by their methodology. However, when comparing to outcomes found in Caprio and Klingebiel, 2003, Glick and Hutchison, 1999, and Reinhart and Rogoff, 2009 there is a mismatch from 1986 to 1991. These authors classified these years as part of the same crisis. To solve this impasse, a deeper look into Laeven and Valencia's methodology is necessary. Additionally to the limitation of five years previously commented, the authors

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[130] Recession periods were from March 1982 to July 1983, from October 1985 to November 1986, from October 1992 to October 1993, from November 1994 to July 1995, from August 2000 to August 2003, and from April 2008 to May 2009.

understand that a banking crisis ends when "the year before both real GDP growth and real credit growth are positive for at least two consecutive years" (Laeven and Valencia, 2013). So, specifically to Mexico, 1986 presented both indicators still negative (-3.08% for GDP growth and -10% to real credit growth[131]), 1987 presented both positive (1.72% for GDP growth and 4% to real credit growth), 1988 presented one positive (1.28% for GDP growth) and one negative (-14% to real credit growth), and from 1989 to 1991 both of them were positive. Though, complete two consecutive years with both indicators in positive would be only possible after 1989, revealing a limitation held only in the five years' lock. Consequently, results from comparisons and a weak theoretical limitation (that may do not properly represent the business environment) are strong enough to reclassify the period 1986-1988 period as a continued banking crisis for Mexico. Furthermore, government took over some troubled banks between 1981 and 1991 (Caprio et al., 2005 and Reinhart and Rogoff, 2009).

Right after this unstable period, another one showed up, resulting in the second banking crisis period identified by Laeven and Valencia (2018). In 1992, several financial institutions that held inflation-adjusted bonds (long-term credit instruments - Ajustabonos) as assets were affected by the rise in real interest rate (Reinhart and Rogoff, 2009). Still, in accordance with Caprio et al. (2005) there were interventions in 26% (9 in a total of 34) and loan/purchase recapitalization programs in 32% (11 in a total of 34) of all commercial banks in Mexico in 1994. These nine banks were deemed insolvent and held 19% of total assets in the banking system. In addition, in the year 2000 more than a half of total bank assets were held by foreigners (Laeven and Valencia, 2008). However, this second wave of trouble times for Mexico's banking system ended only with the last banking crisis registered, from 1994 to 1996.

With regard to currency crises, some distinction is necessary from instinctive comparison to Brazil. Mexico did experience a long period of currency crisis in the 1980s (1982 to 1988) but it did not take so long as the Brazilian's one (1981 to 1995). The first long period of currency crisis was not coincident to the onset of banking crisis but it was to recession and debt crisis. On the other hand, the intensity of currency crises in Mexico was outstanding. The first currency crisis was in Q3 1976 when the country abandoned a fixed exchange rate regime (adopted since 1954) and nominal currency depreciated 59%

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[131] GDP growth (in local currency and constant prices) data was taken from World Economic Outlook (WEO) database of the IMF, and (bank) credit to private sector (in local currency) was taken from IFS – IFS (line 22D).

against US dollar. This crisis lasted until the end of 1977. The second and biggest currency crisis was not occasioned by an abrupt change in exchange rate regime. Anyway, it was as severe as the previous one, reaching 7 years and an average Z score of 16 points, having its peak in Q1 1982 (24 points) and the trough in Q4 1988 (1.7 points). The next currency crisis in 1995 was not milder. It hit 15.8 points in accumulated Z score, high as the highest quarter in Brazil during the 1980s and a lot higher than any period in Chile. Later, the one occurred from 2003 to 2004 was weak (accumulated Z score of 17.8 and average 8.9) if compared to previous one and to the next, in 2009, when the accumulated Z score reached 10.7 points. Mexico in the 80´s was an interesting time-episode for this research. This unique turbulent economic and financial period nested the occurrence of a continuous debt crisis, widely known in literature from 1982 to 1990 (Beers and Nadeau, 2015). The peak in sovereign debt default was in 1989 when the country owed USD 51 billion (54% over gross external debt position – World Bank) in mainly loans to foreign banks. The average percentage of debt under default for the entire period was 39%, the second biggest in the sample. The country received frequent external support from IMF. Support programs happened in 1977, 1983, 1986, 1989, 1995, and 1999. Differently from Brazil, Mexico did not face hyperinflation periods, but years of very high inflation (1983, 1987, and 1988).

When these identified single crisis periods are compared to other authors' findings (the list of authors is detailed in conclusions), the agreement percentage is considered satisfactory but it requires further explanations for Mexico. Currency crises showed 78% in agreement, banking crises 84% and debt crises 93%. The major disagreements for currency crises are concentrated on the continuous period found in this research (1982 to 1988), especially in the absence of identification by the other authors of 1984, 1986, 1987, and 1988 as crises' years. The other disagreement was in 1994. Glick and Hutchison (1999) dated a currency crisis in 1994 and 1995, having Laeven and Valencia (2008) dating only 1995 and Bordo and Schwartz (2000) dating only 1994. As a robustness check, if it is taken the same database utilized (IFS - IMF) in this research and replicate it over other methodologies, results in currency crises agreements increases to 83% for F&R but remained unchanged to R&R. Likewise, Manasse et al. (2003), alone, identified 1991 (vestige from an agreed period of 1982-1990), 1995, and 1996 still as a debt crises' years. In accordance with the database utilized[132], no debt in default was identified for

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[132] Beers and Nadeau (2015) in Bank of Canada - Credit Rating Assessment Group (CRAG).

1991, 1995, or 1996. Lastly, banking crises disagreements are all in the period from 1989 to 1993 and the solo 1997 year. If seen together, results of other authors would detect a continuous banking crisis from 1981 to 1997, with less agreement between them in the years of 1992 and 1993, mild agreement from 1986 to 1991, and a strong agreement from 1981 to 1983, and from 1994 to 1996. Laeven and Valencia saw two separated banking crises with a considerable distance of eight years between the two (adjusted to five years after deeper analysis).

Once single crises were identified, and after explanations have been adequately provided to disagreements, the final step is to look at combined crises in Mexico. Again, APPENDIX B shows a stimulating scenario where crises were intense from 1982 to 1988. The number of years in crisis (57%) is bigger than the number of non-crisis years (S16), as well as the number of triple crises, bigger than double ones. The country presented three years with all of type of crises (S15) occurring at the same time, a rare and interesting period to be observed when looking at its effects on firm profitability. Nevertheless, caution is necessary when analysing these results once disagreements when dating currency and banking crises could interfere the correct multivariate panel model to be applied.

A.16 – Netherlands

More than neighbours, Netherlands and Belgium have many similarities when financial crises, recession, and non-crisis periods are under analysis (patterns after the 2008-09 Financial Crisis are almost identical). In general, Netherlands is a country with low disturbances in the business environment, less than its peer, Belgium. As many other developed countries, the country is well served in terms of data and it was possible to cover the proposed period (1975 to 2014). Recessions occurred but they were not intense in repetition as Belgium, one period of currency crisis, and a single banking crisis were identified. As expected, no debt crisis was found.

Following OECD – CLI, recessions were frequent in the period of analysis. There were seven episodes of recessions[133] encompassing 16 years, an average greater than two years per crisis. The same source identified other three crises episodes in the period of 1961 to

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[133] Recessions were from August 1976 to May 1977, from November 1979 to December 1982, from May 1986 to February 1987, from September 1990 to December 1993, from December 1994 to March 1996, November 2000 to December 2004, February 2008 to June 2009, and April 2011 to April 2013.

1973 (prior to the one under analysis) showing similar frequency and length. On the other hand, just one episode of currency crisis occurred with Dutch Guilder in 1984 with a very low intensity (less than 8). This crisis occurred only in the second semester of 1984, enough to be considered a currency crisis, but anyway it deserves attention for its effects on microeconomic environment. Banking crises in Netherland were forgotten a long time ago[134]. However, due to the 2008-09 Financial Crisis, it became a reality again. In this period, there were recapitalizations of four banks (Fortis, ING, SNS Bank, and AEGON). Loans were made to Icesave and Fortis. In addition, asset guarantees were provided to ABN AMRO/Fortis Mortgage portfolio and ING Alt-A RMBS portfolio (Laeven and Valencia, 2013).

If these single crisis periods found in this research are compared to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is outstanding for Netherlands. Currency crises showed 98% in agreement, banking crises 100% and debt crises 100%. Then, once single crises were identified and confronted extremely well to other authors' findings, a look at combined crises is the last exercise. As demonstrated in APPENDIX B, single crises interpolated only during the 2008-09 Financial Crisis. In general, it was registered only four types of crises (S1, S2, S4, and S7), where only one types represent combined crises (S7), with predominance of single recession periods (33%). Apart from it, in majority of time the country was in a tranquil business environment (S16), representing 22 years of non-crisis out of 40 years (55%).

A.17 – Norway

Norway is a developed country located in Europe that does not share the same characteristics of its peers in the region. In common, it is a very stable country with a balanced business environment. On the other hand, this is one of the few European countries that did not experience a banking crisis in recent the 2008-09 Financial Crisis. Macroeconomic and market data are abundant and readily available, being possible to cover in full the proposed period. Recession periods occurred all over time intercalated to non-crisis periods. Norway did not join Euro but it did not mean more exposure to currency risks. The country did not register a debt default for the period under analysis.

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[134] The last one mentioned by Reinhart and Rogoff (2009) dates back to 1939.

In accordance with OECD – CLI, out of eight recession periods in total[135], there were three periods of three years in continuous recession. Previously to the period under analysis, Norway faced five recession periods starting from 1961. As also seen, the unique banking crisis registered by Laeven and Valencia (2008) was not in the onset of the 2008-09 Financial Crisis but from 1991 to 1993. As pointed out by the authors, financial deregulation took place during 1984 and 1987, leading to a credit boom that affected residential and non-residential real estate market. The decrease in oil prices in 1985, combined with increase in interest rates in Germany, forced the government to keep the interest rate high during a recession period that started in 1988. So, between 1988 and 1989, two regional saving banks were merged or bailed out due to failure (Reinhart and Rogoff, 2009). In accordance with Caprio et al. (2005) database of banking crises, between 1990 and 1993 special loans were provided by Central Bank to six banks suffering from recession period and problems in real estate loans. In addition, government took control of the three largest banks at that time (Den Norske Bank, Christiania Bank, and Fokus Bank) that, at that time, held 85% of banking system assets. As mentioned before. Norway did not adopt the Euro as its currency, although the country belongs to European Union (EU). For the period under analysis, Norway faced two currency crises, the first Norwegian Krone crisis, from 1982 to 1984, can be considered a low to medium crisis in its totality (accumulated Z score of 29 points, average 9.7), similar to the second and last one in 2000, a weak currency crisis with 8.8 points in accumulated Z score.

When comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the results are convincing. Currency crises showed 82% in agreement, banking crises 89% and debt crises 100%. Glick and Hutchison (1999) found currency crises in 1978, 1986 (together with Kaminsky and Reinhart, 1999), and 1992 that were not identified in this research. On the other hand, no author was able to find currency crises from 1982 to 1984 and in 2000. Moreover, when performed the robustness test applying R&R and F&R methodologies, results improved to 88% in both cases. The discrepancy between other studies and Laeven and Valencia in banking crisis identification is specific for the period

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[135] Recession periods were from July 1976 to February 1979, from February 1980 to October 1982, from October 1986 to February 1989, from May 1992 to March 1993, from February 1998 to March 1999, from October 2001 to June 2003, from October 2007 to August 2008, from March 2012 to December 2012, and from November 2014 until publication of the paper (2015).

1987-1990. Glick and Hutchison (1999), Demirguc-Kunt and Detragiache (2005), and Manasse et al. (2003) considered a systemic banking crisis from 1987 to 1993.

Once single crises were identified, APPENDIX B consolidates them all and demonstrates the way they occur in concomitance. Single crises did not interpolate very often, only 6% of the time and in two different ways (S7 and S9). Recessions had predominance in single crises periods (35%) but Norway remained in a stable a tranquil business environment (S16) in majority of time, representing 19 years of non-crisis out of 40 years (48%).

A.18 – Poland

Poland became a market-oriented economy in 1990 and now a day is considered a developed country[136]. Before it, the country was under another economic regime that did not promote market competition in a capitalist environment. Consequently, the period under analysis is primarily dependent on this fact. Another important limitation is availability of information. Either way, it was possible to cover a period from 1991 to 2014. There, one banking crisis was identified, some recession periods, and a debt crisis that started (actually it continued from previous regime) together with capitalist regime. Surprisingly, no currency crisis was found, something odd for a country with this recent economic history.

Here, the main source to date business cycles was OECD – CLI which started to look into Poland' business cycles only after 1998. Again, some studies have been done to fulfil this gap. The most suitable was made by Zalewski (2009), who presented results from 1991 to 2007. This author also followed a technique to identify peaks and troughs comparable to Burns and Mitchell and NBER's methodology, having as a parameter the results produced by OECD (Composite Leading Indicators) outcomes after 1998. Zalewski showed a period until November 1991 as a trough, followed by a peak in April 1992 and another trough in October 1993 (all of them sourced by OECD). Later, the author found a recession period from January 1995 to February 1996 (now applying own data and procedures to find peaks and troughs). OECD - CLI identified the biggest recession period of the country, from March 1998 to January 2003. After it, Poland faced another deep in economic activity with a year window interval (from March 2004 to June 2005) and two

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[136] In accordance with World Bank.

other recession periods; one resulting from 2009-09 Financial Crisis (from December 2007 to February 2010) and another one in 2012 (from October 2011 to December 2012). On the other hand, banking crises were not constant in this fresh capitalist economy. Laeven and Valencia identified a banking crisis starting in 1992 and ending in 1994. A little before, in 1991, the Bank for Food Economy, the cooperative banking sector, and seven treasury-owned banks faced solvency problems. In accordance with Caprio et al. (2005), banks owned by government held 90% of credit in Poland. Historically, Poland banking sector has attached mostly of its mortgages in Swiss Francs, it has relied on foreign funding, and its assets has been majority held by foreign banks. These factors, albeit under progress towards a less weak position, increase the exposure of the entire banking sector to external shocks.

Regarding debt crises, arrears in sovereign debt was already a fact during communism regime in Poland, especially after 1981. The large indebtedness escalation happened during the 1970s, sourced by western banks, and it was taken to fund investment projects (not necessarily to boost new industries, but to support old ones) and to raise living standards (improving salaries and importing goods from communist countries). So, in its transition to capitalism, a considerable amount of sovereign debt was already in default. According to Beers and Nadeau (2015), the number of debt default in 1991 was USD 49 billion (the peak in default), representing 101.25% of gross external debt position (sourced by World Bank). The expressive reduction in 1992 was a consequence of a written off made after an agreement with the Paris Club during 1991. As well as debt forgiven, Poland received external support, joining IMF programs in from 1990 to 1991 and from 1993 to 1994. In addition, it had hyperinflation periods in 1990 (Reinhart and Rogoff, 2010), and very high inflation years (1982 and 1989).

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions), the agreement percentage is excellent for Poland. Currency crises showed 100% in agreement, banking crises 95% and debt crises 100%. In turn, combined crises are showed in APPENDIX B. As expected, Poland remained the majority of its recent capitalist story under pure recession periods (46%). From the adoption of capitalism in 1990 until 1994 the number of single crises and their combinations reigned in its business environment. After this turbulent period, the country was able to develop under non-crisis periods more frequently (S16 with 38% of total years under analysis).

A.19 – Russia

Similar to Poland, The Russian Federation's (hereby called Russia) capitalist economic history began with the dissolution of the Soviet Union in 26 December 1991. Before it, the country was the epicentre of communist regime in the world and there was no market competition in a free capitalist environment. Again, the period under analysis is primarily dependent on this fact and on data availability. Even though, it was possible to cover a period from 1992 to 2014 (23 years), and all types of singles crises were identified. Three recession periods, three banking crises episodes (the last one very recent), three currency crises and a long debt crisis are a summary of all singles crisis episodes in Russia.

A limitation to date recession' periods was found. The main source, ECRI, started to date business cycles in Russia only after 1994, leaving behind only two years uncovered. Works have been done to fulfil this gap in the literature and the most suitable was made by Smirnov et al. (2016). These authors covered a period from 1981 to 2015 and they utilized a hybrid (quantitative[137] and qualitative analysis) methodology to identify peaks and troughs. In the end, his results showed a good matching to ECRI outcomes after 1994. Smirnov et al. (2016) informed that the first recession period for a capitalist Russia started, in fact, in 1989, still under communism regime. Together, it represented an eight years' recession period, one of the longest in the sample. The following recession period (from December 1997 to January 1999) was aggravated by a banking crisis, similar to the last recession period identified during the 2008-09 Financial Crisis (from May 2008 to May 2009). Laeven and Valencia found two distinct banking crises in Russia, one in 1998 and another one from 2008 to 2009. Nevertheless, the country had two remarkable periods of disturbances in the banking system. The first was in 1995, when the banking system stopped working due to concerns about the ability of new banks honour connected loans to other banks. Later in 1998, a political turmoil happened, generating doubts about the ability of the new cabinet to deal with fiscal problems. As a consequence, unilateral domestic debts (ruble-denominated treasury bills) were restructured and the exchange regime changed to a floating system. A large devaluation of ruble followed these events, leading to massive losses of banking system and access to international capital was interrupted. The weaknesses of banking system were recognized and it was shown a

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[137] Including three methods of seasonal adjustments, named X-12-ARIMA, TRAMO/SEATS, and CAMPLET, and four methods for dating cyclical turning points, named local min/max, Bry-Boschan, Harding-Pagan, and Markov-Switching model (Smirnov et al. 2016).

banking system with a loose supervision and report, excessive exposure to foreign currency, connected lending, and poor management (Laeven and Valencia, 2008). Between 1998 and 1999, a massive number of banks were considered insolvent (720, representing around 50% of all banks operating in Russia). However, they did not represent an expressive amount of impaired money in the banking system, representing only 4% of sector assets and 32% of retail deposits (Caprio et al., 2005). In addition, 18 banks with expressive households' deposits (41%) and banking system assets (40%) were also in financial difficulties. Due to recent the 2008-09 Financial Crisis, recapitalizations occurred to State Mortgage Agency, VTB Bank, Rosselhozbank, Rosagroleasing, and a development bank (Vnesheconombank – VEB). Subordinated loans were also provided to Vnesheconombank (Laeven and Valencia, 2013). Briefly commented during banking crises analyses, currency crises were more frequent during transition to capitalist regime. However, not only during transition period the Ruble experienced expressive devaluations. It also happens more recently, in 2014, together with a banking crisis. The first crisis period from 1992 to 1995 was long but not so intense, reaching an average accumulated Z score of 9.7 points. The second crisis was already commented and it was nested inside a political turmoil in 1998. A Ruble' devaluation of 159% happened in just one quarter (from Q2 1998 to Q3 1998) and this rupture was captured when this year's Z score hit 14.8 points. The following year (1999) was not so different, with a continued severe currency crisis represented by an accumulated Z score of 12 points. Albeit this crisis was considered severe, it was not more than the one registered in 2014, when accumulated Z score hit 19 points. As Poland, these turbulent years coming from a severe change in economic system would be hard to imagine without the occurrence of a debt crisis. The former USSR accumulated considerable amount of external debt and, after its dissolution in 15 sovereign countries, Russia inherited all the debts as well as significant part of assets. In accordance with Beers and Nadeau (2015) the country started to default its debts in 1991 and remained defaulting until 2011. The peak in debt default was registered in 1999 and reached USD 85 billion. Some authors pointed out that this debt crisis period was originated in a severe hyperinflationary scenario that started in 1991 and persisted until 1995 with inflation above 100% per year. The inflationary peak was registered in 1992, with 2.510%[138] per year. Russia also received financial support from

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[138] Steven Rosefielde and Stefan Hedlund, 2009 – "Russia since 1980 - Wrestling with Westernization"

international community. The country received IMF rescue packages in 1992, from 1995 to 1996, and in 1999.

When comparing single crises just identified to other authors' outcome, the agreement percentage is considered good for Russia. Currency crises showed 77% in agreement, banking crises 91% and debt crises 96%. Observed disagreements demand more detailed information. First, no currency crisis was found from 1992 to 1995 by other authors, despite of a Rublo's nominal depreciation of 4.440% from Q2 1992 to Q4 1995. Similarly, authors did not understand Russia in a continued currency crisis in 1999. Moreover, if the same dataset utilized (IFS - IMF) is replicate it over other methodologies (Reinhart and Rogoff, 2009 and Frankel and Rose, 1996), results in currency crises agreements increases to 100% for F&R and 91% to R&R. Secondly, differently from Laeven and Valencia, some authors understood disturbances in the banking system in 1995 and as a systemic banking crisis. Still, a continued banking crisis that started in 1998 reached, to the same authors, 1999, something that was not recognized by Laeven and Valencia.

Once single crises were satisfactorily identified and major disagreements were properly justified, the final step is to check their combinations all over the timeframe. As expected, APPENDIX B shows the 90's as a disturbing period for the country, having the power to produce a year where all the crises occurred at the same time, in 1998. This turbulent business environment did not happen again and Russia was able to navigate in a plainer and more stable economy until 2008, when world financial crisis hit the country and some politically motivated actions pushed the country into a dazed scenario.

A.20 – Singapore

Singapore is ranked as the most opened economy in the world. Macroeconomic and market data are trustful and available, but the main reason to cover only from 1984 to 2011 (28 years) is the poor coverage to date recession periods. The country is similar to Hong Kong when the subject is financial crises and recession periods. It was not identified debt, currency or banking crises, but recession periods were more frequent.

Recession periods were only possible to be identified through a sub-topic of a paper issued by the Ministry of Trade and Industry Singapore (2011). The series of studies called "Economic Survey of Singapore" are still being published but the sub-topic that addressed economic cycles were discontinued in their 2011 paper. This unique study used composite coincident index to date growth cycles. The country registered six recession

periods[139]. Although this is the only type of crisis registered for Singapore, they are frequent and appear in short intervals. In addition, no systemic banking crises were registered by Laeven and Valencia. However, a disturbance in the system occurred in a period previous to the covered period. A non-systemic banking crisis was identified in 1982 due to non-performing loans in values of LC$ 200 million, or 0.6% of Singapore GDP (Caprio et al., 2005 and Reinhart and Rogoff, 2009). Comparing this unique identification of recession periods to other author's outcomes, the agreement percentage is absolute for Singapore. Currency, banking, and debt crises showed 100% agreement for the covered period.

Finally, as shown in APPENDIX B, Singapore had no combined crises. However, the country remained more time in recession (S4 - 54% of the time or 15 years) than in non-crisis periods (S16, 45% of the time or 13 years). Anyhow, Singapore presents one of the most attractive business environments due to a trade-oriented market economy, low political risk, low tax rates, and high GDP per capita.

A.21 – South Africa

South Africa belongs to the small set of countries in the sample where some specific characteristics/events pushed the country to present some missed and inconsistent macroeconomic and market data. The apartheid was introduced in 1948 in a country supported by mining activity. Later, in 1986, the international community imposed trade and investment sanctions as an instrument of pressure against apartheid, and these sanctions produced dysfunctions in economic system once the surpluses generated by mining company conglomerates had to be and were fully reinvested inside the country. Then, virtually every economic activity was attached to these mining conglomerates until international capital inflow erodes at the beginning of 90's. This event produced fatigue in the economic system in place and helped to decree the end of apartheid in 1994. Consequently, South Africa is considered a country under a democratic system only after 1994. When addressing crises' periods, it was possible to cover the proposed full range of time (1975 to 2014). However, micro and macroeconomic data represent an issue. For instance, gross external debt position is only available after 1994 (World Bank

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[139] Recession periods from August 1984 to December 1985, from June 1988 to Octo 1989, from August 1990 to October 1992, from September 1994 to April 1995, from July 1997 to November 1998, from August 2000 to October 2001, from April 2002 to June 2003, from May 2004 to March 2005, from March 2008 to October 2009, and from May 2010 until the coverage date of the report (2011).

International Debt Statistics). At that time, the number of outstanding debt was USD 21.7 billion.

Against the intuition that South Africa would present similar crisis' scenario as its peers in the sample (Brazil, Mexico, and Russia), the country showed itself resilient to banking crises. On the other hand, Beers and Nadeau (2015) pointed sovereign debt in default from 1985 to 1987 (USD 13.6 billion, USD 16.9 billion, and 16.9 billion, respectively), in 1989 (USD 7.5 billion) and in 1993 (USD 5 billion). Due to missing data about total external debt previous to 1994, if these amounts in default are compared to the first available data (USD 21.7 billion in 1994), they would represent a considerable sum in arrears, much more than threshold of 5%. Assuming a natural escalation of external debt during apartheid regime, if total external debt data from 1994 is taken as the maximum during the unavailable period (1975 to 1993), all of those years in default would be considered debt crisis' years. This was the way these years were considered, so a debt crisis was identified from 1985 to 1989 (following the methodology, 1988 was included as a debt crisis year) and another one in 1993.

Moving on to another type of single crisis, in accordance with ECRI, recession' periods were recurrent, without following a pattern in their length and frequency. There were six episodes of recessions[140] encompassing 12 years (average of two years) over a total of 40 years. As mentioned before, South Africa has shown no systemic banking crisis. However, the country lives with problems with its bank system since 1989 (Caprio et al., 2005). In accordance with IMF (2014b) report, South Africa's banking sector is large and highly concentrated once top five banks (Standard Bank, FirstRand Bank, Nedbank, Barclays Africa Group Limited – ABSA, and Capitec Banking Group) hold 90% of total assets. This concentration enables banks to obtain higher returns than other banks in a more competitive arena outside South Africa. The reason behind it is the protectionism on this industry. There is a strong legal barrier to entry. Minimum capital requirements are between four to 100 times higher than in other developing economies and the access to clearance and payment system favours incumbents (IMF, 2014b). As such, the amount of loans dedicated to corporates' working capital and corporates' projects are low. The loan market is fully designated to households, secured by guarantees and/or collaterals[141].

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[140] Recession periods were from June 1976 to November 1977, from November 1981 to January 1983, from June 1984 to February 1986, from February 1989 to August 1992, from April 1997 to November 1998, and from April 2008 to April 2009.
[141] Following IMF (2014b) "mitigating factors include the fact that high-income households, who hold sizable assets, account for 95 percent of mortgages (which are mostly at floating rates), while unsecured

Unsecured credit is sparse, with its interest rate capped by regulation, and expensive, but has increased in recent years, together with the amount of non-performing loans. So, non-performing loans are positively related to the policy rate and unemployment rate (IMF, 2014b). In turn, currency crises in South Africa were intense and frequent. There were nine currency crises episodes, predominantly acute but short, and some of them can be considered severe. Nevertheless, it is recommended visit the exchange rate regimes adopted by the country during this period. Until May 1975, the currency was pegged to a basket of currencies. Then, from June 1975 to May 1979 it was adopted a fixed exchange rate regime, followed by a dual exchange rate regime (crawling peg commercial Rand and free-floating financial Rand) until January 1983. This unusual regime was changed to a managed float for a short period of time, until August 1985, and then changed again for a dual exchange rate regime (identical to previous one) for a longer period, until February 1995. From March 1995 to January 2000 South Africa returned again to a managed float and remained in a free float until present time. So, there were six changes in exchange rate regime in a period of 40 years and these changes are well marked in the currency crises identified above. The first crisis in 1975 happened only in the second semester and hit 7.8 points in accumulated Z score. The second one in 1982 comprehended almost the entire year and hit 12.5 points in accumulated Z score. The following one occurred in a window difference of just one year, but it lasted longer, encompassing 1984 and 1985 with an accumulated Z score of 23.6 points (average 11.8). After a longer period of stability, there was another currency crisis in 1993 and 1994 (19.8 points in accumulated Z score). Then, the country went into a turbulent period with sequential short-lived currency crises in 1996, 1998, and 2001 (with accumulated Z scores of, respectively, 10.3, 10.3, and 12). Finally, another acute crisis in 2008 (hit only the second semester) and a mild but persistent crisis from 2013 to 2014 ends this this long story of currency crises in South Africa.

Banking, debt and currency crises were identified but a comparison to other authors' outcome of the full types of single crises is part of approach adopted to validate these crises in this research. A first sight would give a feeling of preoccupation about the identified single crises for South Africa, requiring further explanations or justification about discrepancies. Currency crises showed 71% in agreement, banking crises 89% and debt crises 83%. First, debt crises discrepancies are anchored in two different periods.

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loans to households (mostly at fixed rates) were 11.7 per cent of the total gross credit exposure of the banking sector as of January 2014".

The first, Manasse et al. (2003) found debt crises from 1976 to 1978 that did not find correspondence in Beers and Nadeau (2015) database about sovereign debt in default in South Africa. The second, from 1985 to 1994, it is a long period where some authors found it as a non-sequential debt crisis, having several separated debt crises. Data in Beers and Nadeau (2015) found it as a continuous debt crisis. Discrepancies in currency crises are spread over the period. Other authors found currency crises that were not confirmed in this research in 1978, 1981, 1988, 1992, and 1995. On the other hand, this research found crises in 1993, 1994, 2001, and 2008 that was not confirmed by other authors. In this case, reconciliation is not the best approach to understand the reasons of these discrepancies. Then, when applying R&R and F&R methodologies, results improved to 80% in R&R and 83% for F&R, increasing the agreement percentage but still requiring and reinforcing attention for its effects on microeconomic environment. Finally, some authors found banking crises in 1977 and 1978, as well as in 1985 and 1989 that were not considered systemic by Laeven and Valencia.

To conclude, APPENDIX B exposes a timeline analysis of single and combined crises. Apart from all problems identified, South Africa stayed in a considerable stable business environment, in 45% of the years (S16). In turn, single crises responded for 38% of the years and only four types of combined crises were identified; S8, S9, S10, and S13. Nevertheless, special attention should be given to years in discrepancy when performing tests on firms' microeconomic data. The classification of regimes (basis for parameters instability's test and regime changing models) may be misplaced and some additional tests may be necessary to match macro and microeconomic environments and will be reported accordingly if necessary.

A.22 – Spain

Business cycles in Spain carry similarities with France and Germany, except in late 1970s. Macroeconomic and market data are abundant and readily available, being possible to cover in full the proposed period. As France and Germany, the country presented a very stable environment from mid of the 1980s until the 2008-09 Financial Crisis. However, in the end of the 70´s, Spain developed an adverse business environment, presenting even a prolonged tripe crisis' year (type S12) period, something rare for a developed country. An IMF package was released to help recover the economy in 1978. Recession periods occurred only three times, but two long periods of banking crises are a mark for Spain.

Outside Euro period, currency crises occurred three times, having no debt crisis for the period under analysis.

In accordance with ECRI, Spain had three periods in recession, separated by large periods of non-crisis (from the first to the second eight years and from the second to the last one 14 years). The first recession period was from March 1980 to May 1984, the second from November 1991 to December 1993, and the last one from February 2008 to July 2013. Contrary to other European countries, Spain took longer to recover from the 2008-09 Financial Crisis but, yet, it did not experience a double deep in its economy. Periods under recessions were scarce but intense and lasted longer than usual, particularly the last one that came together with a banking crisis. Laeven and Valencia identified banking crises from 1977 to 1981 and from 2008 to 2012. However, like Chile, Japan and Mexico, the first banking crisis episode identified by the authors requires further adjustments once they did not diagnose a continuation of this crisis after 1981 (as many other authors did). The reason, Again, rely on the limitation of five years' maximum per banking crises imposed by their methodology. When comparing these findings to outcomes found in four studies (Caprio and Klingebiel, 2003, Kaminisky and Reinhart, 1999, Glick and Hutchison, 1999, and Reinhart and Rogoff, 2009), there is a mismatch from 1982 to 1985, where the authors classified these years still as a continuity of the same crisis. Reminding the understanding that a banking crisis ends when "the year before both real GDP growth and real credit growth are positive for at least two consecutive years" (Laeven and Valencia, 2013), it would be important to check how these years behaved. With the exception of 1982 (both were positive), all of the others years (1983, 1984, and 1985) presented one positive (GDP growth) and one negative (real credit growth) indicator, signalling a disturbing banking system environment. This fact is suggestive to support that five-year limitation was the main reason to stop the crisis in 1981. So, based on results from other authors and this weak theoretical limitation, a reclassification for the period 1982-1985 was made, understanding these years as years of a banking crisis that started in 1977 in Spain.

Moreover, during the first banking crisis 24 financial institutions were rescued, 20 banks were nationalized, four were liquidated and four were merged. In a population of 110 banks and financial institutions at that time, these 52 cases (47%) represent solvency problems to 20% of all banking system deposits (Caprio et al., 2005). According to Laeven and Valencia (2018), due to the 2008-09 Financial Crisis, there were recapitalizations of several banks (Catalunya Caixa, Unnim, Espana-Duero, Nova Caixa

Galicia, Banco Financiero y de Ahorros, Banco Mare Nostrum, Banca Civica, Caja del Mediterraneo, and Banco de Valencia), purchases of securities from credit institutions also occurred, and an asset protection were made to Bilbao Bizkaia Kutxa (takeover of Cajasol). In June 2012, Spain requested, and received (up to €100 billion), additional financial assistance from the Eurozone to rescue its suffocating banking sector. Following this bail out, in September 2012, under the imposition of Eurozone authorities, toxic property assets were taken out from banking sector. At that time, it was created the figure of a national bad bank that holds and manages all junk assets. In November of the same year, four banks were nationalized (Bankia, Banco de Valencia, NCG, and Catalunya Banc). Moving on with crisis identification, the already commented incorrect single Euro currency crisis identified in 2000 was overruled, having, then, three currency crises detected to Spanish Peseta. The first Peseta crisis in 1977 was very intense but restricted to the second semester of the year (accumulated Z score of 7.4 points to this semester). The second currency crisis from 1981 to 1983 was longer and with a medium intensity, with an accumulated Z score of 32.7 points (average 10.9). The last one registered in 1993 was mild with an accumulated Z score of 8.1 points.

In conclusion, when comparing single crises here identified to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage for each type of crisis is considered outstanding for Spain. Currency crises showed 93% in agreement, banking crises 100% and debt crises 100%. Still, APPENDIX B demonstrates the way these single crises occur in concomitance. Differently from other countries in the sample, Spain remained a considerable number of years in a specific double crisis; banking and recessions (S7) with 7 years (18% of total years). "Pure" recession periods did not appear very often and, as Germany and France, stable a tranquil business environment (S16) happened in majority of time, representing 22 years of non-crisis out of 40 years (55%).

A.23 – Sweden

As Belgium and Netherlands, more than neighbours, Sweden and Norway have many similarities when analysing financial crises and non-crisis periods. The only significant difference between the two is the appearances of recession periods (more frequent in Norway) and banking crisis (longer and more frequent in Sweden). Sweden is a country of low disturbances in the business environment but marked by a disturbance period at

the beginning of the 90's when the country faced a triple crisis, identical to Spain in the end of 1970s. Currency crises occurred only three times (reminding that the country did not join the Euro) and no debt crisis was found. Furthermore, the country is very well served in terms of macroeconomic and market data and it was possible to cover the proposed period.

Following ECRI, recessions occurred mostly until mid of 90's with a considerable duration but not in repetition. The first recession period began (peak in economic activity) in July 1975 and ended (trough in economic activity) in November 1977. Before it, ECRI documented only another recession period from October 1970 to November 1971. After a short period of time, the second recession started in February 1980 and lasted until June 1983. The third recession period occurred from June 1990 to July 1993, having the last one, occasioned by the 2008-09 Financial Crisis, dated from April 2008 to March 2009. In turn, banking crises occurred twice. Laeven and Valencia dated banking crises from 1990 to 1995 and another one from 2008 to 2009. In accordance with Caprio et al. (2005) database of banking crises, in the period of 1991 to 1994, two important banks were declared insolvent (Nordbanken and Gota Bank). These two banks held 22% of banking system assets. Another important bank, Sparbanken Foresta, with 24% of total baking system assets, suffered intervention. In the end, five of the biggest six banks in Sweden (holding more than 70% of banking system assets) experienced difficulties. Regarding currency crises, Sweden presented three distinct periods of crises. The first period, from 1981 to 1983, was the longest one and with medium intensity, showing an accumulated Z score of 34.8 points (average of 11.6). The second crisis happened in 1993 together with other two types of crises (a recession period and a banking crisis) and was more intense, reaching an accumulated Z score of 12.2 points. The last one from 2000 (second semester) to 2001 was a mild one, with an accumulated Z score of 18.4 (average of 9.2). Single crises were identified for Sweden and a comparison to other authors' findings are a methodological procedure to help erasing possible abnormal results or flagging some years as attention years. However, the agreement results are vigorous to the country. Currency crises showed 88% agreement, banking crises 97% and debt crises 100%. Particularly, disagreements in currency crises are restricted to the findings of Glick and Hutchison (1999). These authors found currency crises not identified in this research in the years of 1977 and 1992. On the other hand, this research found a currency crisis in 1983 that was not identified by Glick and Hutchison (1999). Moreover, as demonstrated in APPENDIX B, single crises interpolated in late 1970s, beginning of 90's, and during

the 2008-09 Financial Crisis. In general, it was registered six types of crises (S1, S2, S4, S7, and S12), where two types represent combined crises (S7), emphasizing the occurrence of a triple crisis (S12). Beside of it, in majority of time the country was in a tranquil business environment (S16), representing 22 years of non-crisis out of 40 years (55%).

A.24 – Switzerland

Switzerland is one of the most stable countries in the sample. It is not crisis immune, although financial crises were rare. The country' macroeconomic and market data are abundant, allowing to cover the full period of analysis (1975 to 2014). Although it is widely recognized its banking system development and strength. Switzerland was affected by a banking crisis during the 2008-09 Financial Crisis. Another remarkably characteristics is the recurrence of recessions and a solo currency crisis. As expected, no debt crisis was registered.

In accordance with ECRI, the country had five episodes of recession, having a relatively wide time interval between them, with an exception at the beginning of the 90's. The first episode occurred from April 1974 to March 1976, followed by another one from September 1981 to November 1982 (6 years' interval between them). The third was the longest one and it started in March 1990 and ended in September 1993. Right after, another recession from December 1994 to September 1996 hit the country, in a time window of just one year. Four years later, another recession period started in March 2001 and ended in March 2003. On the onset of the 2008-09 Financial Crisis, Switzerland went into a double crisis that lasted together (recession and banking crisis period from 2008 to 2009) as identified by Laeven and Valencia (2018). The country did not escape without scars from the last financial crisis in 2008-09, once recapitalization of UBS was placed through mandatory convertible notes (Laeven and Valencia, 2013). In turn, Swiss Franc is a very stable currency and it has strengthened steadily against US dollar since 1975 (with two hiccups). A single currency crisis was identified in 1984. This unique crisis was not durable or even severe. It occurred in the last three quarters of 1984 and reached an accumulated Z score of 8.4 points.

When comparing these single crisis periods to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is extraordinary for Switzerland. Currency crises showed 95% in agreement, banking, crises 100%, and debt

crises also 100%. Then, it is possible to check the occurrence of combined crisis, as demonstrated in APPENDIX B. It was found three types of single crises and only one double crisis (S7), corroborating to the already mentioned economic stability. The country remained under favourable business environment (S16) for 63% of the time but emphasis should be given to the number of years in recessions, total of 10, representing 25% of the time.

A.25 – Turkey

Turkey is one of the most interesting countries to be explored when financial crises and recession periods are under perspective. In this matter, Turkey is similar to Brazil, Chile, and Russia. Hopefully, macroeconomic and market data are available to download, being possible to cover the full proposed period and to perform a deep search for the consequences of these crises on firm profitability. Once again, it was possible to register the four types of single crises at the same time, during the most turbulent period, at the end of 1970s and at the beginning of 1980s. Recession periods happened all the time, banking and debt crises occurred less often and, most importantly, a remarkable currency crisis that lasted for amazingly 26 years was registered. As its peers in the sample, the frequency of crises diminished after the 00`s.

Following information from OECD – CLI, recessions in Turkey were spread all over the period under analysis[142]. Before 1975, Turkey presented the same pattern, at least since 1961 (when OECD - CLI started to date recession periods), occurring other four periods of recessions. Also, in accordance with Laeven and Valencia, systemic banking crises happened twice, one from 1982 to 1984, and other from 2000 to 2001. Furthermore, Caprio et al. (2005) identified a non-systemic one in 1994. The first systemic banking crisis was regarded to the merger of three banks[143] to state-owned Ziraat Bankasi (Agriculture Bank) and two large banks were restructured. The non-systemic banking crisis was related to the failed of three banks. Last and in accordance with Caprio et al. (2005), the country is still experiencing a systemic banking crisis since 2000 (at least until the year of publication of the paper) when two banks closed and 19 banks were taken by

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[142] Recession periods were from September 1976 to July 1980, from October 1981 to July 1982, from June 1984 to August 1985, from November 1987 to May 1989, from August 1993 to July 1994, from January 1988 to August 1999, from August 2000 to October 2001, from July 2007 to March 2009, and from May 2011 to October 2014.
[143] In sequence, they were liquidated.

the Saving Deposit Insurance Fund. In Reinhart and Rogoff (2009), the Gulf War in 1991 led to banks' run, forcing government to guarantee all deposits and in Laeven and Valencia (2008) the reasons lie on a banking system highly vulnerable to market risk. In accordance with these authors, banks were highly exposed to public securities, presented sizeable maturities and carried a considerable risk in exchange rate mismatches. Currency crises are in particular interest because it had the power to keep the country in a permanent crisis stage for more than two decades. This remarkable period in crisis was coincident to 12 years in recession (7 episodes), a debt crisis and the two banking crises. Before moving on and check the intensity of years and periods of crises, a disclosure of exchange rate regimes in Turkey would be helpful to connect the events. Until 1980, the exchange rate regime was fixed (in fact an adjustable peg[144]). Then, until 1994 was adopted a crawling peg regime (a soft exchange rate peg system that allows interference of monetary authorities), remaining for more five years (until 1999) when it was replaced by a managed float regime. Later, during a short period of time (1999 and 2000), Turkey adopted an "active" crawling peg regime (called Tablita[145]) as a part of an agreement made with IMF (Exchange Rate Based Stabilization Program). From 2001 on, the country maintained a free float exchange rate regime. This first identified outstanding period in currency crisis (from 1977 to 2002) had some few quarters under the threshold of two standard deviations (eight, out of 104). This time, the accumulated Z score for the entire period is meaningless, but the average of 11 points gives an idea of its intensity (medium), having its peak in Q1 1980 (7 points, when fixed exchange rate was abandoned), followed by Q1 1978 (5.4 points) and Q2 1994 (4.9 points). Already under free float exchange rate regime and after a considerable period immune to currency crises, the country incurred in other two currency crises. The first crisis in 2011 was very mild (occurred only in last semester), registering less than 8 points in accumulated Z score and the second, in 2014, comprehended more quarters and hit harder the country, with an accumulated Z score of 8.6 points. Naturally, this impressive currency crisis, together with intercalate recession periods, encapsulated another crisis, a debt crisis from 1978 to 1982 (Beers and Nadeau, 2015). This crisis was restricted to the begging of what was designated as the most turbulent period in Turkey. However, it did not last long, neither was intense. Its peak in

[144] It was a popular regime during Bretton-Woods Agreement. This regime receives allows support from central banks when it is perceived that the exchange rates are in disequilibria.
[145] Originally, this term comes from Chile during its 1978 – 1981 stabilization plan. Under this regime, exchange rate policy is presented as the nominal anchor of the economy in order to overcome inflation in a short period of time, aligning it to the world inflation rate.

1979 corresponded to only US$ 4 billion in debt arrears, mainly owed to banks in the form of loans (67%), and it was almost coincident to peak-year of currency crisis (1980). Moreover, Turkey received external support in form of IMF programs from 1978 to 1980, from 1983 to 1984, in 1994, in 1999 (mentioned before), and in 2002 (Reinhart and Rogoff, 2010). In the period under analysis, the country also had high inflation years, in 1980 and in 1994 (more than 100% per year).

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions), the agreement percentage is, after explanations, satisfactory for Turkey. Currency crises showed only 53% in agreement, banking crises 87% and debt crises 90%. The major disagreement is held in currency crises' identification and it was expected due to the uncommon pattern presented before. Inside the 26 years here considered as a single currency crisis, no other author found crisis from 1981 to 1983, from 1985 to 1990, in 1992, in 1993, from 1996 to 2000, or in 2002 (17 years out of 26). So, the robustness check was applied utilizing the same database (IFS - IMF), replicating it over R&R and F&R methodologies. Results increased considerably, to comfort levels of agreement of 85% for Frankel and Rose and 95% to Reinhart and Rogoff. In relation to debt crisis disagreements, only Manasse et al. (2003) understood 1983 still as a crisis' year in the 1978 – 1982 debt crisis, Furthermore, the same study (partially corroborated by Reinhart, 2010) identified Turkey in debt default from 2000 to 2002, having no indication of sovereign debt in default in Beers and Nadeau (2015) database. Disagreements in banking crises are related to 1985, 1991, 1994, 1995, and 2002. With the exception to 1985 and to 2002 (considered by other authors as continuing years of a banking crisis), the other years were not considered as a systematic banking crisis by Laeven and Valencia studies.

In conclusion, single crises were properly identified and confronted convincingly to other authors' findings. As pointed out in APPENDIX B, the number of years in crisis (82%) is much superior to non-crisis periods mainly to the occurrence of single currency crises (S2) and currency crises combined with recession periods (S9). They, together, represented 48% of the years in analysis. The turbulent period in the end of 1970s and beginning of 1980s produced a business environment where all types of crises were present (S15). However, disagreements occurred and, although it is believed they were overcome, attention is required to those years and their effects on firm profitability.

A.26 – United Kingdom (UK)

Macroeconomic and market data are profuse to UK, being possible to cover the full proposed period. UK (as Australia, Canada, France, and Germany) is one of the most stable countries in the sample, showing only low resilience to the latest and severe the 2008-09 Financial Crisis. Before it, just a few recession periods and two currency crises were identified. It was not identified any debt crisis.

In accordance with ECRI, UK registered only four periods of recession between 1975 and 2014. The first one was from September 1974 to September 1975, followed by a triple year crisis from June 1979 to May 1981 (considered a crisis' year due to negative GDP growth). Some years later, a double year crisis (May 1990 to March 1992) happened. The last period in recession was from May 2008 to February 2012 and it was originated from the 2008-09 Financial Crisis. Banking crisis was identified by Laeven and Valencia from 2007 to 2012. In accordance with Caprio et al. (2005) recent UK history has shown no systemic banking crisis. In the 1980s and 90's some isolated bank failures have occurred as Johnson Matthey in 1984, Bank of Credit and Commerce International in 1991, and Barings in 1995. Some authors classified these episodes as systemic banking crises while others do not. On the other hand, the 70´s was marked by a banking crisis rooted in property prices crashes between 1973 and 1975 that led several small and medium banks to bankruptcy. Furthermore, Royal Bank of Scotland (RBS), Lloyds Banking Group, and Northern Rock were recapitalized (later, the last one was nationalized) due to the 2008-09 Financial Crisis. In the same period of time, loans were made to Northern Rock (this last one still in 2007) and Bradford & Bingley, as well as asset guarantees were provided to pool of RBS assets and CoCos (Laeven and Valencia, 2013). Action from Bank of England prevented more problems in the banking system when swapped mortgage-backed securities for government paper for a period of one year, providing liquidity to the system (Laeven and Valencia, 2008). In regard to currency crises, UK presented only two episodes. The first crisis from 1975 to 1976 presented itself with a medium intensity, with an accumulated Z score of 25 points (average 12.5 per year). On the other hand, the single crisis year of 1984 was mild, with an accumulated Z score of 8.2 points.

Comparing these single crisis periods found in this research to other authors' findings (the list of authors is detailed in conclusions of this chapter), the agreement percentage is very consistent for UK. Currency crises showed 88% in agreement, banking crises 92% and debt crises 100%. Disagreements in currency crises are related to 1975 and 1984 where no other author considered these years as crises` years. On the opposite, 1979,

1981, and 1982 were not understood as crises` years using this research's methodology but they were to other authors. The robustness's test with R&R and F&R increased the agreement to 90% in both.

Finally, once single crises were identified and confronted convincingly to other authors' findings, a timeline analysis of their occurrence is demonstrated in APPENDIX B. UK presented only two types of combined crises, one in 1975 (S9 type) and another period as a result of the 2008-09 Financial Crisis (S7 type). Out of it, some single crises were identified (25% of the time) but non-crisis periods (S16) have a large dominance for the sample period (63%), representing the mentioned stable business environment.

A.27 – United States of America (US)

A comparison to UK fits well to US. The availability of macroeconomic and market data is absolutely complete to the country and was possible to cover the full proposed period of analysis. US is a stable country and presented a very few occurrences of currency and banking crises and some sparse recession periods until the 2008-09 Financial Crisis. As expected, no debt crisis was found.

NBER was the institute that dated recession periods in US. In accordance with it, the country showed four recession periods between 1975 and 2014. The first one was the biggest period, starting in January 1980 and ending in November 1982[146]. The second recession was from July 1990 to March 1991, followed some years later by another one from March 2001 to November 2001. The last one was from December 2007 to June 2009. The graph also indicated two banking crises identified by Laeven and Valencia in US. The first one was registered in 1988 but, although impressive in terms of quantities and costs involved. Caprio et al. (2005) did not considered the failure of more than 1,400 savings and loan institutions and 1,300 banks occurred between 1988 and 1991 as a systemic banking crisis. This crisis cost around USD 180 billion to clean up the problems in the banking system, which represented 3% of US GDP. In fact, as in Brazil for 1990 to 1994, this 1988 banking crisis in US was classified as a "borderline case" by Laeven and Valencia (2018) and, then, it calls attention when performing tests on firm profitability will be reported accordingly. The second banking crisis was considered as the epicentre of the 2008-09 Financial Crisis. At that time, Capital Purchase Program

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[146] In fact, the exact dates were peak in January 1980, trough in July 1980, another peak in July 1981 and the trough in November 1982. Due to time window, it was considered a solo recession period.

(CPP) were put in place to rescue AIG, financial support was given to Fannie Mae, Freddie Mac, and automotive industry. In addition, asset guarantee was provided to Citigroup. Moving on to currency crises, the comparison of US dollar appreciation/depreciation was made against Sterling Pound and the basket of currencies (ENSE). Following the same methodology, only one currency crisis was found in 2004. This currency crisis was not so weak, showing Z score of 10 points. As Canada, it is interesting to notice that Sterling Pounds and ENSE did not follow the same pathways all the time. They have, sometimes, crisis in one exchange rate but not in the other.

These identified single crises were then compared to other authors' findings (the list of authors is detailed in conclusions of this chapter) and the agreement percentage is, after adjustments, excellent for US. Currency crises showed 98% in agreement, banking crises only 68% and debt crises 100%. So, further information is required for the disagreements in banking crises. The period under doubt is from 1980 to 1992 (with exception to 1988 where Laeven and Valencia agreed as a crisis' year). First, the period from 1980 to 1983 and in 1992, only Demirguc-Kunt and Detragiache (2005) identified as banking crises years (in fact, these authors considered the whole period of 1980 to 1992 as a banking crisis period). Then, from 1984 to 1991, in addition to Demirguc-Kunt and Detragiache (2005), Caprio and Klingebiel (2003) and Reinhart and Rogoff (2009) also considered US in a banking crisis.

In conclusion, when analysing these sparse crises together, APPENDIX B gives the whole picture of US business environment. As Japan, US stayed most of its time in a tranquil business environment (S16 with 70% of the years) and showed only one type of combined crises (S7), a result of the 2008-09 Financial Crisis. However, considerable disagreements in banking crises' years were found and, as in Brazil, the occurrence of a borderline banking crisis' year (1988) was presented. So, they deserve a closer attention in later tests on firm profitability.

Table C.1 – Models for firm profitability- Non-crisis

Models for firm's profitability

#	Author & Year	Length of data	Countries	Model (*)	Dependent Variables	Independent Variables (of interest, if not marked as "Ct" for control variables)		R2
						Significant	**Not significant**	
1	Shepherd, 1972	1960-1969	USA	Hybrid	ROE	Positively: Firm: Market share, advertising expenses (entry barrier), and sales growth. Industry: Concentration. Negatively: Firm: Relative size (entry barrier).	Group structure (membership)	0,55
2	Gale, 1972	1963 - 1967	USA	Hybrid	ROE	Positively: Firms: Market share, leverage (Ct), and sales growth (Ct). Industry: Growth (Ct). Negatively: None. Interacting variables: Market share x high concentrated industries (pos), market share x low concentrated industries (neg), market share x high growth industries (neg), market share x low growth industries (pos), and market share x larger firms (pos).	Size (Ct) and market share x smaller firms.	From 0.876 to 0.91
3	Weiss, 1979	1974	USA	Hybrid	Prices of market basket	Positively: Concentration and market share. Negatively: Market growth and market rivalry.	Average storage size and market size.	0,65
4	Ravenscraft, 1983	1975	USA	Hybrid	Net Profit/Sales (ROS)	Positively: Firms: Capacity utilization and market share. Industry: Growth, assets, advertising expenses and buyer concentration. Negatively: Firms: Assets, R&D expenses, distance shipped, and imports. Industry: Vertical integration and supplier dispersion.	Firms: Exports, vertical integration, diversification, and advertising expenses. Industry: Concentration, minimum efficient scale, buyers dispersion, supplier concentration, R&D expenses, capacity utilization and diversification.	0,21
5	Scott and Pascoe, 1986	1974 - 1976	USA	Hybrid	ROA (LB)	Positively: Firm Market share and advertising expenses ratio. Industry: Concentration, measures of minimum efficient scale, market growth, and cost of capital. Negatively: Firm Asset to sales ratio (asset/sales x industry concentration), diversification, and leverage. Industry: Import competition and geographic size of the market.		0,13
6	McDonald, 1999	1984-1995	Australia	Hybrid	Net Profit	Positively: Firm: Lagged profitability. Industry: Concentration. Negatively: Firm: Union density, import competition, and wage inflation.	Market share and capital intensity.	Not disclosed
7	Goddard et al., 2005	1993-2001	Belgium, France, Italy and the UK	RBM	ROA	Positively: Lagged profitability, market share, liquidity. Negatively: Size, leverage.		GMM
8	Nunes, Semasqueiro & Sequeira (2009)	1999-2003	Portugal	RBM	Profit rate (Oper. Profit/Assets)	Positively: Lagged profitability, size, and sales growth. Negatively: Leverage and tangible assets.	Liquidity	GMM
9	Asimakopoulos et al., 2009	1995-2003	Greece	RBM	ROA (Pre-tax profit divided by total assets)	Positively: Size, sales growth, and investment. Negatively: Leverage and current assets.		0,51
10	Stierwald, 2010	1995-2005	Australia	RBM	Profit rate (Oper. Profit/Assets)	Positively: Lagged profit, productivity level, size, and leverage.	Age and financial risk	0,51
11	Yazdanfar, 2013	2006 - 2007	Sweden	RBM	ROA	Positively: Size, lagged profitability, growth, and productivity. Negatively: Age and industry affiliation.		0,37

(*) - Dominant model. Interpreted by the author

Models for firm's profitability in times of crisis

Table C.2 – Models for firm profitability- Crises

#	Author & Year	Length of data	Crises	Countries	Dependent Variables	Independent Variables (of interest)		R^2
				Coverage		*Significant*	*Not significant*	
1	Bruni, Pittiglio & Reganati, 2014	2004-2012	2008-09 Global Crisis	Italy	EBITDA to sales ratio and ROE	Positively: Size (only for medium size firms), liquidity, degree of industrial technological intensity, and concentration ratio industry level. Negatively: Age, level of multinationality (ownership).	Leverage ratio.	0,0013
2	Demirhan & Anwar, 2014	2008	2008-09 Global Crisis	Spain and UK	Market to book value	Positively: Liquidity. Negatively: Financial Leverage.	Profitability (Net Profit Margin, Return on Assets, and Operating Profit Margin) and Asset Management Efficiency (Inventory Turnover, Acc. Receivables Turnover, Total Asset Turnover)	0,432
3	Tan, 2012	1993 to 2002	1997-98 Asian Financial Crisis	8 countries	ROA and Tobin's q.	Positively: Size. Negatively: Financial Leverage.	Prior profitability, and prior total asset growth.	0.1195 and 0.1046
4	Claessens, Tong, and Wei, 2011	2007 - 2009	2008-09 Global Crisis	42 countries	Profits/assets, sales/assets and investments/assets ratios.	Negatively: Demand sensitivity and trade sensitivity.	Dependence on external finance for working capital and investment.	0.008, 0.005, and 0.001
5	Forbes, 2004	1996 to 1998	Asian crisis in 1997 and the Russian crisis in 1998.	46 countries	Stock market return	Negatively: Export competition (dummy), direct trade exposure (dummy), and stock liquidity (dummy).	Debt outstanding.	Not disclosed
6	Dell'Ariccia, Detragiache, & Rajan, 2008	1980 to 2000	48 banking crises	41 countries	Value added growth	Positively: Size. Negatively: A lagged value added growth and dependence of external finance.	Exports orientation.	0.35
7	Kolasa, Rubaszek & Taglioni, 2010	2006:3 to 2009:2 (12 quarters)	2008-09 Global Crisis	Poland	Profitability	Positively: Foreign ownership, sales orientation (exceptions applied), and size (exceptions applied). Negatively: Product Characteristics (postponables).	Sales orientation (for sales growth and investments in times of crisis) and size (for profitability in times of crisis).	0.17, 0.15, 0.09, and 0.05
8	Desai, Foley & Forbes, 2008	1990 to 2000	15 currency crises	25 countries	Sales growth and Capital expenditures /Net PPE	Positively: Foreign ownership.		0.52 and 0.58
9	Blalock, Gertler & Levine, 2007	1990 to 1995 and 1999 to 2000	1997-98 Asian Financial Crisis	Indonesia	Value added (proxy for profitability), investment, and employment, and materials used	Positively: Foreign ownership and export orientation.		From 0.025 to 0.47
10	Braun & Larrain, 2005	1963 to 1999	Recession periods	111 countries	Production growth	Negatively: External finance dependence and industry size.		0,15
11	Clarke, Cull & Kisunko, 2012	2002, 2005, and 2008-09 surveys.	2008-09 Global Crisis	27 countries	Survival (dummy)	Positively: Age, size, use of financial services (dummy), and country characteristics	Exports orientation and foreign ownership, privatized firm (dummy)	0,06
12	Varum & Rocha, 2011	1988 to 2007	2 recessions periods (1991 to 1993 and 2001 to 2003)	Portugal	Sales growth	Positively: Firm performance. Negative: Foreign ownership, human capital, and export orientation. Non-linear effects of firm's age and size.		0,25
13	Paunov, 2012	Survey between Nov 2009 and Jan 2010	2008-09 Global Crisis	8 countries	Stop project of innovation (dummy)	Positively: Access to public funds, age, and export orientation. Negatively: Supply to foreign MNC (dummy), discontinued exports.	Access to external funds and size.	Not disclosed
14	Bricongne, Fontagné, Gaulier, Taglioni & Vicard, 2012	2008 to 2009	2008-09 Global Crisis	France	Exports growth	Positively: Exports - imports (net). Negatively: Payment incidents (default on exporters).	Size	0,01
15	Forbes, 2002	1997 to 1999	13 currency crises	42 countries	Sales, net income, market capitalization, and asset value	Positively: Export orientation (for all) Negatively: Financial foreign exposure (only for net income), size (for all), and product characteristics (traded goods, only for net income).	Product characteristics (except for net income), imports dependence, financial foreign exposure (except for net income), and ROA.	Not disclosed

APPENDIX D

Table D.1 – Descriptive statistics - ROE

	Years	Observ.	Range	Minimun	Maximun	Median	Mean	Std. Deviation	Skewness	Kurtosis
Return on Equity (ROE)										
Brazil	22	23.278	36,18	-18,27	17,91	0,11	0,15	1,17	-0,33	75,02
Chile	21	5.714	13,00	-7,01	6,00	0,09	0,11	0,55	-1,14	54,00
China	22	46.931	34,10	-17,24	16,86	0,12	0,14	0,76	-2,10	195,04
India	21	52.968	19,41	-9,76	9,65	0,06	0,07	0,51	-1,79	105,73
Indonesia	23	6.375	20,01	-9,77	10,24	0,12	0,12	0,80	-0,36	57,72
Mexico	22	2.711	16,50	-9,66	6,84	0,12	0,10	0,60	-4,24	95,15
Russia	20	4.268	14,50	-7,09	7,41	0,13	0,15	0,62	-1,97	54,53
South Africa	22	5.559	40,19	-19,69	20,50	0,18	0,17	1,15	0,83	131,65
Turkey	21	3.683	10,20	-4,78	5,42	0,09	0,09	0,46	0,35	42,47
Developing countries (I)		**151.487**	**40,19**	**-19,69**	**20,50**	**0,10**	**0,11**	**0,77**	**-0,92**	**155,27**
Hong Kong	24	19.070	32,50	-16,32	16,18	0,09	0,06	1,18	-1,24	69,94
Singapore	24	11.046	43,45	-22,31	21,14	0,11	0,11	1,00	-1,08	156,40
Developing countries (II)		**30.116**	**43,45**	**-22,31**	**21,14**	**0,09**	**0,08**	**1,12**	**-1,22**	**91,75**
Australia	25	30.433	58,02	-29,28	28,75	-0,02	-0,19	2,09	-1,75	64,08
Belgium	22	3.156	20,36	-12,62	7,75	0,10	0,12	0,70	-2,84	93,27
Canada	25	62.580	90,29	-45,23	45,06	-0,06	-0,14	3,76	0,02	54,89
France	25	17.988	39,51	-19,92	19,58	0,13	0,10	1,21	0,57	102,37
Germany	25	16.171	52,27	-25,80	26,47	0,11	0,03	1,35	-3,59	127,77
Ireland	25	3.916	49,94	-25,38	24,56	0,12	0,11	1,83	-0,46	88,54
Italy	21	5.924	17,18	-8,27	8,90	0,10	0,07	0,72	-1,06	51,33
Japan	25	72.519	23,13	-11,43	11,70	0,09	0,06	0,52	-4,69	168,58
Netherlands	23	4.268	17,44	-9,04	8,40	0,16	0,12	0,80	-1,14	43,73
Norway	23	4.863	22,96	-11,34	11,63	0,08	0,01	1,04	-0,71	46,56
Poland	22	7.067	30,99	-15,86	15,13	0,09	0,05	0,99	-2,90	77,76
Spain	23	4.267	12,17	-6,64	5,53	0,10	0,09	0,54	-1,29	42,04
Sweden	25	9.469	20,85	-10,94	9,92	0,07	-0,14	1,14	-2,95	30,91
Switzerland	25	4.993	21,15	-10,40	10,75	0,12	0,08	0,80	-1,20	72,08
UK	25	35.265	47,25	-23,32	23,93	0,11	0,05	1,57	-1,00	74,32
US	25	142.002	53,24	-26,49	26,75	0,11	0,06	2,37	0,20	44,80
Developed countries		**424.881**	**90,29**	**-45,23**	**45,06**	**0,08**	**0,01**	**2,19**	**-0,18**	**98,84**
Overall		**606.484**	**90,29**	**-45,23**	**45,06**	**0,09**	**0,04**	**1,89**	**-0,26**	**126,41**

Table D.2 – Descriptive statistics - ROS

	Years	Observ.	Range	Minimun	Maximun	Median	Mean	Deviation	Skewness	Kurtosis
Return on Sales (ROS)										
Brazil	22	22.477	103,53	-52,44	51,09	0,05	-0,05	3,17	-2,51	111,49
Chile	21	5.455	62,82	-28,96	33,86	0,08	0,06	1,88	2,81	156,02
China	22	46.854	54,54	-29,26	25,28	0,08	0,03	1,14	-10,22	288,83
India	21	52.884	105,40	-53,43	51,97	0,03	-0,22	2,77	-7,27	161,83
Indonesia	23	6.319	22,67	-11,79	10,88	0,04	-0,02	0,80	-3,23	75,15
Mexico	22	2.732	11,65	-7,30	4,35	0,06	0,04	0,39	-6,70	108,52
Russia	20	4.240	86,89	-42,75	44,14	0,05	0,05	1,88	0,99	326,20
South Africa	22	5.328	131,43	-75,60	55,82	0,06	-0,04	3,64	-8,23	201,14
Turkey	21	3.657	56,90	-21,70	35,20	0,04	0,10	1,70	7,93	175,87
Developing countries (I)		**149.946**	**131,43**	**-75,60**	**55,82**	**0,05**	**-0,00**	**2,33**	**-6,67**	**227,56**
Hong Kong	24	18.835	117,60	-61,57	56,03	0,06	-0,34	4,01	-4,15	85,54
Singapore	24	11.010	60,88	-33,21	27,67	0,06	-0,02	1,69	-6,83	171,09
Developing countries (II)		**29.845**	**117,60**	**-61,57**	**56,03**	**0,06**	**-0,18**	**3,35**	**-4,89**	**115,32**
Australia	25	26.736	321,29	-175,62	145,67	-0,01	-5,93	19,81	-4,50	31,29
Belgium	22	2.708	154,07	-59,93	94,14	0,04	-0,03	3,98	5,62	286,42
Canada	25	36.884	276,58	-149,79	126,80	-0,02	-3,74	14,88	-5,10	39,82
France	25	14.567	180,59	-153,64	26,95	0,03	-0,08	1,96	-35,11	2.663,93
Germany	25	14.791	90,25	-46,58	43,67	0,02	-0,17	2,36	-5,62	175,93
Ireland	25	1.966	93,48	-72,94	20,55	0,04	-0,95	5,93	-8,10	75,91
Italy	21	5.089	69,11	-37,79	31,32	0,03	-0,12	1,53	-10,92	275,77
Japan	25	71.984	8,79	-4,55	4,25	0,02	0,01	0,16	-10,57	237,24
Netherlands	23	4.095	46,80	-24,81	21,99	0,04	-0,09	1,37	-9,27	162,38
Norway	23	3.068	261,62	-127,70	133,92	0,28	1,51	17,83	0,49	21,55
Poland	22	7.064	128,88	-68,77	60,11	0,03	-0,25	3,24	-7,58	183,16
Spain	23	3.767	52,52	-25,93	26,58	0,06	0,02	1,56	-1,76	135,12
Sweden	25	8.455	110,11	-76,11	34,00	0,02	-0,99	5,26	-7,87	84,35
Switzerland	25	4.797	116,69	-60,22	56,47	0,05	-0,25	3,10	-10,19	191,13
UK	25	30.076	133,83	-71,25	62,58	0,03	-0,58	4,27	-8,61	113,28
US	25	141.453	174,46	-92,22	82,24	0,02	-1,31	6,84	-7,27	74,47
Developed countries		**377.500**	**321,29**	**-175,62**	**145,67**	**0,02**	**-0,85**	**8,70**	**-8,53**	**120,21**
Overall		**557.291**	**321,29**	**-175,62**	**145,67**	**0,03**	**-0,58**	**7,30**	**-9,90**	**164,86**

	Years	Observ.	Range	Minimun	Maximun	Median	Mean	Deviation	Skewness	Kurtosis
Stock Market Return (SMR)										
Brazil	22	4.798	4,64	-1,00	3,64	0,00	0,13	0,56	1,87	8,97
Chile	21	2.562	3,76	-1,00	2,76	0,00	0,06	0,39	2,15	12,41
China	22	28.984	2,82	-1,00	1,82	-0,03	0,05	0,43	1,16	4,99
India	21	30.755	3,90	-0,99	2,91	-0,01	0,13	0,60	1,49	5,79
Indonesia	23	4.026	3,13	-0,98	2,15	0,00	0,08	0,52	1,05	4,73
Mexico	22	1.705	3,46	-0,97	2,50	0,00	0,09	0,45	1,20	6,92
Russia	20	1.217	3,70	-1,00	2,70	-0,08	0,01	0,54	1,41	6,24
South Africa	22	6.107	2,74	-0,99	1,74	0,01	0,06	0,44	0,68	4,04
Turkey	21	4.492	3,51	-1,00	2,51	0,09	0,24	0,59	1,24	4,65
Developing countries (I)		**84.646**	**4,64**	**-1,00**	**3,64**	**0,00**	**0,10**	**0,52**	**1,49**	**6,48**
Hong Kong	24	15.571	4,47	-1,00	3,47	-0,05	0,05	0,57	1,81	8,65
Singapore	24	7.578	2,51	-0,99	1,52	-0,03	0,02	0,39	0,85	4,24
Developing countries (II)		**23.149**	**4,47**	**-1,00**	**3,47**	**-0,04**	**0,03**	**0,52**	**1,77**	**9,07**
Australia	25	19.711	3,00	-1,00	2,00	-0,04	0,01	0,49	0,99	4,44
Belgium	22	2.532	3,55	-1,00	2,55	0,01	0,03	0,35	1,74	11,82
Canada	25	48.152	4,21	-1,00	3,21	-0,10	0,02	0,64	1,61	6,71
France	25	14.153	2,43	-1,00	1,43	0,00	0,02	0,35	0,57	4,35
Germany	25	13.230	2,67	-1,00	1,67	-0,02	-0,02	0,39	0,51	4,45
Ireland	25	1.496	3,04	-1,00	2,04	0,03	0,04	0,45	0,76	4,66
Italy	21	4.053	2,39	-0,97	1,41	-0,04	-0,02	0,36	0,68	4,18
Japan	25	66.735	2,24	-1,00	1,24	-0,02	-0,00	0,31	0,64	4,20
Netherlands	23	3.376	2,42	-1,00	1,43	0,00	0,02	0,37	0,33	3,92
Norway	23	3.294	2,64	-1,00	1,64	-0,02	-0,02	0,43	0,54	3,97
Poland	22	4.839	2,71	-0,99	1,72	-0,09	-0,01	0,47	0,99	4,11
Spain	23	3.076	2,21	-0,94	1,28	0,00	0,03	0,33	0,51	4,15
Sweden	25	6.054	2,52	-1,00	1,52	0,00	0,01	0,41	0,49	3,78
Switzerland	25	4.188	2,61	-1,00	1,61	0,00	0,01	0,37	0,31	4,21
UK	25	26.856	2,83	-1,00	1,83	0,00	0,03	0,40	0,70	4,75
US	25	126.937	5,31	-1,00	4,31	-0,03	0,03	0,60	1,94	10,56
Developed countries		**348.682**	**5,31**	**-1,00**	**4,31**	**-0,03**	**0,01**	**0,51**	**1,79**	**10,67**
Overall		**456.477**	**5,31**	**-1,00**	**4,31**	**-0,02**	**0,03**	**0,51**	**1,72**	**9,67**

	Years	Observ.	Range	Minimun	Maximun	Median	Mean	Deviation	Skewness	Kurtosis
Free Cash Flow (FCF)										
Brazil	22	15.565	133,27	-66,49	66,78	-0,16	-0,16	6,74	0,30	39,64
Chile	21	4.616	79,01	-39,02	40,00	-0,02	-0,02	3,98	0,15	41,94
China	22	35.077	129,82	-64,57	65,25	-0,20	-0,21	5,92	0,14	40,06
India	21	44.311	161,15	-81,08	80,07	-0,41	-0,44	7,82	0,00	39,65
Indonesia	23	5.468	122,04	-60,00	62,03	-0,26	-0,19	6,50	-0,01	33,85
Mexico	22	2.278	43,44	-21,55	21,89	-0,05	-0,11	2,78	-0,54	21,19
Russia	20	3.345	153,21	-76,50	76,70	-0,06	-0,20	6,70	-1,41	45,25
South Africa	22	4.697	102,22	-49,05	53,17	-0,02	0,06	5,05	1,05	39,33
Turkey	21	2.555	163,04	-80,51	82,53	-0,39	-0,58	7,71	-0,35	44,04
Developing countries (I)		**117.912**	**163,61**	**-81,08**	**82,53**	**-0,23**	**-0,20**	**6,76**	**0,02**	**43,70**
Hong Kong	24	16.983	109,06	-54,61	54,45	-0,24	-0,27	5,52	0,14	36,88
Singapore	24	9.340	110,70	-55,11	55,59	-0,25	-0,27	5,24	0,19	38,84
Developing countries (II)		**26.323**	**110,70**	**-55,11**	**55,59**	**-0,25**	**-0,27**	**5,42**	**0,16**	**37,54**
Australia	25	26.547	109,77	-52,42	57,35	-0,02	0,22	4,75	1,57	46,15
Belgium	22	1.784	46,56	-23,13	23,43	-0,03	-0,08	2,93	0,02	28,92
Canada	25	56.368	134,82	-66,57	68,25	-0,05	0,25	5,98	0,96	45,43
France	25	10.346	99,09	-49,05	50,04	-0,07	-0,18	4,34	-1,10	49,84
Germany	25	10.747	121,73	-61,49	60,24	-0,13	-0,03	5,31	0,94	45,23
Ireland	25	1.917	98,73	-46,12	52,61	0,02	0,08	4,15	0,91	59,64
Italy	21	3.983	77,93	-39,86	38,08	-0,18	-0,29	4,45	-0,82	30,52
Japan	25	45.964	86,62	-43,58	43,05	-0,13	-0,16	3,93	-0,09	40,34
Netherlands	23	3.427	98,07	-46,06	52,01	-0,04	-0,08	4,42	-1,40	52,62
Norway	23	3.455	116,56	-59,46	57,10	-0,10	-0,08	5,49	0,28	46,05
Poland	22	5.646	140,93	-70,65	70,28	-0,33	-0,36	6,85	-0,18	38,95
Spain	23	1.883	96,88	-50,13	46,75	-0,08	-0,13	4,44	0,24	46,82
Sweden	25	7.268	95,34	-47,26	48,09	-0,08	-0,02	4,62	0,43	37,67
Switzerland	25	4.099	40,19	-20,53	19,66	-0,03	-0,01	2,39	-0,05	26,15
UK	25	26.564	97,35	-49,02	48,33	-0,03	0,00	4,19	0,33	49,53
US	25	135.948	98,04	-48,91	49,14	-0,04	0,05	4,51	0,64	41,64
Developed countries		**345.946**	**140,93**	**-70,65**	**70,28**	**-0,06**	**-0,05**	**4,76**	**0,67**	**48,53**
Overall		**490.181**	**163,61**	**-81,08**	**82,53**	**-0,10**	**-0,10**	**5,35**	**0,33**	**50,55**

APPENDIX E

Table E.1 – Descriptive statistics in times of crises and in times of non-crisis - ROE

	Non-Crises					Crises					
	Range	Min.	Max.	Mean	Std. Dev.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Return on Equity (ROE)											
Brazil	35,71	-18,11	17,59	0,17	1,12	36,18	-18,27	17,91	0,11	1,25	-3.35***
Chile	11,07	-5,90	5,17	0,12	0,50	13,00	-7,01	6,00	0,09	0,60	-2.33**
China	34,10	-17,24	16,86	0,13	0,77	24,51	-13,30	11,21	0,16	0,69	1.58
India	19,41	-9,76	9,65	0,07	0,50	17,27	-9,43	7,85	0,04	0,62	-3.25***
Indonesia	17,60	-8,25	9,35	0,14	0,65	20,01	-9,77	10,24	0,10	0,90	-2.11**
Mexico	14,68	-9,33	5,36	0,11	0,57	16,50	-9,66	6,84	0,08	0,64	-1.19
Russia	14,50	-7,09	7,41	0,18	0,60	13,19	-6,90	6,28	0,11	0,65	-3.24**
South Africa	40,19	-19,69	20,50	0,18	1,29	29,21	-18,16	11,04	0,15	0,80	-1.22
Turkey	7,92	-3,92	4,00	0,08	0,39	10,20	-4,78	5,42	0,09	0,49	0.66
Developing countries (I)	**40,19**	**-19,69**	**20,50**	**0,11**	**0,87**	**36,18**	**-18,27**	**17,91**	**0,10**	**0,90**	
Hong Kong	32,50	-16,32	16,18	0,08	1,20	29,35	-15,91	13,44	0,04	1,15	-1.71*
Singapore	31,26	-13,59	17,67	0,16	0,84	39,53	-18,39	21,14	0,11	1,03	-2.31**
Developing countries (II)	**33,99**	**-16,32**	**17,67**	**0,09**	**1,11**	**39,53**	**-18,39**	**21,14**	**0,05**	**1,17**	
Australia	58,02	-29,28	28,75	-0,19	2,09	57,00	-28,29	28,71	-0,28	2,18	-2.08**
Belgium	17,06	-11,55	5,51	0,14	0,67	20,36	-12,62	7,75	0,10	0,72	-1.75*
Canada	90,29	-45,23	45,06	-0,13	3,79	83,32	-44,02	39,31	-0,25	3,56	-2.67***
France	39,51	-19,92	19,58	0,13	1,20	35,25	-18,83	16,43	0,04	1,24	-4.04***
Germany	52,27	-25,80	26,47	0,07	1,37	46,43	-20,94	25,49	-0,08	1,29	-6.65***
Ireland	47,22	-25,04	22,17	0,16	1,63	49,94	-25,38	24,56	0,07	1,99	-1.56
Italy	17,18	-8,27	8,90	0,10	0,62	16,85	-8,25	8,60	0,03	0,85	-3.13***
Japan	21,40	-11,29	10,12	0,09	0,46	23,13	-11,43	11,70	0,05	0,56	-10.07***
Netherlands	16,47	-8,07	8,40	0,18	0,69	16,03	-9,04	7,00	0,05	0,91	-5.08***
Norway	22,13	-11,33	10,80	0,03	0,89	22,96	-11,34	11,63	-0,02	1,20	-1.89*
Poland	28,11	-15,86	12,25	0,05	1,03	27,44	-12,31	15,13	0,05	0,99	0.10
Spain	12,17	-6,64	5,53	0,12	0,43	10,63	-5,25	5,38	0,04	0,68	-5.59***
Sweden	20,85	-10,94	9,92	-0,14	1,14	19,57	-10,42	9,14	-0,15	1,14	-0.39
Switzerland	21,15	-10,40	10,75	0,09	0,79	19,75	-9,13	10,61	0,05	0,82	-1.81*
UK	47,25	-23,32	23,93	0,04	1,62	42,86	-22,27	20,59	0,05	1,41	0.65
US	53,24	-26,49	26,75	0,04	2,30	53,08	-26,42	26,66	0,09	2,53	3.07***
Developed countries	**90,29**	**-45,23**	**45,06**	**-0,00**	**2,19**	**83,32**	**-44,02**	**39,31**	**-0,04**	**2,34**	
*- significant at 10%, ** - significant at 5%, and *** - significant at 1%*											
Overall	**90,29**	**-45,23**	**45,06**	**0,03**	**1,87**	**83,32**	**-44,02**	**39,31**	**-0,01**	**2,11**	

Table E.2 – Descriptive statistics in times of crises and in times of non-crisis - ROS

	Non-Crises					Crises					
	Range	Min.	Max.	Mean	Std. Dev.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Return on Sales (ROS)											
Brazil	101,08	-49,99	51,09	-0,02	3,15	103,49	-52,44	51,04	-0,11	3,20	-2.15**
Chile	54,05	-28,96	25,09	0,04	1,56	60,71	-26,85	33,86	0,09	2,20	1.08
China	54,54	-29,26	25,28	0,03	1,15	39,10	-22,05	17,05	0,13	0,79	5.46***
India	105,40	-53,43	51,97	-0,22	2,80	91,77	-50,99	40,77	-0,22	2,55	-0.22
Indonesia	17,53	-9,80	7,73	0,03	0,59	22,67	-11,79	10,88	-0,05	0,91	-4.19***
Mexico	11,65	-7,30	4,35	0,06	0,44	5,30	-3,81	1,49	0,01	0,30	-3.25***
Russia	80,08	-35,94	44,14	0,08	1,85	72,94	-42,75	30,19	-0,03	1,94	-1.83*
South Africa	131,43	-75,60	55,82	-0,03	3,91	95,86	-74,16	21,70	-0,04	3,06	-0.03
Turkey	33,42	-21,70	11,72	0,01	1,18	54,67	-19,47	35,20	0,14	1,88	2.67***
Developing countries (I)	**131,43**	**-75,60**	**55,82**	**-0,07**	**1,71**	**125,20**	**-74,16**	**51,04**	**-0,05**	**2,43**	
Hong Kong	115,84	-60,64	55,20	-0,30	3,99	117,60	-61,57	56,03	-0,47	4,05	-2.20**
Singapore	60,88	-33,21	27,67	0,04	1,57	56,49	-32,91	23,58	-0,05	1,58	-2.50**
Developing countries (II)	**115,84**	**-60,64**	**55,20**	**-0,23**	**1,87**	**117,60**	**-61,57**	**56,03**	**-0,38**	**2,76**	
Australia	321,29	-175,62	145,67	-6,09	20,08	286,61	-174,71	111,90	-4,26	16,55	4.94***
Belgium	148,32	-54,18	94,14	0,11	4,96	86,82	-59,93	26,89	-0,13	3,03	-1.45
Canada	276,58	-149,79	126,80	-3,86	15,05	260,89	-147,89	113,00	-2,74	13,28	4.95***
France	180,59	-153,64	26,95	-0,06	2,08	46,49	-25,66	20,83	-0,15	1,45	-2.87***
Germany	90,25	-46,58	43,67	-0,12	2,29	78,03	-44,67	33,35	-0,28	2,51	-3.73***
Ireland	76,21	-72,94	3,28	-1,24	6,96	79,07	-58,52	20,55	-0,76	5,18	1.62
Italy	47,12	-37,79	9,33	-0,09	1,43	68,80	-37,47	31,32	-0,17	1,70	-1.65
Japan	8,05	-4,54	3,51	0,02	0,16	8,79	-4,55	4,25	0,00	0,17	-9.75***
Netherlands	32,56	-24,81	7,75	-0,06	1,30	45,38	-23,39	21,99	-0,12	1,44	-1.18
Norway	261,62	-127,70	133,92	2,59	18,46	241,52	-113,28	128,24	0,09	16,87	-3.91***
Poland	128,88	-68,77	60,11	-0,26	3,76	82,64	-51,77	30,87	-0,23	2,35	0.46
Spain	52,52	-25,93	26,58	0,11	1,31	43,90	-23,68	20,22	-0,17	1,96	-4.43***
Sweden	110,11	-76,11	34,00	-0,98	5,26	88,81	-74,16	14,65	-1,03	5,24	-0.39
Switzerland	116,69	-60,22	56,47	-0,31	3,51	58,53	-47,69	10,85	-0,10	1,85	2.81***
UK	130,97	-71,25	59,72	-0,59	4,22	130,39	-67,81	62,58	-0,56	4,41	-0.60
US	172,13	-92,22	79,92	-1,28	6,68	174,45	-92,21	82,24	-1,40	7,22	-2.97***
Developed countries	**321,29**	**-175,62**	**145,67**	**-1,64**	**3,30**	**302,95**	**-174,71**	**128,24**	**-1,40**	**6,00**	
*- significant at 10%, ** - significant at 5%, and *** - significant at 1%*											
Overall	**321,29**	**-175,62**	**145,67**	**-1,10**	**2,85**	**302,95**	**-174,71**	**128,24**	**-1,09**	**5,36**	

Table E.3 – Descriptive statistics in times of crises and in times of non-crisis - SMR

	Non-Crises					Crises					
	Range	Min.	Max.	Mean	Std. Dev.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Stock Market Return (SMR)											
Brazil	4,46	-1,00	3,46	0,20	0,57	4,64	-1,00	3,64	0,07	0,54	-7.69***
Chile	3,68	-1,00	2,68	0,15	0,44	3,75	-0,99	2,76	-0,02	0,30	-10.93***
China	2,82	-1,00	1,82	0,05	0,44	2,59	-0,80	1,79	0,04	0,40	-0.72
India	3,90	-0,99	2,91	0,17	0,61	3,85	-0,95	2,90	-0,14	0,39	-40.05***
Indonesia	3,13	-0,98	2,15	0,17	0,56	3,06	-0,93	2,13	0,02	0,49	-8.57***
Mexico	3,46	-0,96	2,50	0,14	0,42	3,30	-0,97	2,34	0,02	0,47	-5.18***
Russia	3,60	-1,00	2,60	0,03	0,50	3,70	-1,00	2,70	-0,02	0,61	-1.27
South Africa	2,73	-0,99	1,74	0,08	0,43	2,73	-0,99	1,74	0,03	0,44	-4.12***
Turkey	3,31	-0,81	2,50	0,30	0,50	3,51	-1,00	2,51	0,21	0,61	-5.11***
Developing countries (I)	**4,46**	**-1,00**	**3,46**	**0,11**	**0,53**	**4,64**	**-1,00**	**3,64**	**-0,04**	**0,50**	
Hong Kong	4,47	-1,00	3,47	0,09	0,58	4,32	-0,98	3,35	-0,23	0,49	-28.59***
Singapore	2,40	-0,88	1,52	0,15	0,43	2,50	-0,99	1,51	-0,08	0,36	-22.61***
Developing countries (II)	**4,47**	**-1,00**	**3,47**	**0,10**	**0,56**	**4,34**	**-0,99**	**3,35**	**-0,20**	**0,51**	
Australia	3,00	-1,00	2,00	0,02	0,48	2,95	-1,00	1,95	-0,08	0,49	-9.10***
Belgium	3,39	-1,00	2,39	0,14	0,33	3,49	-0,94	2,55	-0,04	0,35	-13.38***
Canada	4,21	-1,00	3,21	0,04	0,64	4,16	-1,00	3,16	-0,09	0,63	-16.67***
France	2,42	-1,00	1,42	0,06	0,35	2,43	-1,00	1,43	-0,12	0,29	-27.41***
Germany	2,65	-1,00	1,65	0,07	0,37	2,66	-1,00	1,67	-0,14	0,39	-32.56***
Ireland	2,98	-0,94	2,04	0,11	0,43	2,97	-1,00	1,97	0,00	0,46	-4.36***
Italy	2,37	-0,96	1,41	0,01	0,35	2,36	-0,97	1,39	-0,07	0,35	-7.46***
Japan	2,24	-1,00	1,24	0,07	0,29	2,24	-1,00	1,24	-0,06	0,32	-53.99***
Netherlands	2,37	-0,95	1,42	0,13	0,36	2,42	-1,00	1,43	-0,11	0,35	-19.51***
Norway	2,61	-0,97	1,64	0,08	0,42	2,60	-1,00	1,60	-0,13	0,41	-14.43***
Poland	2,68	-0,96	1,72	0,11	0,48	2,68	-0,96	1,72	-0,13	0,42	-18.68***
Spain	2,17	-0,89	1,28	0,11	0,31	2,21	-0,94	1,27	-0,13	0,31	-20.16***
Sweden	2,52	-1,00	1,52	0,05	0,41	2,46	-0,99	1,48	-0,10	0,42	-12.43***
Switzerland	2,61	-1,00	1,61	0,10	0,36	2,42	-1,00	1,42	-0,17	0,32	-24.27***
UK	2,83	-1,00	1,83	0,04	0,39	2,81	-1,00	1,81	-0,05	0,43	-14.49***
US	5,31	-1,00	4,31	0,06	0,60	5,30	-1,00	4,30	-0,04	0,60	-27.07***
Developed countries	**5,31**	**-1,00**	**4,31**	**0,06**	**0,52**	**5,30**	**-1,00**	**4,30**	**-0,07**	**0,47**	
* - significant at 10%, ** - significant at 5%, and *** - significant at 1%											
Overall	**5,31**	**-1,00**	**4,31**	**0,07**	**0,52**	**5,30**	**-1,00**	**4,30**	**-0,07**	**0,48**	

Table E.4 – Descriptive statistics in times of crises and in times of non-crisis - FCF

	Non-Crises					Crises					
	Range	Min.	Max.	Mean	Std. Dev.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Free Cash Flow (FCF)											
Brazil	133,26	-66,49	66,78	-0,04	6,62	131,12	-64,34	66,78	-0,30	6,88	-2.36**
Chile	78,71	-38,72	40,00	0,07	3,91	77,53	-39,02	38,51	-0,11	4,05	-1.52
China	129,82	-64,57	65,25	-0,21	5,92	24,37	-10,38	13,98	0,03	4,31	0.42
India	160,60	-80,53	80,07	-0,44	7,85	156,19	-81,08	75,10	-0,46	7,46	-0.21
Indonesia	118,03	-59,96	58,07	-0,25	6,23	122,04	-60,00	62,03	-0,15	6,67	0.61
Mexico	41,68	-21,55	20,13	-0,09	2,84	42,29	-20,39	21,89	-0,14	2,67	-0.46
Russia	144,54	-67,84	76,70	-0,18	6,42	121,88	-76,50	45,38	-0,25	7,24	-0.30
South Africa	102,22	-49,05	53,17	0,16	5,15	89,62	-48,26	41,35	-0,16	4,83	-2.00**
Turkey	104,07	-70,13	33,94	-0,87	6,45	163,04	-80,51	82,53	-0,49	8,05	1.17
Developing countries (I)	**160,60**	**-80,53**	**80,07**	**-0,27**	**3,17**	**163,61**	**-81,08**	**82,53**	**-0,23**	**6,64**	
Hong Kong	109,06	-54,61	54,45	-0,29	5,57	107,01	-54,50	52,50	-0,20	5,53	0.83
Singapore	104,16	-52,78	51,38	-0,32	5,12	109,02	-55,11	53,92	-0,28	5,34	0.35
Developing countries (II)	**109,06**	**-54,61**	**54,45**	**-0,30**	**2,34**	**109,02**	**-55,11**	**53,92**	**-0,21**	**5,41**	
Australia	109,77	-52,42	57,35	0,22	4,80	78,24	-39,03	39,21	0,19	4,06	-0.31
Belgium	44,60	-21,17	23,43	0,09	2,99	44,96	-23,13	21,83	-0,22	2,87	-2.18**
Canada	134,82	-66,57	68,25	0,25	6,03	132,07	-64,94	67,14	0,32	5,65	1.06
France	99,02	-48,98	50,04	-0,15	4,35	87,26	-49,05	38,21	-0,27	4,34	-1.19
Germany	121,23	-60,99	60,24	0,00	5,47	121,07	-61,49	59,58	-0,12	4,89	-1.17
Ireland	92,37	-39,76	52,61	0,08	4,29	92,07	-46,12	45,95	0,09	4,05	0.04
Italy	77,93	-39,86	38,08	-0,33	4,71	74,48	-38,76	35,72	-0,22	4,00	0.78
Japan	86,43	-43,38	43,05	-0,14	3,95	86,03	-43,58	42,46	-0,18	3,90	-0.88
Netherlands	96,42	-46,06	50,36	-0,17	4,32	96,81	-44,80	52,01	0,04	4,54	-1.34
Norway	100,90	-52,02	48,88	0,03	5,68	116,56	-59,46	57,10	-0,22	5,23	-1.36
Poland	140,93	-70,65	70,28	-0,37	6,73	124,11	-63,92	60,18	-0,29	6,67	0.44
Spain	96,88	-50,13	46,75	-0,01	5,26	57,84	-31,94	25,90	-0,25	3,51	-1.19
Sweden	92,14	-47,26	44,89	-0,08	4,53	88,32	-40,23	48,09	0,15	4,90	1.68*
Switzerland	39,85	-20,53	19,31	-0,05	2,29	39,00	-19,35	19,66	0,09	2,64	1.48
UK	97,35	-49,02	48,33	0,01	4,22	93,41	-46,62	46,79	-0,02	4,11	-0.41
US	98,04	-48,91	49,14	0,06	4,62	97,14	-48,15	48,99	0,02	4,23	-1.92*
Developed countries	**140,93**	**-70,65**	**70,28**	**0,07**	**2,21**	**132,07**	**-64,94**	**67,14**	**0,06**	**4,35**	
* - significant at 10%, ** - significant at 5%, and *** - significant at 1%											
Overall	**160,60**	**-80,53**	**80,07**	**-0,04**	**2,51**	**163,61**	**-81,08**	**82,53**	**-0,01**	**4,88**	

APPENDIX F

	Non-Crises						Crises						T-Stats
	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	
Stock Market Return (SMR)													
Brazil													
Consumer Discretionary	550	4.40	-1.00	3.40	0.20	0.66	655	4.54	-1.00	3.54	0.06	0.54	-3.96 ***
Consumer Staples	216	3.12	-0.99	2.13	0.12	0.48	227	3.44	-0.98	2.46	0.09	0.48	-0.55
Energy	68	2.31	-0.85	1.46	0.12	0.50	73	2.56	-0.87	1.69	0.07	0.43	-0.60
Healthcare	68	2.75	-0.50	2.25	0.13	0.44	32	2.43	-0.54	1.89	0.17	0.52	0.34
Industrials	368	4.02	-0.91	3.11	0.23	0.61	500	4.53	-1.00	3.53	0.07	0.57	-3.81 ***
Information Technology	74	2.52	-0.60	1.93	0.09	0.50	75	3.45	-1.00	2.45	0.08	0.59	-0.07
Materials	393	4.23	-0.78	3.46	0.28	0.63	581	4.63	-1.00	3.64	0.11	0.54	-4.42 ***
Real Estate	180	2.13	-0.72	1.41	0.10	0.34	88	1.83	-0.44	1.39	-0.06	0.29	-3.92 ***
Telecommunication Services	145	3.38	-0.85	2.53	0.18	0.51	137	2.76	-1.00	1.76	0.06	0.48	-2.13 **
Utilities	323	3.35	-0.64	2.71	0.22	0.45	229	3.03	-0.95	2.09	0.01	0.46	-5.39 ***
Chile													
Consumer Discretionary	162	3.36	-0.83	2.53	0.13	0.45	178	3.09	-0.81	2.28	-0.05	0.33	-4.26 ***
Consumer Staples	308	3.17	-0.86	2.31	0.11	0.40	284	3.13	-0.99	2.14	0.01	0.34	-3.44 ***
Energy	27	1.74	-0.73	1.01	0.00	0.35	24	1.50	-0.74	0.76	-0.04	0.31	-0.41
Healthcare	32	2.87	-0.19	2.68	0.30	0.50	31	0.69	-0.28	0.41	0.04	0.17	-2.72 ***
Industrials	216	3.53	-0.89	2.63	0.15	0.48	211	1.72	-0.78	0.95	-0.02	0.26	-4.60 ***
Information Technology	11	1.45	-0.32	1.13	0.25	0.38	10	0.96	-0.67	0.29	-0.09	0.32	-2.24 **
Materials	258	3.42	-0.98	2.44	0.14	0.43	217	2.13	-0.80	1.33	-0.03	0.33	-4.99 ***
Real Estate	78	2.07	-0.47	1.61	0.18	0.40	94	1.64	-0.95	0.69	-0.06	0.25	-4.73 ***
Telecommunication Services	54	2.99	-0.63	2.36	0.17	0.53	44	1.31	-0.83	0.48	-0.09	0.23	-3.16 ***
Utilities	214	3.01	-1.00	2.01	0.13	0.36	183	3.39	-0.63	2.76	0.03	0.29	-2.87 ***
China													
Consumer Discretionary	5,225	2.81	-1.00	1.81	0.04	0.44	142	2.02	-0.80	1.22	0.03	0.38	-0.61
Consumer Staples	2,151	2.78	-0.98	1.79	0.02	0.44	41	1.89	-0.65	1.24	0.11	0.41	1.39
Energy	847	2.75	-0.95	1.80	0.01	0.42	15	1.28	-0.75	0.53	-0.07	0.41	-0.70
Healthcare	2,243	2.79	-1.00	1.79	0.10	0.46	57	1.76	-0.65	1.10	0.05	0.37	-0.83
Industrials	6,321	2.82	-1.00	1.82	0.05	0.42	151	2.53	-0.74	1.79	0.03	0.45	-0.74
Information Technology	3,497	2.81	-0.99	1.82	0.07	0.47	55	1.69	-0.75	0.94	0.02	0.38	-1.01
Materials	5,046	2.80	-0.99	1.80	0.03	0.40	107	2.19	-0.78	1.40	0.05	0.42	0.54
Real Estate	2,411	2.81	-1.00	1.82	0.02	0.39	95	2.02	-0.71	1.30	0.05	0.42	0.59
Telecommunication Services	83	2.78	-0.99	1.79	0.02	0.43	1	0.27	0.00	0.27	0.27		
Utilities	1,166	2.69	-0.92	1.78	0.06	0.40	29	0.99	-0.43	0.56	0.04	0.26	-0.32
India													
Consumer Discretionary	6,895	3.88	-0.97	2.91	0.15	0.60	833	3.80	-0.94	2.86	-0.13	0.41	-17.94 ***
Consumer Staples	704	3.79	-0.88	2.91	0.12	0.59	290	2.23	-0.80	1.43	-0.08	0.35	-6.73 ***
Energy	2,137	3.77	-0.97	2.80	0.23	0.62	68	1.39	-0.78	0.61	-0.15	0.26	-10.87 ***
Healthcare	1,290	3.72	-0.91	2.81	0.19	0.58	209	3.75	-0.85	2.90	-0.01	0.46	-5.49 ***
Industrials	2,328	3.89	-0.99	2.90	0.22	0.66	622	3.77	-0.92	2.86	-0.19	0.36	-20.62 ***
Information Technology	1,045	3.84	-0.95	2.89	0.08	0.69	279	3.85	-0.95	2.90	-0.12	0.51	-5.28 ***
Materials	5,905	3.82	-0.92	2.90	0.17	0.60	795	3.32	-0.92	2.40	-0.18	0.36	-22.88 ***
Real Estate	965	3.87	-0.97	2.90	0.14	0.67	135	1.62	-0.89	0.73	-0.15	0.28	-9.06 ***
Telecommunication Services	259	3.15	-0.90	2.26	0.05	0.60	15	1.54	-0.89	0.65	-0.28	0.48	-2.61 ***
Utilities	264	2.90	-0.81	2.09	0.14	0.43	46	0.90	-0.61	0.30	-0.15	0.20	-7.13 ***
Indonesia													
Consumer Discretionary	382	3.05	-0.93	2.12	0.17	0.60	474	2.95	-0.88	2.07	0.03	0.47	-3.93 ***
Consumer Staples	304	3.08	-0.94	2.14	0.20	0.53	408	3.01	-0.93	2.08	0.05	0.50	-3.65 ***
Energy	148	3.07	-0.97	2.10	0.10	0.54	189	2.67	-0.92	1.75	-0.04	0.51	-2.58 **
Healthcare	71	2.20	-0.87	1.33	0.20	0.46	95	2.27	-0.82	1.45	0.08	0.48	-1.62
Industrials	268	3.13	-0.98	2.15	0.16	0.57	346	2.94	-0.82	2.13	0.02	0.48	-3.36 ***
Information Technology	34	2.28	-0.88	1.40	-0.00	0.52	39	2.65	-0.72	1.93	0.00	0.56	0.07
Materials	326	2.88	-0.94	1.94	0.10	0.52	431	2.87	-0.83	2.04	0.02	0.49	-2.27 **
Real Estate	188	2.96	-0.94	2.01	0.23	0.55	289	2.80	-0.88	1.92	-0.01	0.46	-4.93 ***
Telecommunication Services	37	2.74	-0.80	1.94	0.22	0.51	42	2.35	-0.63	1.72	0.12	0.56	-0.87
Utilities	6	2.14	-0.11	2.03	0.67	0.93	9	0.90	-0.53	0.37	0.03	0.26	-1.63
Mexico													
Consumer Discretionary	240	3.13	-0.94	2.20	0.10	0.41	211	2.82	-0.97	1.85	-0.04	0.42	-3.54 ***
Consumer Staples	249	2.28	-0.96	1.32	0.14	0.30	185	3.01	-0.78	2.23	0.06	0.37	-2.61 ***
Energy	8	0.90	-0.40	0.51	-0.09	0.31	5	0.53	-0.53	0.00	-0.31	0.22	-1.45
Healthcare	18	2.91	-0.87	2.04	0.18	0.60	12	1.93	-0.61	1.32	0.27	0.68	0.39
Industrials	206	3.30	-0.89	2.41	0.14	0.44	169	2.77	-0.87	1.90	-0.02	0.40	-3.81 ***
Information Technology	13	3.09	-0.76	2.33	-0.03	0.76	12	2.39	-0.89	1.51	-0.01	0.64	0.08
Materials	193	3.34	-0.85	2.50	0.15	0.50	139	3.26	-0.92	2.34	0.11	0.61	-0.77
Real Estate	21	0.66	-0.22	0.44	0.10	0.17	3	0.53	-0.53	0.00	-0.35	0.19	-3.75 ***
Telecommunication Services	31	2.41	-0.52	1.89	0.27	0.56	21	1.91	-0.58	1.33	0.02	0.51	-1.67 *
Utilities	1	0.45	0.00	0.45	0.45		0	0.00	0.00	0.00			
Russia													
Consumer Discretionary	55	2.33	-0.93	1.40	-0.11	0.45	24	1.50	-0.90	0.61	-0.25	0.29	-1.69 *
Consumer Staples	58	3.60	-1.00	2.60	0.01	0.65	32	2.08	-0.86	1.22	0.12	0.49	0.86
Energy	99	2.72	-0.89	1.83	0.16	0.48	97	3.69	-1.00	2.70	-0.00	0.60	-2.13 **
Healthcare	19	1.29	-0.62	0.67	-0.08	0.35	8	0.77	-0.32	0.44	-0.02	0.23	0.55
Industrials	83	2.48	-0.96	1.52	-0.06	0.41	62	3.40	-0.94	2.46	0.03	0.55	1.04
Information Technology	19	2.35	-0.45	1.90	0.12	0.60	27	1.79	-0.75	1.04	-0.09	0.45	-1.27
Materials	124	2.78	-0.94	1.84	0.01	0.46	89	2.90	-0.99	1.91	0.04	0.57	0.44
Real Estate	13	1.78	-0.57	1.20	-0.08	0.44	6	2.83	-0.54	2.29	0.25	1.03	0.75
Telecommunication Services	58	2.27	-0.57	1.70	0.27	0.53	48	2.54	-1.00	1.54	-0.11	0.56	-3.57 ***
Utilities	226	2.96	-0.96	2.00	-0.01	0.54	127	3.67	-0.99	2.67	-0.04	0.62	-0.52
South Africa													
Consumer Discretionary	778	2.68	-0.94	1.74	0.14	0.44	569	2.59	-0.86	1.73	0.07	0.47	-2.73 ***
Consumer Staples	368	2.42	-0.82	1.60	0.07	0.34	249	2.56	-0.84	1.72	0.00	0.36	-2.41 **
Energy	80	2.47	-0.80	1.67	0.03	0.50	61	2.23	-0.73	1.50	-0.07	0.45	-1.28
Healthcare	90	1.78	-0.85	0.93	0.05	0.37	67	1.85	-0.62	1.23	0.09	0.40	0.64
Industrials	768	2.66	-0.93	1.73	0.09	0.43	532	2.72	-0.98	1.74	0.04	0.45	-2.06 **
Information Technology	415	2.42	-0.93	1.49	0.01	0.48	227	2.58	-0.93	1.65	-0.01	0.54	-0.50
Materials	877	2.73	-0.99	1.74	0.06	0.43	684	2.59	-0.99	1.60	0.02	0.41	-1.80 *
Real Estate	218	2.19	-0.84	1.35	0.04	0.32	151	2.14	-0.65	1.49	-0.01	0.30	-1.53
Telecommunication Services	55	1.58	-0.72	0.86	0.07	0.33	30	1.80	-0.40	1.40	0.16	0.46	0.96
Utilities	0	0.00	0.00	0.00			0	0.00	0.00	0.00			
Turkey													
Consumer Discretionary	361	3.12	-0.68	2.44	0.28	0.53	1,061	3.50	-1.00	2.50	0.21	0.65	-2.26 **
Consumer Staples	140	2.44	-0.53	1.91	0.26	0.45	418	3.41	-0.92	2.49	0.20	0.59	-1.27
Energy	20	1.54	-0.30	1.25	0.25	0.39	60	3.08	-0.68	2.41	0.31	0.62	0.51
Healthcare	12	2.87	-0.66	2.21	0.55	0.76	29	2.23	-0.39	1.83	0.23	0.58	-1.30
Industrials	216	2.96	-0.46	2.50	0.29	0.47	688	3.29	-0.85	2.44	0.24	0.62	-1.24
Information Technology	38	2.18	-0.43	1.75	0.28	0.55	103	2.01	-0.69	1.32	-0.01	0.37	-3.01 ***
Materials	266	3.21	-0.77	2.44	0.35	0.50	825	3.30	-0.79	2.51	0.26	0.61	-2.38 **
Real Estate	70	2.37	-0.81	1.56	0.33	0.51	197	3.19	-0.75	2.44	0.06	0.48	-3.86 ***
Telecommunication Services	7	0.81	-0.03	0.78	0.23	0.27	13	0.92	-0.60	0.33	0.00	0.24	-1.89 *
Utilities	25	1.32	-0.44	0.88	0.13	0.35	55	3.03	-0.57	2.46	0.12	0.54	-0.07
Developing countries (I)													
Consumer Discretionary	**14,648**	**4.40**	**-1.00**	**3.40**	**0.12**	**0.53**	**4,147**	**4.54**	**-1.00**	**3.54**	**0.04**	**0.52**	**-7.88 *****
Consumer Staples	**4,498**	**3.90**	**-1.00**	**2.91**	**0.08**	**0.46**	**2,134**	**3.48**	**-0.99**	**2.49**	**0.06**	**0.46**	**-1.74 ***
Energy	**3,434**	**3.77**	**-0.97**	**2.80**	**0.16**	**0.57**	**592**	**3.69**	**-1.00**	**2.70**	**-0.00**	**0.50**	**-6.99 *****
Healthcare	**3,843**	**3.81**	**-1.00**	**2.81**	**0.13**	**0.51**	**540**	**3.75**	**-0.85**	**2.90**	**0.06**	**0.45**	**-3.43 *****
Industrials	**10,774**	**4.11**	**-1.00**	**3.11**	**0.11**	**0.50**	**3,281**	**4.53**	**-1.00**	**3.53**	**0.03**	**0.51**	**-7.33 *****
Information Technology	**5,146**	**3.89**	**-0.99**	**2.89**	**0.07**	**0.52**	**827**	**3.90**	**-1.00**	**2.90**	**-0.04**	**0.51**	**-5.56 *****
Materials	**13,388**	**4.45**	**-0.99**	**3.46**	**0.11**	**0.52**	**3,868**	**4.63**	**-1.00**	**3.64**	**0.04**	**0.51**	**-7.14 *****
Real Estate	**4,144**	**3.90**	**-1.00**	**2.90**	**0.07**	**0.48**	**1,058**	**3.39**	**-0.95**	**2.44**	**-0.02**	**0.40**	**-6.16 *****
Telecommunication Services	**729**	**3.52**	**-0.99**	**2.53**	**0.12**	**0.53**	**351**	**2.76**	**-1.00**	**1.76**	**0.01**	**0.48**	**-3.34 *****
Utilities	**2,225**	**3.71**	**-1.00**	**2.71**	**0.09**	**0.43**	**678**	**3.75**	**-0.99**	**2.76**	**0.01**	**0.45**	**-4.53 *****

APPENDIX F.1 (Cont.)

	Non-Crises						Crises						
	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	T-Stats
Stock Market Return (SMR)													
Hong Kong													
Consumer Discretionary	3,328	4.45	-1.00	3.45	0.09	0.57	782	4.00	-0.98	3.02	-0.24	0.47	-16.80 ***
Consumer Staples	514	4.17	-1.00	3.17	0.08	0.54	110	3.37	-0.80	2.56	-0.10	0.47	-3.69 ***
Energy	343	4.23	-0.95	3.28	0.08	0.66	77	3.29	-0.88	2.40	-0.15	0.60	-3.03 ***
Healthcare	378	4.26	-0.97	3.29	0.09	0.64	78	2.40	-0.96	1.44	-0.24	0.44	-5.49 ***
Industrials	1,871	4.43	-0.97	3.46	0.07	0.59	441	3.96	-0.94	3.03	-0.23	0.48	-11.54 ***
Information Technology	1,490	4.20	-0.98	3.22	0.07	0.59	312	4.26	-0.95	3.31	-0.26	0.54	-9.63 ***
Materials	766	4.22	-0.92	3.31	0.08	0.67	166	4.30	-0.96	3.35	-0.21	0.56	-5.87 ***
Real Estate	1,958	4.38	-0.98	3.39	0.11	0.50	489	3.74	-0.89	2.85	-0.23	0.43	-15.33 ***
Telecommunication Services	142	4.46	-0.99	3.47	0.13	0.61	37	4.21	-0.93	3.28	-0.17	0.71	-2.37 **
Utilities	273	4.33	-0.89	3.44	0.15	0.64	65	1.87	-0.89	0.98	-0.22	0.42	-5.71 ***
Singapore													
Consumer Discretionary	440	2.21	-0.69	1.51	0.16	0.42	594	2.26	-0.79	1.47	-0.04	0.35	-8.34 ***
Consumer Staples	183	2.19	-0.68	1.51	0.15	0.41	257	1.99	-0.91	1.08	-0.02	0.35	-4.47 ***
Energy	108	2.26	-0.75	1.51	0.16	0.50	218	2.38	-0.94	1.44	-0.14	0.36	-5.68 ***
Healthcare	63	2.09	-0.79	1.29	0.18	0.36	87	1.71	-0.95	0.76	-0.10	0.33	-4.83 ***
Industrials	850	2.18	-0.66	1.52	0.15	0.41	1,278	2.32	-0.85	1.47	-0.08	0.36	-13.21 ***
Information Technology	386	2.26	-0.76	1.50	0.09	0.46	581	2.47	-0.96	1.51	-0.11	0.39	-6.95 ***
Materials	184	1.98	-0.59	1.39	0.10	0.41	277	1.99	-0.90	1.09	-0.09	0.38	-5.08 ***
Real Estate	275	2.35	-0.88	1.47	0.24	0.39	442	1.90	-0.80	1.10	-0.09	0.32	-11.73 ***
Telecommunication Services	43	1.40	-0.53	0.87	0.03	0.31	57	1.45	-0.99	0.46	-0.19	0.35	-3.21 ***
Utilities	18	1.85	-0.53	1.32	0.20	0.41	35	1.82	-0.74	1.07	-0.09	0.41	-1.90 *
Developing countries (II)													
Consumer Discretionary	**3,768**	**4.45**	**-1.00**	**3.45**	**0.10**	**0.55**	**1,376**	**4.00**	**-0.98**	**3.02**	**-0.15**	**0.44**	**-17.04 *****
Consumer Staples	**697**	**4.17**	**-1.00**	**3.17**	**0.10**	**0.51**	**367**	**3.47**	**-0.91**	**2.56**	**-0.05**	**0.39**	**-5.13 *****
Energy	**451**	**4.23**	**-0.95**	**3.28**	**0.10**	**0.63**	**295**	**3.35**	**-0.94**	**2.40**	**-0.15**	**0.43**	**-6.38 *****
Healthcare	**441**	**4.26**	**-0.97**	**3.29**	**0.10**	**0.61**	**165**	**2.40**	**-0.96**	**1.44**	**-0.17**	**0.39**	**-6.39 *****
Industrials	**2,721**	**4.43**	**-0.97**	**3.46**	**0.10**	**0.54**	**1,719**	**3.96**	**-0.94**	**3.03**	**-0.12**	**0.40**	**-15.27 *****
Information Technology	**1,876**	**4.20**	**-0.98**	**3.22**	**0.07**	**0.57**	**893**	**4.28**	**-0.96**	**3.31**	**-0.16**	**0.45**	**-11.71 *****
Materials	**950**	**4.22**	**-0.92**	**3.31**	**0.09**	**0.63**	**443**	**4.30**	**-0.96**	**3.35**	**-0.13**	**0.46**	**-7.33 *****
Real Estate	**2,233**	**4.38**	**-0.98**	**3.39**	**0.13**	**0.49**	**931**	**3.74**	**-0.89**	**2.85**	**-0.16**	**0.38**	**-17.90 *****
Telecommunication Services	**185**	**4.46**	**-0.99**	**3.47**	**0.11**	**0.56**	**94**	**4.27**	**-0.99**	**3.28**	**-0.18**	**0.52**	**-4.25 *****
Utilities	**291**	**4.33**	**-0.89**	**3.44**	**0.15**	**0.64**	**100**	**1.96**	**-0.89**	**1.07**	**-0.17**	**0.42**	**-5.87 *****
Australia													
Consumer Discretionary	1,906	2.79	-0.92	1.88	0.07	0.43	334	2.71	-0.90	1.81	-0.04	0.44	-4.25 ***
Consumer Staples	734	2.87	-0.90	1.97	0.04	0.36	135	2.26	-0.91	1.36	0.09	0.32	1.53
Energy	2,267	2.93	-0.93	2.00	-0.00	0.51	253	2.95	-1.00	1.95	-0.13	0.51	-3.95 ***
Healthcare	1,375	2.91	-0.95	1.96	0.01	0.50	163	2.73	-0.95	1.79	-0.07	0.48	-2.21 **
Industrials	2,452	2.91	-0.97	1.94	0.05	0.44	350	2.57	-0.93	1.64	-0.03	0.42	-3.23 ***
Information Technology	1,096	2.98	-0.99	1.99	0.00	0.51	190	2.79	-0.93	1.86	-0.21	0.57	-4.91 ***
Materials	6,279	3.00	-1.00	2.00	-0.00	0.52	702	2.85	-0.92	1.93	-0.10	0.54	-4.77 ***
Real Estate	1,019	2.68	-0.92	1.76	0.03	0.37	159	2.56	-0.80	1.76	-0.04	0.39	-2.29 **
Telecommunication Services	272	2.86	-0.89	1.97	0.06	0.54	36	2.02	-0.88	1.14	-0.27	0.59	-3.15 ***
Utilities	280	2.80	-0.93	1.88	-0.05	0.42	26	2.45	-0.90	1.54	0.02	0.64	0.57
Belgium													
Consumer Discretionary	138	1.85	-0.77	1.08	0.14	0.30	196	3.48	-0.94	2.54	-0.06	0.44	-5.05 ***
Consumer Staples	121	3.01	-0.46	2.55	0.08	0.34	164	3.00	-0.45	2.55	0.02	0.30	-1.58
Energy	8	1.81	-0.98	0.83	-0.03	0.55	22	1.23	-0.54	0.70	-0.08	0.28	-0.23
Healthcare	61	3.12	-0.81	2.32	0.17	0.61	129	3.12	-0.81	2.32	-0.01	0.51	-1.99 **
Industrials	162	3.39	-1.00	2.39	0.05	0.41	207	3.38	-0.85	2.52	-0.04	0.41	-2.01 **
Information Technology	76	2.56	-0.71	1.85	0.02	0.51	145	2.19	-0.92	1.27	-0.17	0.36	-2.97 ***
Materials	185	1.54	-0.43	1.11	0.03	0.22	219	3.14	-0.59	2.55	-0.01	0.29	-1.61
Real Estate	209	1.95	-0.67	1.28	-0.01	0.19	354	1.98	-0.81	1.17	-0.04	0.21	-1.56
Telecommunication Services	5	1.18	-0.22	0.95	0.33	0.47	14	1.52	-0.57	0.95	-0.06	0.34	-1.71 *
Utilities	21	1.28	-0.21	1.07	0.16	0.26	31	1.27	-0.58	0.69	-0.01	0.32	-2.11 **
Canada													
Consumer Discretionary	3,114	4.19	-1.00	3.19	0.03	0.56	709	3.92	-1.00	2.92	-0.08	0.51	-4.96 ***
Consumer Staples	1,241	3.87	-1.00	2.87	0.03	0.45	279	3.56	-1.00	2.56	-0.08	0.46	-3.34 ***
Energy	8,113	4.20	-1.00	3.20	0.08	0.64	1,673	4.07	-1.00	3.07	-0.04	0.69	-6.66 ***
Healthcare	1,853	4.11	-1.00	3.11	-0.00	0.66	333	4.16	-1.00	3.16	-0.21	0.60	-5.69 ***
Industrials	3,183	4.19	-1.00	3.19	0.05	0.58	666	4.08	-1.00	3.08	-0.12	0.50	-7.75 ***
Information Technology	3,824	4.20	-1.00	3.20	-0.02	0.68	619	4.12	-1.00	3.12	-0.16	0.59	-5.53 ***
Materials	17,005	4.21	-1.00	3.21	0.03	0.66	3,844	4.15	-1.00	3.15	-0.08	0.66	-9.27 ***
Real Estate	987	3.93	-1.00	2.93	0.10	0.43	168	2.33	-0.89	1.44	-0.18	0.34	-9.16 ***
Telecommunication Services	398	3.67	-1.00	2.67	-0.02	0.58	81	3.16	-1.00	2.16	-0.02	0.59	0.11
Utilities	533	3.96	-0.92	3.04	0.02	0.45	120	2.66	-0.79	1.87	-0.08	0.38	-2.65 ***
France													
Consumer Discretionary	2,756	2.39	-0.98	1.41	0.05	0.36	693	2.28	-0.85	1.43	-0.13	0.32	-13.57 ***
Consumer Staples	1,114	2.34	-0.97	1.38	0.06	0.28	266	1.35	-0.58	0.78	-0.04	0.25	-5.82 ***
Energy	241	1.75	-0.50	1.26	0.11	0.30	74	1.03	-0.53	0.49	-0.11	0.23	-6.62 ***
Healthcare	641	2.24	-0.88	1.37	0.08	0.37	192	1.57	-0.67	0.89	-0.11	0.27	-7.86 ***
Industrials	2,360	2.42	-1.00	1.42	0.08	0.34	600	2.03	-1.00	1.03	-0.10	0.28	-13.02 ***
Information Technology	1,989	2.39	-0.97	1.42	0.01	0.44	627	1.99	-0.84	1.14	-0.14	0.32	-9.68 ***
Materials	958	2.21	-0.84	1.37	0.05	0.31	218	1.69	-0.73	0.97	-0.09	0.30	-6.21 ***
Real Estate	974	2.31	-0.90	1.41	0.06	0.28	285	1.74	-0.83	0.91	-0.12	0.26	-10.24 ***
Telecommunication Services	95	1.98	-0.92	1.07	0.00	0.45	32	1.54	-0.75	0.80	-0.13	0.32	-1.82 *
Utilities	184	2.07	-0.65	1.42	0.14	0.35	73	1.42	-0.77	0.65	-0.16	0.25	-7.66 ***
Germany													
Consumer Discretionary	1,967	2.63	-0.98	1.65	0.07	0.39	900	2.64	-0.98	1.67	-0.22	0.36	-19.76 ***
Consumer Staples	554	2.16	-0.91	1.25	0.03	0.25	237	2.31	-0.89	1.41	-0.03	0.28	-2.99 ***
Energy	62	2.42	-0.86	1.56	-0.01	0.44	26	1.33	-0.80	0.53	-0.28	0.37	-2.93 ***
Healthcare	697	2.55	-0.98	1.57	0.11	0.40	323	2.08	-0.94	1.14	-0.25	0.34	-14.83 ***
Industrials	2,102	2.65	-1.00	1.65	0.08	0.39	912	2.33	-0.99	1.34	-0.19	0.31	-20.28 ***
Information Technology	1,769	2.60	-0.94	1.65	0.10	0.48	976	2.29	-0.99	1.30	-0.37	0.37	-27.97 ***
Materials	671	2.54	-0.93	1.60	0.06	0.35	284	2.52	-0.97	1.55	-0.10	0.33	-6.63 ***
Real Estate	872	2.38	-0.92	1.46	0.02	0.33	372	2.64	-0.97	1.67	-0.17	0.33	-9.23 ***
Telecommunication Services	104	2.43	-0.95	1.48	0.12	0.41	49	2.18	-0.85	1.33	-0.30	0.43	-5.69 ***
Utilities	302	1.85	-0.95	0.90	0.03	0.27	141	1.38	-0.89	0.50	-0.04	0.27	-2.62 ***
Ireland													
Consumer Discretionary	61	2.69	-0.71	1.98	0.09	0.46	101	2.16	-0.85	1.31	0.00	0.43	-1.18
Consumer Staples	64	1.71	-0.65	1.07	0.14	0.36	94	2.33	-0.79	1.55	0.07	0.33	-1.23
Energy	53	1.75	-0.64	1.11	0.01	0.45	72	2.16	-0.78	1.39	-0.15	0.44	-1.99 **
Healthcare	114	2.87	-0.85	2.02	0.13	0.45	182	2.74	-0.83	1.90	0.08	0.48	-1.06
Industrials	142	2.31	-0.94	1.37	0.16	0.38	216	2.55	-0.78	1.77	0.07	0.41	-2.18 **
Information Technology	49	2.09	-0.62	1.47	0.17	0.48	75	2.87	-0.90	1.97	-0.15	0.61	-3.25 ***
Materials	92	2.87	-0.83	2.04	0.00	0.47	139	2.44	-1.00	1.44	-0.07	0.44	-1.12
Real Estate	12	1.14	-0.70	0.44	-0.01	0.28	17	1.53	-0.86	0.66	-0.04	0.45	-0.16
Telecommunication Services	10	2.00	-0.60	1.40	0.14	0.58	12	2.44	-0.67	1.78	0.08	0.72	-0.24
Utilities	3	0.55	-0.42	0.12	-0.16	0.25	7	0.78	-0.64	0.13	-0.22	0.34	-0.32
Italy													
Consumer Discretionary	780	2.37	-0.96	1.41	0.03	0.36	417	2.36	-0.97	1.39	-0.13	0.38	-7.39 ***
Consumer Staples	132	1.33	-0.57	0.76	0.03	0.26	71	2.06	-0.78	1.29	-0.01	0.38	-0.87
Energy	67	1.38	-0.38	1.01	0.14	0.27	40	1.33	-0.64	0.70	-0.08	0.24	-4.39 ***
Healthcare	115	1.73	-0.84	0.89	0.03	0.34	83	1.82	-0.84	0.99	-0.08	0.39	-2.04 **
Industrials	616	2.25	-0.88	1.38	0.04	0.35	332	2.18	-0.92	1.27	-0.12	0.31	-7.20 ***
Information Technology	241	2.07	-0.82	1.24	-0.04	0.41	159	2.22	-0.93	1.28	-0.12	0.37	-1.99 **
Materials	278	1.76	-0.48	1.28	0.08	0.28	103	1.79	-0.65	1.14	-0.15	0.30	-6.64 ***
Real Estate	172	2.10	-0.82	1.29	0.09	0.36	76	1.77	-0.85	0.92	-0.26	0.32	-7.60 ***
Telecommunication Services	49	1.83	-0.96	0.87	-0.14	0.36	27	1.64	-0.81	0.83	-0.13	0.42	0.06
Utilities	225	2.02	-0.80	1.22	0.08	0.31	115	1.66	-0.61	1.05	-0.11	0.30	-5.69 ***

	Non-Crises						Crises						
	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	T-Stats
Stock Market Return (SMR)													
Japan													
Consumer Discretionary	6,688	2.17	-0.94	1.23	0.06	0.30	10,041	2.24	-1.00	1.24	-0.06	0.33	-24.55 ***
Consumer Staples	2,445	1.94	-0.79	1.14	0.04	0.22	3,617	2.22	-1.00	1.22	-0.02	0.25	-10.51 ***
Energy	244	1.45	-0.41	1.04	0.06	0.23	366	1.82	-0.67	1.15	-0.04	0.27	-4.84 ***
Healthcare	1,033	1.94	-0.71	1.22	0.05	0.29	1,455	2.05	-0.85	1.20	-0.00	0.30	-3.98 ***
Industrials	8,360	2.23	-0.99	1.24	0.09	0.28	12,710	2.24	-1.00	1.24	-0.06	0.30	-36.14 ***
Information Technology	4,452	2.24	-1.00	1.24	0.06	0.34	6,176	2.23	-0.99	1.24	-0.06	0.36	-17.31 ***
Materials	2,898	1.91	-0.68	1.23	0.09	0.26	4,479	2.22	-0.99	1.23	-0.07	0.28	-24.73 ***
Real Estate	888	2.10	-0.88	1.22	0.12	0.35	1,154	2.22	-0.99	1.24	-0.10	0.36	-14.45 ***
Telecommunication Services	68	2.07	-0.93	1.14	0.01	0.37	95	1.96	-0.80	1.16	-0.01	0.46	-0.35
Utilities	232	1.65	-0.69	0.95	0.02	0.21	311	1.93	-0.76	1.17	-0.02	0.19	-2.30 **
Netherlands													
Consumer Discretionary	316	2.23	-0.95	1.28	0.08	0.36	280	2.06	-0.97	1.09	-0.13	0.35	-7.22 ***
Consumer Staples	149	1.49	-0.67	0.83	0.14	0.25	123	1.67	-0.72	0.95	-0.02	0.26	-4.96 ***
Energy	71	1.90	-0.74	1.16	0.24	0.41	61	1.76	-0.92	0.84	-0.05	0.33	-4.53 ***
Healthcare	85	2.24	-0.83	1.40	0.11	0.40	86	1.62	-0.85	0.77	-0.16	0.35	-4.63 ***
Industrials	573	2.22	-0.85	1.38	0.15	0.36	497	2.42	-1.00	1.43	-0.08	0.36	-10.65 ***
Information Technology	308	2.24	-0.86	1.39	0.13	0.41	306	2.38	-0.99	1.39	-0.15	0.41	-8.68 ***
Materials	106	2.25	-0.83	1.42	0.13	0.37	94	1.85	-0.82	1.03	-0.11	0.29	-5.00 ***
Real Estate	151	1.94	-0.56	1.38	0.10	0.27	137	1.87	-0.77	1.10	-0.06	0.24	-5.54 ***
Telecommunication Services	30	1.73	-0.75	0.98	0.03	0.41	38	1.83	-0.94	0.89	-0.26	0.41	-2.93 ***
Utilities	4	1.41	-0.89	0.53	-0.07	0.65	6	0.74	-0.59	0.15	-0.33	0.31	-0.76
Norway													
Consumer Discretionary	181	2.34	-0.93	1.41	0.05	0.35	195	2.10	-0.97	1.13	-0.11	0.38	-4.40 ***
Consumer Staples	104	2.23	-0.82	1.41	0.12	0.38	125	1.83	-0.98	0.84	-0.13	0.35	-5.20 ***
Energy	321	2.60	-0.96	1.64	0.11	0.45	279	2.44	-1.00	1.45	-0.18	0.43	-7.93 ***
Healthcare	64	2.11	-0.94	1.17	-0.02	0.38	68	2.14	-0.92	1.22	-0.21	0.45	-2.63 ***
Industrials	449	2.50	-0.97	1.54	0.11	0.42	373	2.35	-1.00	1.35	-0.10	0.37	-7.28 ***
Information Technology	372	2.55	-0.93	1.62	0.03	0.47	374	2.54	-0.94	1.60	-0.14	0.46	-5.05 ***
Materials	112	2.10	-0.79	1.31	0.11	0.35	87	2.45	-0.92	1.53	-0.07	0.34	-3.64 ***
Real Estate	62	1.84	-0.73	1.11	0.09	0.26	67	2.00	-0.96	1.04	-0.08	0.38	-2.84 ***
Telecommunication Services	36	2.22	-0.87	1.35	0.10	0.51	37	1.92	-0.85	1.07	-0.04	0.42	-1.35
Utilities	29	1.78	-0.67	1.11	0.08	0.34	21	1.53	-0.74	0.79	-0.07	0.29	-1.67 *
Poland													
Consumer Discretionary	559	2.58	-0.86	1.72	0.08	0.48	471	2.50	-0.96	1.54	-0.17	0.40	-9.13 ***
Consumer Staples	230	2.41	-0.69	1.72	0.21	0.46	374	2.64	-0.99	1.65	-0.11	0.61	-7.38 ***
Energy	43	2.01	-0.91	1.11	0.07	0.42	282	2.35	-0.82	1.53	-0.00	0.18	-1.19
Healthcare	115	2.50	-0.82	1.67	0.11	0.52	263	1.68	-0.83	0.85	-0.05	0.20	-3.14 ***
Industrials	785	2.61	-0.89	1.72	0.10	0.48	1,066	2.68	-0.96	1.72	-0.10	0.46	-9.35 ***
Information Technology	391	2.51	-0.86	1.65	0.10	0.43	458	2.49	-0.93	1.55	-0.13	0.32	-8.39 ***
Materials	252	2.45	-0.75	1.70	0.24	0.48	957	2.46	-0.91	1.56	-0.10	0.24	-10.87 ***
Real Estate	120	2.58	-0.91	1.67	-0.02	0.46	242	2.30	-0.76	1.54	-0.07	0.26	-1.10
Telecommunication Services	67	2.29	-0.84	1.45	0.02	0.44	92	2.61	-0.94	1.68	-0.06	0.34	-1.18
Utilities	71	2.56	-0.96	1.60	-0.02	0.46	78	1.62	-0.85	0.77	-0.12	0.28	-1.57
Spain													
Consumer Discretionary	325	2.01	-0.75	1.26	0.07	0.34	115	1.34	-0.68	0.66	-0.20	0.28	-8.29 ***
Consumer Staples	273	1.70	-0.76	0.94	0.08	0.28	77	1.99	-0.72	1.27	-0.13	0.30	-5.71 ***
Energy	98	1.41	-0.55	0.86	0.08	0.25	30	1.02	-0.68	0.34	-0.13	0.21	-4.48 ***
Healthcare	97	1.84	-0.64	1.20	0.16	0.43	63	1.42	-0.70	0.72	-0.23	0.23	-7.48 ***
Industrials	507	2.17	-0.89	1.28	0.13	0.34	173	1.43	-0.90	0.53	-0.17	0.25	-12.53 ***
Information Technology	83	2.08	-0.87	1.21	0.04	0.47	42	1.15	-0.93	0.22	-0.28	0.28	-4.73 ***
Materials	383	1.89	-0.62	1.28	0.09	0.31	110	1.04	-0.75	0.29	-0.22	0.25	-10.75 ***
Real Estate	348	1.89	-0.63	1.27	0.11	0.34	112	1.01	-0.94	0.07	-0.34	0.25	-15.00 ***
Telecommunication Services	27	1.17	-0.31	0.86	0.14	0.30	9	0.56	-0.31	0.25	0.02	0.17	-1.50
Utilities	195	1.49	-0.30	1.19	0.17	0.26	59	1.30	-0.78	0.52	-0.13	0.22	-8.67 ***
Sweden													
Consumer Discretionary	714	2.46	-1.00	1.47	0.05	0.41	279	2.33	-0.92	1.42	-0.10	0.44	-4.65 ***
Consumer Staples	160	1.66	-0.78	0.88	0.06	0.30	61	1.33	-0.73	0.59	-0.07	0.25	-3.12 ***
Energy	105	2.35	-0.89	1.46	0.04	0.45	39	1.55	-0.92	0.63	-0.19	0.36	-3.15 ***
Healthcare	590	2.43	-0.91	1.52	0.03	0.44	174	2.23	-0.82	1.41	-0.10	0.42	-3.40 ***
Industrials	1,152	2.36	-1.00	1.36	0.09	0.35	480	2.24	-0.99	1.26	-0.04	0.39	-6.53 ***
Information Technology	1,019	2.49	-1.00	1.50	0.01	0.45	385	2.45	-0.97	1.48	-0.20	0.46	-7.59 ***
Materials	324	2.46	-0.98	1.48	-0.02	0.41	126	2.30	-0.84	1.46	-0.02	0.40	0.08
Real Estate	292	2.25	-0.95	1.30	0.12	0.31	116	1.55	-0.93	0.62	-0.06	0.29	-5.53 ***
Telecommunication Services	71	2.37	-0.90	1.47	0.10	0.55	23	1.55	-0.79	0.76	-0.22	0.39	-3.05 ***
Utilities	44	2.21	-0.85	1.36	-0.02	0.36	14	1.44	-0.90	0.54	0.00	0.33	0.17
Switzerland													
Consumer Discretionary	466	2.26	-0.93	1.33	0.07	0.35	230	1.54	-0.91	0.64	-0.17	0.27	-10.09 ***
Consumer Staples	177	1.70	-0.79	0.91	0.14	0.24	84	1.53	-0.77	0.76	-0.04	0.23	-5.60 ***
Energy	64	2.54	-0.94	1.60	-0.04	0.48	36	1.88	-0.88	0.99	-0.19	0.48	-1.55
Healthcare	271	2.56	-0.95	1.61	0.05	0.35	99	2.14	-0.90	1.24	-0.14	0.35	-4.64 ***
Industrials	839	2.34	-0.90	1.43	0.15	0.35	373	2.27	-1.00	1.27	-0.16	0.31	-15.74 ***
Information Technology	406	2.61	-1.00	1.61	0.10	0.45	188	1.97	-1.00	0.97	-0.33	0.37	-12.32 ***
Materials	330	2.34	-0.90	1.44	0.08	0.37	143	2.35	-0.93	1.42	-0.19	0.33	-8.05 ***
Real Estate	204	2.12	-0.75	1.38	0.07	0.26	90	1.56	-0.92	0.64	-0.10	0.23	-5.54 ***
Telecommunication Services	23	1.91	-0.92	1.00	-0.16	0.43	11	0.91	-0.80	0.11	-0.33	0.33	-1.27
Utilities	135	2.36	-0.98	1.38	0.06	0.30	68	1.53	-0.77	0.76	0.01	0.28	-1.14
UK													
Consumer Discretionary	6,173	2.83	-1.00	1.83	0.04	0.38	1,234	2.69	-1.00	1.69	-0.10	0.42	-10.66 ***
Consumer Staples	1,428	2.67	-0.91	1.76	0.05	0.29	242	2.31	-0.85	1.46	0.02	0.33	-1.03
Energy	850	2.61	-0.93	1.68	0.06	0.44	400	2.65	-0.92	1.72	-0.06	0.42	-4.70 ***
Healthcare	1,376	2.67	-0.90	1.76	0.02	0.43	405	2.62	-0.94	1.68	-0.03	0.45	-2.00 **
Industrials	5,059	2.72	-0.98	1.74	0.07	0.36	1,163	2.76	-0.99	1.77	-0.04	0.41	-7.85 ***
Information Technology	3,260	2.82	-1.00	1.82	0.02	0.49	879	2.81	-1.00	1.81	-0.01	0.47	-1.65
Materials	1,835	2.73	-0.95	1.78	0.01	0.37	463	2.53	-0.95	1.58	-0.03	0.44	-1.75 *
Real Estate	1,296	2.43	-0.92	1.51	0.10	0.31	277	2.66	-0.94	1.72	-0.15	0.35	-10.62 ***
Telecommunication Services	241	2.75	-0.98	1.77	-0.01	0.50	76	2.52	-0.96	1.56	-0.04	0.45	-0.51
Utilities	371	2.61	-0.96	1.65	0.07	0.26	77	1.72	-0.82	0.90	0.03	0.29	-1.17
US													
Consumer Discretionary	17,580	5.28	-1.00	4.28	0.04	0.56	7,126	5.23	-1.00	4.23	-0.04	0.60	-10.13 ***
Consumer Staples	4,882	5.25	-1.00	4.25	0.03	0.50	2,157	4.80	-1.00	3.80	-0.02	0.57	-3.81 ***
Energy	6,190	5.13	-1.00	4.13	0.06	0.59	3,137	5.30	-1.00	4.30	0.04	0.64	-1.45
Healthcare	13,595	5.27	-1.00	4.27	0.06	0.64	6,511	5.27	-1.00	4.27	-0.03	0.61	-10.16 ***
Industrials	15,506	5.28	-1.00	4.28	0.07	0.55	6,463	5.05	-1.00	4.05	-0.02	0.56	-10.91 ***
Information Technology	20,033	5.30	-1.00	4.30	0.08	0.68	9,262	5.26	-1.00	4.26	-0.10	0.68	-22.62 ***
Materials	6,375	5.23	-1.00	4.23	0.04	0.56	2,689	5.28	-1.00	4.28	0.02	0.63	-1.81 *
Real Estate	19	3.32	-0.88	2.44	0.33	0.74	9	1.67	-0.47	1.20	0.09	0.51	-0.97
Telecommunication Services	1,744	5.31	-1.00	4.31	0.05	0.67	717	5.12	-1.00	4.13	-0.14	0.66	-6.28 ***
Utilities	2,671	4.89	-1.00	3.89	0.05	0.32	1,088	5.00	-1.00	4.00	0.03	0.44	-1.54
Developed countries													
Consumer Discretionary	43,703	5.28	-1.00	4.28	0.05	0.46	23,342	5.23	-1.00	4.23	-0.07	0.45	-32.62 ***
Consumer Staples	13,794	5.25	-1.00	4.25	0.05	0.39	8,120	4.80	-1.00	3.80	-0.03	0.40	-13.17 ***
Energy	18,792	5.13	-1.00	4.13	0.06	0.58	6,795	5.30	-1.00	4.30	-0.02	0.59	-9.72 ***
Healthcare	22,067	5.27	-1.00	4.27	0.05	0.58	10,544	5.27	-1.00	4.27	-0.05	0.54	-15.09 ***
Industrials	44,221	5.28	-1.00	4.28	0.07	0.45	26,607	5.05	-1.00	4.05	-0.06	0.40	-41.50 ***
Information Technology	39,359	5.30	-1.00	4.30	0.06	0.60	20,870	5.26	-1.00	4.26	-0.11	0.53	-35.58 ***
Materials	38,068	5.23	-1.00	4.23	0.03	0.56	14,672	5.28	-1.00	4.28	-0.06	0.50	-18.73 ***
Real Estate	7,610	3.93	-1.00	2.93	0.07	0.34	3,650	2.75	-0.99	1.76	-0.11	0.33	-28.12 ***
Telecommunication Services	3,237	5.31	-1.00	4.31	0.03	0.60	1,352	5.13	-1.00	4.13	-0.12	0.58	-8.12 ***
Utilities	5,293	4.89	-1.00	3.89	0.05	0.34	2,242	5.00	-1.00	4.00	-0.01	0.37	-7.01 ***
Overall													
Consumer Discretionary	62,119	5.28	-1.00	4.28	0.07	0.47	28,865	5.23	-1.00	4.23	-0.06	0.46	-38.16 ***
Consumer Staples	18,989	5.25	-1.00	4.25	0.06	0.41	10,621	4.80	-1.00	3.80	-0.01	0.41	-13.32 ***
Energy	22,677	5.13	-1.00	4.13	0.08	0.58	7,682	5.30	-1.00	4.30	-0.02	0.58	-13.03 ***
Healthcare	26,351	5.27	-1.00	4.27	0.07	0.57	11,249	5.27	-1.00	4.27	-0.04	0.53	-17.57 ***
Industrials	57,716	5.28	-1.00	4.28	0.08	0.45	31,607	5.05	-1.00	4.05	-0.05	0.42	-45.28 ***
Information Technology	46,381	5.30	-1.00	4.30	0.06	0.60	22,590	5.26	-1.00	4.26	-0.11	0.51	-38.53 ***
Materials	52,406	5.23	-1.00	4.23	0.06	0.55	18,983	5.28	-1.00	4.28	-0.04	0.50	-21.81 ***
Real Estate	13,987	4.39	-1.00	3.39	0.08	0.38	5,639	3.84	-0.99	2.85	-0.10	0.35	-32.66 ***
Telecommunication Services	4,151	5.31	-1.00	4.31	0.05	0.58	1,797	5.13	-1.00	4.13	-0.10	0.56	-9.35 ***
Utilities	7,809	4.89	-1.00	3.89	0.07	0.36	3,020	5.00	-1.00	4.00	-0.02	0.39	-9.84 ***

* - significant at 10%, ** - significant at 5%, and *** - significant at 1%

APPENDIX F.2

	Non-Crises						Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std.	Observ.	Range	Minimum	Maximum	Mean	Std.	T-Stats
Return on Equity (ROE)													
Brazil													
Consumer Discretionary	2,742	33.25	-17.88	15.38	0.14	1.07	1,576	31.50	-18.27	13.23	0.02	1.48	-2.84 ***
Consumer Staples	1,280	20.50	-6.88	13.62	0.12	0.83	723	28.05	-16.89	11.16	0.06	1.22	-1.24
Energy	312	14.77	-7.00	7.77	0.05	1.03	171	21.81	-5.94	15.87	0.15	1.58	0.72
Healthcare	689	20.13	-7.73	12.40	0.24	1.26	379	23.80	-10.80	13.00	0.31	1.37	0.75
Industrials	3,716	33.44	-18.11	15.32	0.16	1.29	2,050	29.38	-16.37	13.01	0.13	1.17	-0.86
Information Technology	675	26.93	-11.25	15.67	0.43	1.74	397	26.66	-16.08	10.58	0.13	1.72	-2.69 ***
Materials	1,459	18.80	-8.39	10.41	0.16	0.78	999	22.38	-13.02	9.37	0.03	0.95	-2.03 **
Real Estate	1,778	27.58	-9.99	17.59	0.25	1.00	947	21.97	-6.14	15.83	0.23	0.96	-0.31
Telecommunication Services	298	19.25	-15.26	3.99	-0.02	1.21	242	11.34	-7.57	3.77	0.04	0.93	0.71
Utilities	1,863	32.11	-15.33	16.78	0.16	0.99	1,000	26.91	-9.00	17.91	0.16	1.22	-0.02
Chile													
Consumer Discretionary	448	10.13	-4.96	5.17	0.10	0.56	423	9.55	-4.51	5.05	-0.03	0.72	-2.95 ***
Consumer Staples	450	3.00	-1.28	1.71	0.11	0.23	386	8.21	-2.21	6.00	0.09	0.47	-0.65
Energy	63	8.71	-5.90	2.80	-0.16	1.35	55	10.83	-6.88	3.95	0.08	1.55	0.89
Healthcare	61	0.44	0.02	0.45	0.17	0.10	57	0.78	-0.20	0.57	0.15	0.13	-0.88
Industrials	735	8.78	-3.74	5.04	0.12	0.49	641	12.85	-7.01	5.84	0.12	0.61	0.02
Information Technology	18	1.30	-0.25	1.05	0.13	0.27	16	1.34	-0.52	0.82	0.14	0.28	0.06
Materials	372	4.51	-2.16	2.35	0.16	0.38	317	9.85	-4.62	5.23	0.07	0.55	-2.33 **
Real Estate	223	6.92	-5.42	1.50	0.02	0.63	194	3.70	-1.24	2.46	0.10	0.33	1.51
Telecommunication Services	188	8.57	-4.50	4.07	0.26	0.72	156	10.44	-5.83	4.61	0.10	0.76	-1.91 *
Utilities	500	3.07	-1.09	1.98	0.16	0.22	434	8.86	-3.64	5.21	0.15	0.44	-0.39
China													
Consumer Discretionary	8,192	33.73	-17.08	16.66	0.14	0.83	353	10.92	-8.31	2.61	0.17	0.57	0.99
Consumer Staples	3,313	28.74	-17.14	11.59	0.15	0.68	127	11.22	-1.43	9.78	0.27	0.89	1.49
Energy	1,360	25.55	-10.93	14.62	0.20	0.83	48	1.88	-0.38	1.50	0.22	0.26	0.35
Healthcare	3,461	33.59	-16.72	16.86	0.14	0.96	134	11.97	-0.76	11.21	0.26	0.97	1.38
Industrials	9,851	32.84	-17.24	15.60	0.13	0.70	373	3.27	-1.95	1.33	0.16	0.25	2.04 **
Information Technology	6,067	28.94	-15.56	13.38	0.16	0.87	153	15.20	-13.30	1.90	-0.14	1.71	-2.16 **
Materials	7,764	32.84	-16.84	15.99	0.12	0.73	327	3.37	-1.58	1.79	0.21	0.26	5.82 ***
Real Estate	3,397	20.58	-10.26	10.32	0.14	0.55	226	5.54	-2.66	2.88	0.14	0.33	0.73
Telecommunication Services	120	3.37	-1.94	1.42	0.12	0.30	2	0.13	0.00	0.13	0.11	0.02	-0.15
Utilities	1,638	10.44	-6.05	4.39	0.10	0.36	92	1.05	-0.08	0.96	0.20	0.15	5.44 ***
India													
Consumer Discretionary	11,906	18.98	-9.69	9.29	0.05	0.50	1,641	17.24	-9.43	7.81	0.05	0.63	0.09
Consumer Staples	1,156	15.74	-9.09	6.65	0.07	0.50	583	8.09	-4.49	3.60	0.07	0.43	-0.18
Energy	3,087	9.02	-2.20	6.82	0.13	0.42	91	1.94	-1.07	0.88	0.05	0.30	-2.44 **
Healthcare	2,078	14.02	-4.97	9.05	0.11	0.37	381	16.12	-9.32	6.80	0.03	0.95	-1.61
Industrials	3,783	18.38	-9.76	8.62	0.08	0.58	1,278	12.62	-6.86	5.76	0.06	0.48	-1.39
Information Technology	1,635	18.49	-8.84	9.65	0.06	0.49	519	16.26	-8.52	7.74	0.00	0.84	-1.58
Materials	8,917	16.87	-8.97	7.90	0.09	0.55	1,447	13.86	-6.01	7.85	0.04	0.58	-2.93 ***
Real Estate	1,412	14.93	-6.65	8.28	0.05	0.45	307	11.89	-7.98	3.91	-0.03	0.73	-1.78 *
Telecommunication Services	391	11.50	-8.56	2.94	-0.02	0.78	19	4.38	-2.46	1.91	0.12	0.88	0.70
Utilities	462	7.50	-2.47	5.03	0.11	0.34	65	1.93	-1.36	0.57	0.01	0.29	-2.36 **
Indonesia													
Consumer Discretionary	564	13.45	-8.25	5.20	0.10	0.58	812	20.01	-9.77	10.24	0.09	1.10	-0.33
Consumer Staples	416	11.31	-6.43	4.88	0.24	0.62	580	15.72	-9.36	6.36	0.16	0.91	-1.47
Energy	254	15.30	-7.15	8.16	0.21	0.98	305	12.01	-7.46	4.55	0.12	0.89	-1.13
Healthcare	95	7.05	-3.54	3.50	0.21	0.64	159	17.33	-7.54	9.79	0.22	1.18	0.07
Industrials	480	8.61	-5.95	2.66	0.12	0.54	628	12.58	-4.37	8.21	0.12	0.76	0.04
Information Technology	50	0.94	-0.15	0.78	0.10	0.16	70	3.35	-2.48	0.88	0.05	0.39	-0.93
Materials	444	16.63	-7.28	9.35	0.12	0.77	674	9.21	-5.74	3.47	0.04	0.61	-1.95 *
Real Estate	279	9.34	-3.26	6.08	0.09	0.47	404	17.22	-8.41	8.81	0.04	1.00	-0.86
Telecommunication Services	63	2.96	-2.16	0.81	0.14	0.41	83	6.97	-4.01	2.96	0.24	0.79	1.04
Utilities	21	1.06	-0.17	0.89	0.20	0.26	28	0.89	-0.23	0.65	0.17	0.23	-0.42
Mexico													
Consumer Discretionary	451	11.70	-6.34	5.36	0.12	0.63	262	8.98	-3.00	5.98	0.11	0.49	-0.28
Consumer Staples	369	1.89	-0.57	1.32	0.17	0.17	257	7.37	-6.71	0.65	0.08	0.47	-2.64 ***
Energy	29	5.28	-2.40	2.88	-0.08	0.86	12	5.61	-4.17	1.45	-0.43	1.33	-0.83
Healthcare	43	6.75	-4.13	2.62	0.09	1.02	19	0.35	0.00	0.35	0.22	0.07	0.89
Industrials	327	10.55	-5.50	5.04	0.10	0.52	188	2.41	-0.96	1.46	0.06	0.30	-1.21
Information Technology	14	2.91	-2.50	0.40	-0.13	0.73	9	0.49	-0.13	0.36	0.03	0.15	0.76
Materials	290	10.74	-9.33	1.41	0.07	0.73	203	16.50	-9.66	6.84	0.08	1.01	0.09
Real Estate	59	4.08	-2.56	1.52	0.06	0.42	15	0.72	-0.09	0.63	0.14	0.21	1.00
Telecommunication Services	77	3.69	-1.43	2.26	0.20	0.52	61	8.99	-5.44	3.55	0.12	1.00	-0.58
Utilities	26	0.69	-0.41	0.28	0.03	0.16	8	0.12	-0.04	0.07	0.01	0.04	-0.67
Russia													
Consumer Discretionary	189	7.96	-5.64	2.32	0.15	0.59	97	10.07	-6.90	3.17	0.08	1.17	-0.57
Consumer Staples	209	9.34	-7.09	2.24	0.18	0.60	110	5.52	-2.39	3.13	0.18	0.51	0.09
Energy	397	9.19	-2.49	6.69	0.23	0.47	220	6.68	-5.57	1.11	0.11	0.55	-2.70 ***
Healthcare	49	0.90	-0.33	0.58	0.14	0.19	19	1.22	-0.72	0.50	0.14	0.27	0.08
Industrials	544	10.64	-7.07	3.57	0.10	0.76	249	12.34	-6.05	6.28	0.09	0.80	-0.16
Information Technology	50	10.33	-2.92	7.41	0.20	1.16	25	2.01	-1.08	0.93	-0.01	0.37	-1.12
Materials	587	8.23	-3.66	4.57	0.20	0.55	290	8.80	-3.46	5.34	0.14	0.56	-1.56
Real Estate	40	2.24	-0.58	1.66	0.19	0.34	14	3.80	-1.97	1.83	-0.04	0.78	-1.07
Telecommunication Services	119	0.83	-0.12	0.71	0.20	0.15	103	1.17	-0.71	0.46	0.12	0.17	-3.50 ***
Utilities	663	12.19	-5.95	6.24	0.19	0.59	316	9.86	-6.05	3.81	0.09	0.62	-2.37 **
South Africa													
Consumer Discretionary	684	16.57	-7.84	8.73	0.25	0.61	321	7.90	-4.03	3.87	0.21	0.54	-1.18
Consumer Staples	355	25.16	-7.38	17.78	0.32	1.15	192	19.50	-11.47	8.03	0.19	1.10	-1.24
Energy	98	20.50	-4.82	15.68	0.09	1.77	71	6.90	-1.85	5.05	0.13	0.71	0.17
Healthcare	80	18.55	-7.05	11.50	0.39	1.74	41	3.43	-2.74	0.69	0.15	0.52	-1.13
Industrials	773	22.86	-12.29	10.58	0.20	0.91	357	16.06	-5.02	11.04	0.16	0.80	-0.70
Information Technology	410	31.30	-19.69	11.61	-0.01	2.04	166	7.07	-4.28	2.79	0.20	0.64	1.88 *
Materials	877	30.01	-9.51	20.50	0.14	1.60	524	20.48	-18.16	2.32	0.05	0.99	-1.26
Real Estate	305	14.92	-11.91	3.01	0.12	0.83	165	6.64	-1.12	5.52	0.16	0.48	0.74
Telecommunication Services	66	2.33	-0.85	1.48	0.36	0.34	33	1.63	-0.61	1.02	0.29	0.37	-0.83
Utilities	24	0.39	-0.21	0.18	0.11	0.08	21	0.20	-0.04	0.16	0.09	0.06	-0.63
Turkey													
Consumer Discretionary	313	6.63	-2.87	3.76	0.06	0.46	690	7.38	-1.96	5.42	0.08	0.46	0.87
Consumer Staples	141	4.85	-1.84	3.01	0.06	0.46	333	9.67	-4.78	4.90	-0.06	0.76	-2.17 **
Energy	21	0.65	-0.25	0.40	0.18	0.16	54	3.05	-1.86	1.19	0.16	0.51	-0.26
Healthcare	17	1.27	-0.78	0.49	0.13	0.28	34	1.88	-1.39	0.49	0.03	0.39	-1.05
Industrials	231	4.46	-2.65	1.81	0.11	0.31	581	7.05	-1.96	5.09	0.15	0.42	1.60
Information Technology	50	1.13	-0.37	0.76	0.14	0.21	105	2.18	-0.98	1.20	0.13	0.26	-0.37
Materials	225	4.71	-3.92	0.80	0.04	0.33	527	7.31	-4.56	2.75	0.09	0.42	1.91 *
Real Estate	81	5.06	-1.06	4.00	0.10	0.51	193	3.66	-2.03	1.62	0.07	0.29	-0.53
Telecommunication Services	7	0.68	-0.17	0.51	0.27	0.22	19	0.67	-0.15	0.52	0.28	0.20	0.03
Utilities	26	1.15	-0.57	0.58	0.10	0.21	56	4.41	-0.67	3.74	0.19	0.61	0.96
Developing countries (I)													
Consumer Discretionary	25,489	34.53	-17.88	16.66	0.10	0.70	6,175	31.50	-18.27	13.23	0.06	0.97	-2.64 ***
Consumer Staples	7,689	34.93	-17.14	17.78	0.14	0.67	3,291	28.05	-16.89	11.16	0.09	0.85	-3.01 ***
Energy	5,621	26.61	-10.93	15.68	0.15	0.68	1,027	23.33	-7.46	15.87	0.11	0.96	-1.10
Healthcare	6,573	33.59	-16.72	16.86	0.14	0.86	1,223	23.80	-10.80	13.00	0.18	1.08	1.06
Industrials	20,440	33.71	-18.11	15.60	0.12	0.82	6,345	29.38	-16.37	13.01	0.11	0.82	-0.82
Information Technology	8,969	35.36	-19.69	15.67	0.15	0.99	1,460	26.66	-16.08	10.58	0.06	1.20	-2.85 ***
Materials	20,935	37.34	-16.84	20.50	0.11	0.71	5,308	27.53	-18.16	9.37	0.06	0.71	-3.89 ***
Real Estate	7,574	29.51	-11.91	17.59	0.13	0.68	2,465	24.24	-8.41	15.83	0.13	0.80	-0.02
Telecommunication Services	1,329	19.34	-15.26	4.07	0.09	0.80	718	12.18	-7.57	4.61	0.12	0.78	0.71
Utilities	5,223	32.11	-15.33	16.78	0.14	0.67	2,020	26.91	-9.00	17.91	0.14	0.92	0.16

	Non-Crises						Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std.	Observ.	Range	Minimum	Maximum	Mean	Std.	T-Stats
Return on Equity (ROE)													
Hong Kong													
Consumer Discretionary	4,060	30.10	-16.32	13.78	0.09	1.16	942	28.46	-15.11	13.34	0.06	1.32	-0.82
Consumer Staples	698	29.16	-14.18	14.99	0.11	1.15	157	18.91	-15.91	3.00	0.01	1.43	-0.83
Energy	389	28.81	-13.09	15.72	0.04	1.22	97	5.05	-3.67	1.38	0.03	0.66	-0.09
Healthcare	501	23.19	-10.50	12.69	0.03	1.31	112	12.91	-9.42	3.48	0.06	1.11	0.26
Industrials	2,356	31.24	-15.06	16.18	0.10	1.23	533	20.04	-10.86	9.18	0.06	1.00	-0.73
Information Technology	1,912	29.63	-15.74	13.89	0.05	1.41	415	24.26	-10.82	13.44	0.09	1.37	0.50
Materials	1,031	25.98	-12.62	13.36	0.08	1.38	238	16.76	-10.26	6.50	-0.02	1.22	-1.16
Real Estate	2,065	28.66	-15.76	12.89	0.07	0.77	538	7.98	-4.20	3.78	-0.00	0.51	-2.77 ***
Telecommunication Services	175	19.25	-6.61	12.63	0.16	1.58	44	13.15	-4.96	8.19	0.13	1.55	-0.11
Utilities	345	12.69	-8.73	3.96	-0.02	0.87	74	10.58	-6.96	3.62	-0.00	0.95	0.12
Singapore													
Consumer Discretionary	595	12.61	-6.26	6.35	0.14	0.57	875	28.58	-7.44	21.14	0.17	1.07	0.70
Consumer Staples	239	9.21	-6.17	3.04	0.09	0.69	366	10.39	-6.39	4.00	0.15	0.55	1.05
Energy	197	12.71	-8.35	4.36	0.12	0.87	350	14.78	-5.28	9.51	0.15	0.87	0.35
Healthcare	85	18.98	-1.31	17.67	0.43	1.96	144	23.87	-14.58	9.29	0.15	1.77	-1.09
Industrials	1,168	23.94	-8.91	15.02	0.19	0.83	1,859	29.26	-15.35	13.91	0.13	0.88	-2.04 **
Information Technology	543	20.46	-13.59	6.86	0.08	1.07	862	24.60	-9.44	15.16	0.04	1.05	-0.60
Materials	243	13.09	-0.63	12.46	0.22	0.83	400	22.45	-18.39	4.06	0.01	1.35	-2.40 **
Real Estate	350	3.39	-1.84	1.55	0.13	0.28	581	8.47	-5.19	3.28	0.07	0.41	-2.66 ***
Telecommunication Services	48	4.98	-1.33	3.65	0.22	0.80	73	31.15	-14.35	16.81	0.22	3.29	-0.02
Utilities	31	3.18	-1.80	1.39	0.14	0.47	56	1.65	-0.83	0.82	0.05	0.30	-0.93
Developing countries (II)													
Consumer Discretionary	**4,655**	**30.10**	**-16.32**	**13.78**	**0.10**	**1.10**	**1,817**	**36.25**	**-15.11**	**21.14**	**0.11**	**1.21**	**0.30**
Consumer Staples	**937**	**29.16**	**-14.18**	**14.99**	**0.11**	**1.05**	**523**	**19.91**	**-15.91**	**4.00**	**0.11**	**0.91**	**0.02**
Energy	**586**	**28.81**	**-13.09**	**15.72**	**0.07**	**1.12**	**447**	**14.78**	**-5.28**	**9.51**	**0.13**	**0.83**	**0.94**
Healthcare	**586**	**28.17**	**-10.50**	**17.67**	**0.09**	**1.43**	**256**	**23.87**	**-14.58**	**9.29**	**0.11**	**1.52**	**0.19**
Industrials	**3,524**	**31.24**	**-15.06**	**16.18**	**0.13**	**1.12**	**2,392**	**29.26**	**-15.35**	**13.91**	**0.11**	**0.91**	**-0.70**
Information Technology	**2,455**	**29.63**	**-15.74**	**13.89**	**0.06**	**1.34**	**1,277**	**25.98**	**-10.82**	**15.16**	**0.06**	**1.17**	**-0.00**
Materials	**1,274**	**25.98**	**-12.62**	**13.36**	**0.11**	**1.30**	**638**	**24.89**	**-18.39**	**6.50**	**-0.00**	**1.30**	**-1.73 ***
Real Estate	**2,415**	**28.66**	**-15.76**	**12.89**	**0.08**	**0.72**	**1,119**	**8.97**	**-5.19**	**3.78**	**0.04**	**0.47**	**-2.26 ****
Telecommunication Services	**223**	**19.25**	**-6.61**	**12.63**	**0.18**	**1.44**	**117**	**31.15**	**-14.35**	**16.81**	**0.18**	**2.76**	**0.04**
Utilities	**376**	**12.69**	**-8.73**	**3.96**	**-0.00**	**0.84**	**130**	**10.58**	**-6.96**	**3.62**	**0.02**	**0.74**	**0.32**
Australia													
Consumer Discretionary	3,266	40.12	-19.16	20.96	0.14	1.47	309	15.48	-9.44	6.03	-0.02	1.08	-2.29 **
Consumer Staples	1,259	46.82	-27.67	19.15	-0.02	1.68	158	13.92	-7.85	6.07	0.11	0.89	1.56
Energy	3,339	53.42	-27.52	25.90	-0.30	2.66	255	32.07	-24.81	7.26	-0.55	2.66	-1.51
Healthcare	2,242	56.21	-28.00	28.20	-0.43	2.52	189	29.91	-12.07	17.84	-0.39	2.19	0.22
Industrials	4,174	53.41	-28.74	24.66	0.01	1.84	355	39.39	-28.29	11.10	-0.15	2.25	-1.31
Information Technology	1,772	51.42	-29.00	22.42	-0.29	2.92	177	19.90	-18.71	1.18	-1.16	3.12	-3.55 ***
Materials	9,723	58.02	-29.28	28.75	-0.32	2.14	708	43.55	-14.84	28.71	-0.20	2.37	1.30
Real Estate	1,513	32.57	-14.95	17.62	-0.01	1.15	148	8.81	-4.63	4.18	0.02	0.63	0.47
Telecommunication Services	415	51.39	-27.91	23.47	-0.02	3.03	42	14.45	-10.42	4.04	-0.90	2.02	-2.56 **
Utilities	509	29.37	-16.51	12.85	-0.12	1.69	30	9.71	-7.04	2.68	-0.28	1.44	-0.56
Belgium													
Consumer Discretionary	206	12.94	-11.55	1.38	0.07	0.86	250	12.58	-4.84	7.75	0.08	0.82	0.03
Consumer Staples	117	1.37	-0.56	0.81	0.18	0.17	183	1.38	-0.56	0.83	0.16	0.16	-0.88
Energy	26	0.65	-0.07	0.57	0.16	0.12	42	0.61	-0.27	0.34	0.09	0.13	-2.17 **
Healthcare	83	13.53	-12.62	0.91	-0.16	1.45	166	18.60	-12.62	5.98	-0.09	1.21	0.39
Industrials	154	4.02	-2.71	1.31	0.13	0.40	287	10.15	-4.67	5.48	0.12	0.57	-0.32
Information Technology	117	8.16	-4.34	3.83	0.12	0.92	210	11.91	-8.09	3.83	0.01	0.96	-0.99
Materials	182	1.67	-0.85	0.81	0.12	0.14	280	9.62	-2.17	7.45	0.11	0.52	-0.27
Real Estate	107	4.19	-0.17	4.02	0.19	0.55	259	6.43	-1.57	4.86	0.18	0.61	-0.18
Telecommunication Services	14	3.13	-1.64	1.49	0.21	0.75	21	1.49	0.00	1.49	0.55	0.35	1.59
Utilities	26	0.84	0.09	0.93	0.23	0.16	47	3.43	-1.36	2.06	0.10	0.44	-1.73 *
Canada													
Consumer Discretionary	4,150	84.74	-40.94	43.80	0.06	3.40	494	65.74	-34.56	31.18	-0.10	3.66	-0.98
Consumer Staples	1,650	75.32	-40.46	34.86	0.11	2.89	204	56.40	-37.48	18.92	0.11	3.31	0.02
Energy	10,625	89.12	-44.82	44.30	-0.12	3.40	1,359	51.01	-20.15	30.86	-0.22	2.58	-1.30
Healthcare	2,825	88.83	-44.23	44.60	-0.27	5.03	385	54.54	-40.02	14.52	-0.74	4.58	-1.87 *
Industrials	4,491	87.42	-44.68	42.74	0.10	3.49	562	68.76	-34.90	33.86	0.18	3.73	0.49
Information Technology	5,079	88.02	-45.23	42.79	-0.01	4.64	549	83.32	-44.02	39.31	-0.14	5.12	-0.61
Materials	23,223	89.90	-44.84	45.06	-0.26	3.89	3,276	78.74	-39.98	38.76	-0.39	3.50	-1.99 **
Real Estate	1,843	54.60	-23.21	31.39	0.06	1.63	244	26.40	-5.33	21.07	0.10	1.84	0.31
Telecommunication Services	609	70.42	-29.90	40.52	0.01	3.95	63	50.16	-36.56	13.61	-0.29	5.06	-0.46
Utilities	1,091	59.20	-45.02	14.18	-0.05	2.62	161	27.97	-1.56	26.41	0.45	2.53	2.34 **
France													
Consumer Discretionary	3,116	34.09	-14.95	19.14	0.16	1.22	1,028	31.67	-15.24	16.43	0.09	1.11	-1.68 *
Consumer Staples	1,242	17.69	-6.60	11.09	0.15	0.48	384	11.52	-6.21	5.31	0.12	0.53	-1.15
Energy	294	3.42	-1.58	1.84	0.17	0.32	101	4.19	-2.57	1.62	0.12	0.45	-1.00
Healthcare	914	38.37	-18.79	19.58	0.07	1.66	366	32.04	-17.29	14.75	-0.25	2.07	-2.68 ***
Industrials	3,010	33.69	-14.78	18.91	0.15	1.15	974	26.12	-11.84	14.29	0.13	1.09	-0.28
Information Technology	2,636	35.25	-19.92	15.33	0.06	1.48	831	34.38	-18.83	15.55	-0.02	1.42	-1.28
Materials	1,046	29.03	-17.10	11.93	0.12	0.97	338	8.55	-6.73	1.82	0.00	0.64	-2.60 ***
Real Estate	907	11.63	-9.03	2.60	0.08	0.54	320	20.31	-17.09	3.21	-0.10	1.26	-2.50 **
Telecommunication Services	148	21.77	-5.32	16.44	0.37	1.92	48	2.80	-0.79	2.01	0.18	0.47	-1.14
Utilities	226	22.55	-7.88	14.67	0.16	1.29	92	21.82	-9.68	12.14	0.24	1.95	0.33
Germany													
Consumer Discretionary	2,416	33.39	-14.96	18.43	0.09	1.04	983	25.20	-13.98	11.22	-0.04	1.28	-2.87 ***
Consumer Staples	654	22.12	-6.22	15.90	0.16	0.85	278	9.76	-4.90	4.86	0.16	0.63	-0.03
Energy	125	24.56	-21.52	3.04	-0.03	1.99	44	10.01	-4.32	5.70	0.12	1.17	0.62
Healthcare	932	39.20	-21.37	17.83	-0.04	1.67	379	15.16	-7.46	7.69	-0.15	1.18	-1.37
Industrials	2,785	40.83	-14.36	26.47	0.15	1.28	1,155	46.08	-20.59	25.49	-0.03	1.38	-3.75 ***
Information Technology	2,383	43.12	-25.80	17.32	0.00	1.77	919	29.20	-20.94	8.27	-0.28	1.52	-4.57 ***
Materials	803	29.00	-21.04	7.96	-0.01	1.41	336	23.87	-20.01	3.87	-0.04	1.33	-0.38
Real Estate	816	37.73	-18.91	18.81	0.07	1.35	347	12.78	-9.53	3.25	-0.04	0.76	-1.73 *
Telecommunication Services	151	6.94	-3.87	3.08	0.08	0.57	59	10.40	-9.65	0.75	-0.36	1.61	-2.06 **
Utilities	434	15.04	-11.09	3.96	0.14	0.73	181	5.86	-3.86	2.00	0.16	0.41	0.43
Ireland													
Consumer Discretionary	222	16.17	-4.33	11.84	0.22	1.29	257	28.45	-20.59	7.86	0.06	1.62	-1.24
Consumer Staples	122	6.85	-3.61	3.24	0.14	0.59	176	17.59	-1.38	16.21	0.30	1.51	1.24
Energy	82	5.98	-4.65	1.33	-0.13	0.78	111	29.38	-25.38	4.00	-0.67	3.20	-1.72 *
Healthcare	231	44.85	-22.67	22.17	-0.16	2.40	300	23.79	-12.61	11.17	0.02	1.76	0.92
Industrials	720	28.02	-13.54	14.48	0.29	1.20	742	48.51	-23.94	24.56	0.19	2.01	-1.14
Information Technology	175	43.66	-25.04	18.61	0.23	3.00	203	37.77	-14.14	23.63	0.20	2.47	-0.12
Materials	165	20.35	-4.58	15.76	0.08	1.36	234	27.96	-8.23	19.73	0.04	1.46	-0.32
Real Estate	28	4.12	-0.91	3.21	0.21	0.94	32	10.89	-9.61	1.28	-0.58	1.93	-2.04 **
Telecommunication Services	24	5.86	-4.02	1.84	0.01	1.19	31	16.21	-10.48	5.73	-0.82	2.81	-1.46
Utilities	29	6.59	-5.08	1.52	-0.05	1.09	39	5.37	-3.43	1.95	-0.03	0.91	0.07
Italy													
Consumer Discretionary	1,066	15.27	-6.37	8.90	0.08	0.75	632	16.85	-8.25	8.60	-0.01	0.95	-2.08 **
Consumer Staples	166	4.39	-1.82	2.57	0.13	0.33	83	5.11	-0.61	4.49	0.23	0.59	1.53
Energy	85	1.28	-0.40	0.88	0.20	0.18	58	1.72	-1.23	0.49	0.02	0.32	-3.93 ***
Healthcare	184	14.57	-8.27	6.29	0.07	0.91	128	5.98	-4.69	1.29	-0.05	0.59	-1.40
Industrials	913	9.73	-5.11	4.62	0.14	0.52	580	14.17	-7.62	6.55	0.08	0.76	-1.62
Information Technology	373	10.10	-7.48	2.62	0.09	0.75	232	12.21	-3.69	8.52	0.16	1.04	0.87
Materials	356	8.78	-4.04	4.74	0.09	0.43	178	9.23	-4.67	4.56	-0.01	0.77	-1.52
Real Estate	178	6.33	-2.00	4.33	0.09	0.47	107	12.15	-6.49	5.66	-0.14	1.30	-1.80 *
Telecommunication Services	84	5.69	-4.58	1.11	-0.17	0.62	46	6.39	-5.35	1.05	-0.22	1.17	-0.29
Utilities	311	8.81	-6.74	2.07	0.08	0.49	197	4.20	-3.04	1.16	0.03	0.39	-1.31
Japan													
Consumer Discretionary	7,574	20.91	-11.02	9.90	0.09	0.55	10,255	22.76	-11.06	11.70	0.05	0.60	-4.56 ***
Consumer Staples	2,765	18.78	-9.71	9.07	0.09	0.42	3,702	14.89	-8.89	6.00	0.08	0.34	-1.52
Energy	287	2.39	-1.04	1.35	0.14	0.18	371	4.11	-1.35	2.76	0.09	0.28	-2.77 ***
Healthcare	1,254	9.69	-6.26	3.43	0.09	0.34	1,638	13.08	-10.33	2.75	0.06	0.61	-1.57
Industrials	9,324	17.57	-7.45	10.12	0.09	0.39	12,734	22.47	-11.43	11.04	0.05	0.52	-6.83 ***
Information Technology	5,173	19.04	-10.81	8.23	0.07	0.49	6,717	17.23	-10.82	6.41	0.04	0.59	-2.39 **
Materials	3,260	14.28	-6.92	7.36	0.09	0.29	4,498	19.30	-9.65	9.65	0.03	0.42	-7.45 ***
Real Estate	1,033	15.83	-11.29	4.55	0.10	0.66	1,258	22.61	-11.25	11.36	0.02	1.07	-2.02 **
Telecommunication Services	87	3.94	-2.18	1.76	0.11	0.43	112	7.87	-6.43	1.44	0.01	0.86	-1.02
Utilities	246	1.65	-0.68	0.97	0.08	0.15	341	2.58	-1.80	0.78	0.09	0.17	0.04

APPENDIX F.2 (Cont.)

	Non-Crises						Crises						
Return on Equity (ROE)	Observ.	Range	Minimum	Maximum	Mean	Std.	Observ.	Range	Minimum	Maximum	Mean	Std.	T-Stats
Netherlands													
Consumer Discretionary	383	10.78	-3.88	6.90	0.17	0.71	318	12.26	-5.75	6.51	0.08	0.86	-1.56
Consumer Staples	171	5.44	-1.10	4.34	0.29	0.42	148	10.09	-7.73	2.36	0.18	0.75	-1.55
Energy	113	10.70	-2.30	8.40	0.31	0.96	98	10.12	-3.13	7.00	0.33	1.30	0.11
Healthcare	144	10.03	-4.82	5.21	-0.04	1.00	134	12.94	-6.27	6.67	-0.11	1.27	-0.53
Industrials	736	10.87	-6.27	4.59	0.17	0.51	601	13.24	-6.73	6.51	0.09	0.68	-2.62 ***
Information Technology	391	15.61	-8.07	7.54	0.23	0.94	297	15.81	-9.04	6.77	-0.10	1.23	-3.90 ***
Materials	169	6.17	-2.38	3.79	0.14	0.63	119	8.14	-6.34	1.81	-0.01	0.85	-1.69 *
Real Estate	170	1.95	-1.07	0.88	0.10	0.21	135	4.51	-3.85	0.66	-0.03	0.43	-3.05 ***
Telecommunication Services	68	3.22	-1.26	1.96	0.10	0.48	58	4.57	-2.04	2.53	0.00	0.63	-0.98
Utilities	34	2.04	-1.18	0.86	0.15	0.29	29	2.00	-0.14	1.87	0.21	0.34	0.72
Norway													
Consumer Discretionary	360	13.39	-2.59	10.80	0.22	0.72	276	13.17	-8.84	4.32	0.05	1.07	-2.39 **
Consumer Staples	196	6.37	-4.31	2.06	0.03	0.52	155	14.77	-3.62	11.15	0.17	1.18	1.44
Energy	543	16.77	-8.69	8.08	0.00	0.94	413	14.64	-8.80	5.84	-0.10	1.22	-1.48
Healthcare	98	6.49	-3.93	2.56	-0.28	0.82	71	10.75	-1.82	8.92	-0.20	1.25	0.48
Industrials	643	21.65	-11.33	10.32	0.07	0.87	480	20.35	-8.72	11.63	0.00	1.18	-1.03
Information Technology	533	16.64	-10.13	6.51	-0.09	1.18	426	21.62	-11.34	10.28	-0.10	1.56	-0.04
Materials	159	1.79	-1.09	0.71	0.05	0.31	120	2.99	-2.54	0.45	-0.03	0.36	-2.12 **
Real Estate	124	3.76	-2.22	1.54	0.15	0.37	100	2.59	-1.59	1.00	-0.01	0.35	-3.33 ***
Telecommunication Services	61	2.82	-1.36	1.46	0.19	0.53	46	2.70	-1.11	1.59	0.19	0.56	-0.03
Utilities	61	10.98	-9.32	1.66	0.03	1.27	42	2.39	-1.47	0.92	0.06	0.46	0.18
Poland													
Consumer Discretionary	865	17.29	-8.10	9.18	0.08	1.06	651	19.96	-12.31	7.65	0.04	1.12	-0.79
Consumer Staples	284	8.60	-5.90	2.70	0.08	0.54	398	11.59	-7.83	3.76	0.14	0.65	1.33
Energy	61	3.20	-2.25	0.96	-0.01	0.43	303	2.69	-1.80	0.89	0.00	0.16	0.18
Healthcare	210	21.05	-8.80	12.25	-0.03	1.54	333	9.27	-3.95	5.32	0.03	0.54	0.54
Industrials	1,127	22.29	-15.86	6.43	0.07	0.80	1,278	18.46	-11.68	6.78	0.10	0.69	1.03
Information Technology	639	23.93	-13.31	10.62	0.06	1.25	622	12.55	-5.91	6.65	0.08	0.66	0.28
Materials	353	16.82	-15.07	1.75	0.04	0.96	1,028	10.94	-6.09	4.85	0.14	0.36	2.06 **
Real Estate	186	11.67	-10.15	1.52	-0.02	0.88	276	6.84	-3.38	3.45	-0.00	0.43	0.29
Telecommunication Services	104	7.73	-6.46	1.27	0.02	0.71	132	8.11	-4.50	3.61	0.04	0.64	0.17
Utilities	125	19.86	-12.14	7.73	-0.14	1.78	135	14.91	-11.36	3.55	-0.08	1.09	0.35
Spain													
Consumer Discretionary	369	10.90	-6.64	4.26	0.16	0.54	248	8.59	-3.93	4.66	0.11	0.70	-0.84
Consumer Staples	289	3.77	-1.64	2.13	0.12	0.25	169	4.56	-1.36	3.20	0.07	0.44	-1.31
Energy	107	1.51	-0.40	1.11	0.21	0.21	64	2.12	-0.88	1.24	0.22	0.35	0.30
Healthcare	118	1.71	-0.48	1.23	0.13	0.24	110	9.17	-5.25	3.92	0.04	0.75	-1.24
Industrials	601	9.79	-4.26	5.53	0.14	0.46	363	8.54	-4.16	4.38	0.05	0.59	-2.48 **
Information Technology	100	8.03	-5.08	2.95	0.08	0.71	74	8.48	-4.59	3.89	-0.10	1.15	-1.19
Materials	392	7.38	-4.65	2.73	0.10	0.45	223	9.16	-4.83	4.33	-0.04	0.67	-2.70 ***
Real Estate	466	7.23	-2.79	4.44	0.11	0.35	230	9.84	-4.46	5.38	-0.06	0.91	-2.75 ***
Telecommunication Services	48	3.83	-3.16	0.67	-0.18	0.79	37	1.52	-0.67	0.84	0.10	0.27	2.26 **
Utilities	181	1.41	-0.57	0.83	0.14	0.11	113	1.13	-0.69	0.44	0.08	0.16	-3.42 ***
Sweden													
Consumer Discretionary	1,132	16.73	-9.90	6.83	-0.09	1.20	351	15.78	-8.54	7.24	-0.17	1.27	-0.99
Consumer Staples	300	12.34	-8.66	3.68	0.01	1.14	87	11.06	-7.76	3.29	-0.07	1.45	-0.44
Energy	205	12.24	-8.49	3.74	-0.21	1.11	54	16.50	-9.12	7.39	-0.20	1.70	0.02
Healthcare	1,103	19.74	-10.32	9.42	-0.33	1.20	325	16.40	-7.26	9.14	-0.22	1.18	1.50
Industrials	1,737	18.70	-9.95	8.75	-0.01	0.91	622	11.78	-6.56	5.22	-0.01	0.83	-0.11
Information Technology	1,577	20.85	-10.94	9.92	-0.27	1.37	494	18.60	-10.42	8.18	-0.34	1.41	-1.02
Materials	522	13.93	-8.69	5.24	-0.09	0.98	220	6.64	-2.70	3.94	0.00	0.54	1.72 *
Real Estate	409	9.84	-8.02	1.82	0.10	0.56	136	10.60	-8.83	1.78	-0.12	0.94	-2.63 ***
Telecommunication Services	136	14.99	-7.78	7.21	-0.24	1.41	47	5.67	-3.83	1.84	-0.29	0.96	-0.24
Utilities	78	0.95	-0.59	0.36	0.07	0.16	39	0.44	-0.02	0.42	0.14	0.09	3.30 ***
Switzerland													
Consumer Discretionary	528	11.72	-6.99	4.73	0.10	0.58	244	15.75	-5.14	10.61	0.16	1.05	0.87
Consumer Staples	242	5.17	-2.91	2.26	0.15	0.29	103	5.44	-3.70	1.75	0.09	0.53	-1.07
Energy	93	10.45	-4.76	5.69	0.08	1.11	33	11.09	-8.01	3.07	-0.20	1.60	-0.95
Healthcare	350	12.94	-8.60	4.34	0.02	0.88	132	7.20	-3.06	4.14	0.06	0.67	0.51
Industrials	957	12.00	-6.05	5.95	0.14	0.47	510	15.19	-9.13	6.06	0.05	0.67	-2.44 **
Information Technology	466	20.62	-9.87	10.75	0.12	1.09	188	9.51	-6.22	3.30	-0.22	1.08	-3.65 ***
Materials	388	20.22	-10.40	9.82	0.01	1.27	170	11.22	-3.33	7.89	0.16	0.82	1.68 *
Real Estate	237	9.35	-6.20	3.14	0.09	0.54	86	3.65	-1.27	2.39	0.08	0.33	-0.34
Telecommunication Services	26	13.55	-8.93	4.62	-0.11	2.09	9	2.90	-2.50	0.40	-0.45	1.08	-0.63
Utilities	177	2.14	-1.63	0.51	0.07	0.20	84	1.38	-0.81	0.57	0.12	0.17	2.29 **
UK													
Consumer Discretionary	6,911	47.08	-23.15	23.93	0.06	1.64	2,554	36.99	-17.89	19.10	0.05	1.44	-0.22
Consumer Staples	1,656	33.73	-12.10	21.63	0.14	1.29	609	34.03	-21.10	12.93	0.13	1.25	-0.07
Energy	1,089	42.32	-21.83	20.49	-0.09	1.71	577	10.19	-6.21	3.98	-0.02	0.76	1.06
Healthcare	1,671	31.18	-15.42	15.76	-0.12	1.65	664	36.98	-22.27	14.71	0.01	1.82	1.58
Industrials	5,756	41.70	-21.49	20.21	0.15	1.32	2,268	40.04	-19.45	20.59	0.14	1.59	-0.08
Information Technology	3,944	46.61	-23.32	23.29	-0.07	2.18	1,417	26.70	-13.75	12.95	0.01	1.36	1.54
Materials	2,100	38.75	-17.06	21.69	-0.05	1.42	896	28.48	-17.19	11.29	-0.06	1.40	-0.06
Real Estate	1,339	34.12	-16.25	17.87	0.08	0.96	496	15.49	-9.21	6.27	-0.04	1.04	-2.21 **
Telecommunication Services	381	37.56	-20.18	17.38	0.07	2.85	148	15.92	-9.97	5.95	0.02	1.22	-0.27
Utilities	650	20.59	-9.12	11.47	0.21	0.72	262	4.03	-1.80	2.23	0.20	0.36	-0.07
US													
Consumer Discretionary	19,818	52.57	-26.03	26.54	0.06	2.07	7,893	51.23	-25.55	25.68	0.11	2.37	1.74 *
Consumer Staples	5,328	49.67	-26.22	23.46	0.21	1.99	2,262	49.66	-23.95	25.71	0.29	2.68	1.23
Energy	7,121	50.03	-23.66	26.37	0.18	2.15	3,790	49.32	-22.66	26.66	0.21	2.30	0.81
Healthcare	15,116	53.09	-26.36	26.74	-0.12	2.65	6,968	52.54	-26.06	26.49	-0.05	2.84	1.71 *
Industrials	16,502	52.33	-25.62	26.70	0.13	2.06	6,847	52.84	-26.23	26.61	0.14	2.33	0.52
Information Technology	22,594	53.17	-26.49	26.68	-0.06	2.55	9,422	53.08	-26.42	26.66	-0.00	2.67	1.74 *
Materials	6,767	52.22	-26.22	26.00	0.16	2.30	2,887	50.99	-25.46	25.54	0.14	2.68	-0.34
Real Estate	19	3.09	-2.87	0.22	-0.33	0.72	8	2.20	-0.59	1.62	0.02	0.67	1.20
Telecommunication Services	2,471	50.12	-23.37	26.75	0.05	2.93	892	40.88	-22.44	18.44	0.12	2.86	0.59
Utilities	4,544	38.82	-20.36	18.46	0.15	0.81	2,109	36.29	-17.97	18.32	0.11	1.23	-1.12
Developed countries													
Consumer Discretionary	52,382	84.74	-40.94	43.80	0.08	1.81	26,743	65.74	-34.56	31.18	0.06	1.58	-1.44
Consumer Staples	16,441	75.32	-40.46	34.86	0.14	1.62	9,099	63.18	-37.48	25.71	0.15	1.53	0.62
Energy	24,195	89.12	-44.82	44.30	-0.04	2.69	7,673	56.23	-25.38	30.86	0.04	2.10	2.83 ***
Healthcare	27,475	88.83	-44.23	44.60	-0.15	2.74	12,288	66.50	-40.02	26.49	-0.07	2.43	2.76 ***
Industrials	53,630	87.42	-44.68	42.74	0.11	1.75	30,358	68.76	-34.90	33.86	0.08	1.47	-2.41 **
Information Technology	47,952	88.02	-45.23	42.79	-0.04	2.55	22,778	83.32	-44.02	39.31	-0.02	2.06	1.07
Materials	49,608	89.90	-44.84	45.06	-0.15	2.99	15,511	78.74	-39.98	38.76	-0.05	2.12	4.87 ***
Real Estate	9,375	54.60	-23.21	31.39	0.07	1.08	4,182	38.16	-17.09	21.07	-0.01	1.02	-3.67 ***
Telecommunication Services	4,827	70.42	-29.90	40.52	0.04	2.83	1,791	55.00	-36.56	18.44	0.01	2.37	-0.45
Utilities	8,722	63.48	-45.02	18.46	0.10	1.25	3,901	44.37	-17.97	26.41	0.12	1.13	0.95
Overall													
Consumer Discretionary	82,526	84.74	-40.94	43.80	0.09	1.50	34,735	65.74	-34.56	31.18	0.06	1.47	-2.35 **
Consumer Staples	25,067	75.32	-40.46	34.86	0.14	1.36	12,913	63.18	-37.48	25.71	0.13	1.37	-0.28
Energy	30,402	89.12	-44.82	44.30	-0.00	2.42	9,147	56.23	-25.38	30.86	0.05	1.96	2.37 **
Healthcare	34,634	88.83	-44.23	44.60	-0.09	2.47	13,767	66.50	-40.02	26.49	-0.04	2.33	1.77 *
Industrials	77,594	87.42	-44.68	42.74	0.11	1.51	39,095	68.76	-34.90	33.86	0.09	1.35	-2.87 ***
Information Technology	59,376	88.02	-45.23	42.79	-0.01	2.33	25,515	83.32	-44.02	39.31	-0.01	1.99	-0.35
Materials	71,817	89.90	-44.84	45.06	-0.07	2.51	21,457	78.74	-39.98	38.76	-0.02	1.85	3.45 ***
Real Estate	19,364	54.60	-23.21	31.39	0.09	0.86	7,766	38.16	-17.09	21.07	0.04	0.90	-4.16 ***
Telecommunication Services	6,379	70.42	-29.90	40.52	0.06	2.49	2,626	55.00	-36.56	18.44	0.05	2.08	-0.18
Utilities	14,321	63.48	-45.02	18.46	0.11	1.06	6,051	44.37	-17.97	26.41	0.13	1.06	0.91

* - significant at 10%, ** - significant at 5%, and *** - significant at 1%

APPENDIX F.3

	Non-Crises						Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	T-Stats
Return on Sales (ROS)													
Brazil													
Consumer Discretionary	2,675	95.14	-49.99	45.14	-0.23	3.13	1,563	55.33	-33.49	21.84	-0.15	1.68	1.10
Consumer Staples	1,239	87.39	-37.55	49.83	0.02	2.77	721	73.71	-24.64	49.07	0.18	3.48	1.06
Energy	280	45.04	-41.15	3.89	-0.54	3.89	169	51.63	-41.60	10.03	-0.40	3.44	0.39
Healthcare	693	34.85	-28.69	6.17	-0.18	1.71	391	47.37	-41.90	5.48	-0.16	2.32	0.17
Industrials	3,605	94.20	-49.55	44.65	-0.13	3.24	2,029	79.61	-42.07	37.54	-0.26	3.09	-1.53
Information Technology	658	67.28	-47.53	19.75	-0.09	2.51	385	79.13	-52.44	26.68	-0.38	3.61	-1.39
Materials	1,387	74.65	-40.97	33.68	-0.09	2.51	983	67.77	-41.55	26.23	-0.24	3.31	-1.17
Real Estate	1,658	87.03	-35.94	51.09	0.70	4.62	944	101.28	-50.24	51.04	0.16	5.69	-2.47 **
Telecommunication Services	274	56.25	-38.47	17.78	-0.25	3.22	244	18.04	-16.76	1.27	-0.04	1.18	0.98
Utilities	1,706	78.04	-49.85	28.19	0.06	2.09	990	45.96	-15.24	30.71	0.05	1.41	-0.15
Chile													
Consumer Discretionary	390	30.11	-28.96	1.15	-0.39	2.60	391	28.22	-26.85	1.38	-0.25	1.65	0.92
Consumer Staples	452	25.25	-15.68	9.58	0.03	1.00	388	35.38	-11.98	23.40	0.13	1.62	1.11
Energy	59	13.73	-11.89	1.84	-0.90	2.08	52	8.18	-7.69	0.49	-0.80	1.89	0.28
Healthcare	61	0.65	0.01	0.66	0.09	0.08	55	0.54	-0.12	0.42	0.08	0.07	-1.28
Industrials	721	38.12	-13.03	25.09	0.28	1.78	627	50.07	-16.21	33.86	0.31	2.53	0.27
Information Technology	18	0.23	-0.07	0.16	0.05	0.06	16	0.63	-0.18	0.45	0.10	0.15	1.21
Materials	355	11.01	-8.02	2.99	0.10	0.57	297	27.24	-26.03	1.21	0.00	1.53	-1.02
Real Estate	182	16.64	-13.71	2.92	-0.14	2.13	160	51.96	-18.42	33.54	0.00	3.91	0.42
Telecommunication Services	185	8.52	-4.30	4.22	0.02	0.58	155	56.24	-22.82	33.42	0.21	3.98	0.62
Utilities	492	10.95	-5.69	5.26	0.18	0.50	425	17.77	-3.40	14.37	0.21	0.92	0.65
China													
Consumer Discretionary	8,153	52.64	-27.36	25.28	-0.00	1.15	357	8.22	-4.58	3.63	0.09	0.44	3.36 ***
Consumer Staples	3,308	48.84	-24.78	24.06	0.01	1.24	131	3.55	-0.79	2.76	0.17	0.29	4.78 ***
Energy	1,342	35.82	-28.93	6.89	0.04	1.21	52	2.01	-0.65	1.36	0.11	0.24	1.65
Healthcare	3,444	37.17	-28.74	8.42	0.05	1.00	138	26.36	-22.05	4.31	-0.00	1.94	-0.33
Industrials	9,897	45.38	-29.26	16.12	0.06	0.93	382	3.07	-2.10	0.96	0.14	0.28	4.71 ***
Information Technology	6,044	52.43	-28.59	23.85	-0.01	1.38	155	6.51	-5.68	0.83	0.01	0.58	0.45
Materials	7,772	45.32	-28.97	16.35	0.00	1.09	333	5.71	-4.95	0.77	0.10	0.42	3.72 ***
Real Estate	3,367	53.12	-27.84	25.28	0.03	1.52	230	6.52	-2.88	3.64	0.19	0.44	4.04 ***
Telecommunication Services	122	5.22	-4.30	0.92	0.05	0.56	2	0.08	0.00	0.08	0.08	0.01	0.60
Utilities	1,642	16.86	-3.85	13.01	0.16	0.48	96	17.12	-0.07	17.05	0.52	1.92	1.85 *
India													
Consumer Discretionary	12,020	101.33	-53.06	48.27	-0.21	2.82	1,607	83.81	-44.69	39.11	-0.10	2.23	1.68 *
Consumer Staples	1,126	95.62	-51.08	44.53	-0.20	2.51	569	47.03	-41.28	5.75	-0.29	2.77	-0.68
Energy	2,600	67.33	-36.16	31.17	-0.16	2.52	85	9.49	-8.78	0.71	-0.23	1.29	-0.46
Healthcare	1,970	86.42	-46.42	40.00	-0.23	2.59	374	51.51	-50.99	0.52	-0.48	3.60	-1.32
Industrials	3,750	93.98	-53.43	40.55	-0.20	2.60	1,240	66.84	-50.00	16.83	-0.35	3.30	-1.45
Information Technology	1,579	105.01	-53.04	51.97	-0.42	3.62	498	30.18	-22.31	7.88	-0.28	1.71	1.18
Materials	7,023	98.98	-49.00	49.98	-0.14	2.33	1,408	73.11	-32.33	40.77	-0.13	2.09	0.01
Real Estate	1,398	98.04	-52.23	45.81	-0.16	3.65	293	24.42	-15.17	9.25	-0.13	1.73	0.18
Telecommunication Services	389	12.72	-10.24	2.48	-0.29	1.20	19	15.07	-14.78	0.28	-1.44	3.79	-1.32
Utilities	422	80.56	-47.56	33.00	-0.10	3.74	62	8.22	-4.80	3.43	-0.11	1.12	-0.06
Indonesia													
Consumer Discretionary	563	7.93	-3.34	4.58	0.06	0.42	815	17.06	-8.00	9.06	-0.01	0.84	-1.90 *
Consumer Staples	412	5.85	-4.76	1.09	0.05	0.36	577	11.07	-1.74	9.32	0.04	0.48	-0.48
Energy	232	13.30	-8.67	4.64	-0.09	0.93	283	10.70	-8.83	1.87	-0.04	0.75	0.60
Healthcare	95	0.50	-0.14	0.35	0.08	0.09	159	1.14	-0.71	0.43	0.05	0.15	-2.32 **
Industrials	477	5.81	-3.99	1.82	-0.00	0.45	629	15.87	-8.97	6.90	-0.10	0.79	-2.55 **
Information Technology	50	0.23	-0.14	0.08	0.01	0.04	70	6.64	-2.72	3.92	-0.01	0.62	-0.36
Materials	443	17.13	-9.40	7.73	0.01	0.76	674	12.54	-10.43	2.11	-0.13	0.89	-2.91 ***
Real Estate	277	14.86	-9.80	5.06	0.09	0.81	403	22.67	-11.79	10.88	-0.10	1.67	-1.98 **
Telecommunication Services	64	5.63	-3.72	1.91	0.06	0.76	84	9.31	-7.37	1.94	-0.07	1.15	-0.84
Utilities	21	0.43	-0.08	0.35	0.10	0.13	28	0.79	-0.43	0.36	0.05	0.16	-1.01
Mexico													
Consumer Discretionary	453	7.83	-7.30	0.53	-0.02	0.55	268	4.23	-3.81	0.42	-0.03	0.36	-0.16
Consumer Staples	368	2.97	-1.46	1.51	0.06	0.14	263	2.45	-2.08	0.37	0.02	0.25	-2.91 ***
Energy	30	4.38	-2.79	1.59	-0.17	0.73	13	0.61	-0.40	0.21	-0.10	0.18	0.54
Healthcare	38	0.46	-0.28	0.18	0.07	0.10	20	0.20	0.00	0.20	0.07	0.06	0.13
Industrials	335	7.86	-6.11	1.75	0.06	0.44	195	2.89	-1.76	1.14	0.04	0.23	-0.73
Information Technology	15	1.95	-1.51	0.44	-0.02	0.45	10	2.19	-0.70	1.49	0.07	0.57	0.41
Materials	279	1.49	-0.96	0.53	0.08	0.16	198	2.14	-1.59	0.55	0.03	0.26	-2.30 **
Real Estate	71	6.97	-4.65	2.32	0.41	0.77	15	1.52	-0.37	1.16	0.30	0.38	-0.80
Telecommunication Services	80	6.81	-2.46	4.35	0.06	0.67	65	2.44	-2.08	0.37	-0.11	0.42	-1.86 *
Utilities	26	1.73	-0.21	1.53	0.16	0.35	8	0.13	-0.07	0.06	-0.01	0.05	-2.36 **
Russia													
Consumer Discretionary	188	41.15	-2.82	38.33	0.23	2.82	94	16.03	-1.80	14.23	0.10	1.51	-0.51
Consumer Staples	205	23.59	-23.20	0.39	-0.07	1.64	107	0.57	-0.27	0.30	0.04	0.10	0.99
Energy	384	33.05	-27.90	5.14	-0.10	1.99	218	43.76	-42.75	1.01	-0.16	2.98	-0.30
Healthcare	48	0.70	-0.42	0.29	0.06	0.14	19	0.89	-0.52	0.36	0.07	0.20	0.18
Industrials	541	52.15	-35.94	16.21	0.06	1.78	247	29.55	-19.26	10.29	-0.05	1.82	-0.78
Information Technology	50	3.05	-2.33	0.72	-0.04	0.42	24	1.70	-1.26	0.44	-0.01	0.30	0.43
Materials	583	50.97	-10.82	40.15	0.18	1.76	285	44.44	-14.25	30.19	0.10	2.00	-0.60
Real Estate	40	25.05	-4.72	20.34	0.69	3.60	12	9.96	-9.59	0.38	-1.15	2.81	-1.86 *
Telecommunication Services	119	0.47	-0.05	0.42	0.11	0.08	105	1.56	-1.18	0.38	0.05	0.22	-2.60 ***
Utilities	669	49.04	-4.90	44.14	0.09	1.72	322	37.31	-33.67	3.64	-0.09	1.92	-1.48
South Africa													
Consumer Discretionary	665	58.21	-18.72	39.50	0.29	2.65	310	33.17	-11.47	21.70	0.18	1.56	-0.76
Consumer Staples	354	6.53	-3.85	2.68	0.05	0.44	193	4.85	-3.85	1.00	0.04	0.33	-0.17
Energy	84	48.34	-45.70	2.64	-1.79	7.32	61	77.07	-74.16	2.92	-1.39	9.55	0.28
Healthcare	79	20.74	-12.76	7.98	-0.06	1.92	41	33.90	-31.03	2.87	-0.54	4.90	-0.61
Industrials	765	56.05	-21.23	34.82	0.14	2.29	353	19.14	-11.40	7.74	0.05	0.83	-1.00
Information Technology	404	35.88	-33.98	1.90	-0.15	1.84	172	12.85	-11.37	1.48	-0.13	1.26	0.20
Materials	754	131.43	-75.60	55.82	-0.53	7.01	484	78.14	-60.02	18.11	-0.29	4.34	0.76
Real Estate	302	29.24	-18.27	10.97	0.53	1.66	166	12.72	-6.66	6.06	0.61	0.96	0.63
Telecommunication Services	66	1.47	-0.42	1.06	0.10	0.16	33	0.62	-0.36	0.26	0.08	0.14	-0.86
Utilities	24	0.36	-0.18	0.18	0.10	0.07	21	0.70	-0.51	0.20	0.06	0.17	-0.99
Turkey													
Consumer Discretionary	313	23.94	-21.70	2.24	-0.14	1.60	681	18.01	-11.57	6.45	-0.06	1.10	0.81
Consumer Staples	139	1.75	-0.60	1.14	0.03	0.16	333	9.61	-7.27	2.34	-0.08	0.54	-3.38 ***
Energy	21	1.58	-0.50	1.08	0.11	0.30	54	32.04	-0.25	31.79	0.89	4.47	1.28
Healthcare	17	0.37	-0.08	0.29	0.05	0.08	34	0.95	-0.61	0.34	-0.01	0.19	-1.43
Industrials	230	7.10	-2.56	4.54	0.06	0.40	573	25.62	-3.34	22.29	0.21	1.59	2.08 **
Information Technology	50	0.65	-0.32	0.34	0.02	0.11	105	18.88	-0.69	18.19	0.25	1.82	1.31
Materials	223	3.01	-2.47	0.55	0.03	0.25	525	24.39	-9.41	14.98	0.05	0.89	0.36
Real Estate	77	24.75	-13.03	11.72	0.19	2.94	180	54.67	-19.47	35.20	1.21	5.01	2.03 **
Telecommunication Services	7	0.12	0.10	0.21	0.17	0.04	20	0.41	-0.11	0.30	0.16	0.10	-0.44
Utilities	26	1.72	-0.38	1.34	0.23	0.43	56	5.03	-2.49	2.54	-0.03	0.73	-2.08 **
Developing countries (I)													
Consumer Discretionary	**25,420**	**101.33**	**-53.06**	**48.27**	**-0.12**	**2.36**	**6,086**	**83.81**	**-44.69**	**39.11**	**-0.07**	**1.62**	**1.80 ***
Consumer Staples	**7,603**	**100.92**	**-51.08**	**49.83**	**-0.01**	**1.73**	**3,282**	**90.35**	**-41.28**	**49.07**	**0.02**	**2.10**	**0.64**
Energy	**5,032**	**76.87**	**-45.70**	**31.17**	**-0.16**	**2.42**	**987**	**105.95**	**-74.16**	**31.79**	**-0.21**	**3.36**	**-0.49**
Healthcare	**6,445**	**86.42**	**-46.42**	**40.00**	**-0.06**	**1.72**	**1,231**	**56.47**	**-50.99**	**5.48**	**-0.20**	**2.62**	**-1.86 ***
Industrials	**20,321**	**98.08**	**-53.43**	**44.65**	**-0.01**	**1.99**	**6,275**	**87.54**	**-50.00**	**37.54**	**-0.10**	**2.53**	**-2.69 ***
Information Technology	**8,868**	**105.01**	**-53.04**	**51.97**	**-0.10**	**2.07**	**1,435**	**79.13**	**-52.44**	**26.68**	**-0.20**	**2.24**	**-1.56**
Materials	**18,819**	**131.43**	**-75.60**	**55.82**	**-0.07**	**2.25**	**5,187**	**100.80**	**-60.02**	**40.77**	**-0.11**	**2.36**	**-1.06**
Real Estate	**7,372**	**103.32**	**-52.23**	**51.09**	**0.17**	**2.98**	**2,403**	**101.28**	**-50.24**	**51.04**	**0.18**	**4.08**	**0.04**
Telecommunication Services	**1,306**	**56.25**	**-38.47**	**17.78**	**-0.11**	**1.66**	**727**	**56.24**	**-22.82**	**33.42**	**-0.01**	**2.10**	**1.10**
Utilities	**5,028**	**93.99**	**-49.85**	**44.14**	**0.10**	**1.78**	**2,008**	**64.38**	**-33.67**	**30.71**	**0.08**	**1.41**	**-0.52**

	Non-Crises						Crises						
	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	Observ.	Range	Minimun	Maximun	Mean	Std. Deviation	T-Stats
Return on Sales (ROS)													
Hong Kong													
Consumer Discretionary	4,034	84.01	-51.28	32.74	-0.33	3.34	950	80.60	-51.52	29.07	-0.46	3.51	-1.02
Consumer Staples	697	93.05	-49.69	43.35	-0.39	4.81	157	33.22	-30.32	2.89	-0.61	3.50	-0.66
Energy	359	56.21	-41.83	14.38	-0.85	4.61	93	35.80	-33.32	2.48	-1.25	5.39	-0.65
Healthcare	503	100.94	-50.07	50.87	-0.58	4.82	114	44.00	-41.35	2.64	-0.90	5.22	-0.60
Industrials	2,344	81.90	-49.14	32.75	-0.44	3.47	535	58.73	-46.83	11.90	-0.34	3.18	0.63
Information Technology	1,905	101.94	-46.74	55.20	-0.31	2.62	437	49.59	-39.99	9.60	-0.47	3.12	-1.01
Materials	968	100.03	-60.47	39.56	-0.72	4.98	229	117.60	-61.57	56.03	-0.90	7.20	-0.35
Real Estate	2,044	109.36	-54.26	55.10	0.41	5.22	535	81.27	-58.82	22.45	-0.10	3.62	-2.61 ***
Telecommunication Services	179	21.04	-17.74	3.30	-0.10	1.52	47	60.24	-59.66	0.58	-1.43	8.72	-1.04
Utilities	342	53.63	-31.63	22.01	-0.23	3.36	75	8.38	-6.82	1.55	-0.07	1.15	0.73
Singapore													
Consumer Discretionary	597	12.88	-9.08	3.80	0.06	0.60	878	33.23	-17.98	15.25	-0.02	1.27	-1.54
Consumer Staples	235	3.59	-2.84	0.75	0.04	0.32	371	31.33	-19.99	11.34	-0.01	1.42	-0.63
Energy	190	27.97	-26.55	1.42	-0.28	2.62	346	34.20	-32.91	1.29	-0.42	3.08	-0.55
Healthcare	86	32.69	-31.35	1.33	-0.63	4.43	146	21.24	-20.37	0.87	-0.36	2.11	0.53
Industrials	1,162	60.88	-33.21	27.67	0.01	1.57	1,865	32.66	-15.22	17.44	0.03	0.78	0.37
Information Technology	546	36.78	-16.69	20.09	-0.01	1.54	878	26.10	-25.16	0.94	-0.18	1.49	-2.12 **
Materials	250	21.52	-5.94	15.58	0.05	1.15	403	51.61	-29.47	22.14	-0.14	2.59	-1.34
Real Estate	353	17.73	-2.78	14.95	0.51	1.41	594	42.95	-19.37	23.58	0.20	1.68	-2.99 ***
Telecommunication Services	47	8.37	-7.73	0.64	-0.22	1.25	72	13.98	-3.03	10.96	0.09	1.48	1.21
Utilities	31	1.90	-1.53	0.37	0.08	0.33	57	9.14	-8.68	0.46	-0.19	1.40	-1.34
Developing countries (II)													
Consumer Discretionary	**4,631**	**84.01**	**-51.28**	**32.74**	**-0.28**	**3.13**	**1,828**	**80.60**	**-51.52**	**29.07**	**-0.25**	**2.69**	**0.44**
Consumer Staples	**932**	**93.05**	**-49.69**	**43.35**	**-0.28**	**4.17**	**528**	**41.66**	**-30.32**	**11.34**	**-0.19**	**2.26**	**0.55**
Energy	**549**	**56.21**	**-41.83**	**14.38**	**-0.65**	**4.04**	**439**	**35.80**	**-33.32**	**2.48**	**-0.60**	**3.70**	**0.24**
Healthcare	**589**	**100.94**	**-50.07**	**50.87**	**-0.59**	**4.76**	**260**	**44.00**	**-41.35**	**2.64**	**-0.60**	**3.80**	**-0.02**
Industrials	**3,506**	**81.90**	**-49.14**	**32.75**	**-0.29**	**2.98**	**2,400**	**64.27**	**-46.83**	**17.44**	**-0.05**	**1.66**	**3.93 *****
Information Technology	**2,451**	**101.94**	**-46.74**	**55.20**	**-0.24**	**2.42**	**1,315**	**49.59**	**-39.99**	**9.60**	**-0.28**	**2.17**	**-0.48**
Materials	**1,218**	**100.03**	**-60.47**	**39.56**	**-0.56**	**4.48**	**632**	**117.60**	**-61.57**	**56.03**	**-0.42**	**4.81**	**0.63**
Real Estate	**2,397**	**109.36**	**-54.26**	**55.10**	**0.42**	**4.85**	**1,129**	**82.40**	**-58.82**	**23.58**	**0.06**	**2.78**	**-2.81 *****
Telecommunication Services	**226**	**21.04**	**-17.74**	**3.30**	**-0.12**	**1.47**	**119**	**70.62**	**-59.66**	**10.96**	**-0.51**	**5.62**	**-0.74**
Utilities	**373**	**53.63**	**-31.63**	**22.01**	**-0.20**	**3.22**	**132**	**10.24**	**-8.68**	**1.55**	**-0.12**	**1.26**	**0.44**
Australia													
Consumer Discretionary	3,266	254.89	-165.21	89.68	-0.54	6.67	313	193.26	-81.37	111.90	-0.66	8.51	-0.23
Consumer Staples	1,226	215.61	-161.11	54.50	-1.69	12.32	159	49.73	-49.45	0.28	-0.51	4.23	2.43 **
Energy	2,798	291.91	-175.16	116.75	-9.59	24.64	242	176.09	-174.71	1.37	-9.59	27.67	-0.00
Healthcare	2,123	270.02	-173.34	96.67	-7.20	20.20	185	177.19	-121.59	55.60	-4.39	13.75	2.55 **
Industrials	4,137	221.00	-166.75	54.25	-1.13	8.44	360	72.47	-68.95	3.52	-1.08	6.51	0.13
Information Technology	1,702	313.36	-170.01	143.35	-4.20	17.50	179	64.58	-64.25	0.33	-1.98	6.46	3.45 ***
Materials	7,619	321.29	-175.62	145.67	-11.43	26.33	639	221.58	-166.12	55.46	-8.07	22.20	3.62 ***
Real Estate	1,498	191.93	-149.52	42.40	-0.48	8.31	152	26.82	-17.35	9.47	-0.15	2.03	1.23
Telecommunication Services	413	163.08	-159.36	3.72	-1.72	10.73	41	108.83	-107.93	0.91	-4.07	16.87	-0.87
Utilities	463	271.02	-168.05	102.96	-4.43	19.16	29	8.63	-7.63	1.00	-0.91	2.22	3.58 ***
Belgium													
Consumer Discretionary	152	11.50	-3.02	8.48	0.02	0.79	203	49.42	-38.22	11.20	-0.13	2.95	-0.68
Consumer Staples	117	5.13	-0.96	4.18	0.14	0.54	174	5.38	-0.96	4.42	0.14	0.56	-0.01
Energy	25	26.95	-0.06	26.89	2.41	5.86	37	27.26	-0.37	26.89	1.11	4.46	-0.94
Healthcare	80	39.11	-13.39	25.73	-0.13	3.60	151	72.97	-47.24	25.73	-1.32	6.01	-1.88 *
Industrials	151	0.89	-0.29	0.60	0.03	0.08	253	15.94	-13.14	2.80	-0.03	0.87	-1.08
Information Technology	116	4.24	-3.70	0.55	-0.07	0.48	195	31.18	-30.45	0.73	-0.19	2.22	-0.76
Materials	175	5.35	-0.37	4.98	0.13	0.43	235	5.58	-0.59	4.98	0.11	0.40	-0.35
Real Estate	105	66.91	-59.93	6.98	-0.39	6.55	236	66.37	-59.93	6.44	-0.06	4.28	0.47
Telecommunication Services	14	1.04	-0.81	0.23	0.02	0.27	21	0.32	-0.09	0.23	0.11	0.07	1.28
Utilities	28	9.42	0.02	9.43	0.56	1.79	41	23.68	-14.24	9.43	-0.23	2.86	-1.42
Canada													
Consumer Discretionary	3,834	239.59	-149.79	89.80	-1.10	8.30	460	91.40	-90.08	1.32	-0.71	5.33	1.39
Consumer Staples	1,531	157.15	-146.51	10.64	-1.37	8.21	195	60.89	-55.71	5.19	-0.68	4.35	1.82 *
Energy	7,687	275.39	-148.59	126.80	-3.24	13.66	963	221.27	-108.27	113.00	-2.70	11.79	1.33
Healthcare	2,035	257.84	-141.69	116.14	-6.99	18.75	272	225.09	-147.30	77.79	-5.35	16.50	1.52
Industrials	4,073	227.36	-139.07	88.29	-1.48	8.28	526	257.30	-147.89	109.41	-1.50	11.65	-0.04
Information Technology	4,551	270.00	-148.55	121.45	-3.59	13.84	520	155.23	-135.87	19.37	-2.52	12.51	1.84 *
Materials	6,736	270.00	-148.37	121.63	-8.45	22.43	682	237.53	-143.91	93.61	-5.20	19.12	4.17 ***
Real Estate	1,791	169.04	-73.64	95.41	-0.03	5.05	236	137.37	-133.60	3.77	-0.94	9.59	-1.44
Telecommunication Services	537	90.62	-63.72	26.90	-1.57	6.31	61	121.47	-120.85	0.62	-5.07	20.49	-1.33
Utilities	951	147.69	-142.20	5.49	-1.24	8.88	128	122.34	-111.35	10.99	-1.75	12.22	-0.46
France													
Consumer Discretionary	2,568	31.27	-16.33	14.94	-0.00	0.77	686	25.84	-20.73	5.12	-0.02	0.88	-0.56
Consumer Staples	1,022	24.48	-10.41	14.07	0.07	0.77	243	17.34	-9.56	7.78	0.01	0.89	-0.94
Energy	254	28.01	-2.87	25.13	0.17	1.64	76	3.80	-3.18	0.62	-0.01	0.42	-1.63
Healthcare	844	32.83	-30.04	2.79	-0.78	2.81	309	26.53	-25.66	0.87	-0.98	2.90	-1.07
Industrials	2,445	177.04	-153.64	23.40	-0.03	3.27	656	23.21	-14.42	8.78	-0.05	0.99	-0.23
Information Technology	2,303	45.12	-29.83	15.28	-0.14	1.36	659	31.91	-22.79	9.12	-0.09	1.10	1.12
Materials	812	50.60	-24.70	25.90	-0.05	1.94	204	9.12	-7.03	2.09	-0.11	0.83	-0.71
Real Estate	807	57.92	-31.23	26.69	0.44	2.29	279	36.20	-15.37	20.83	-0.14	2.37	-3.57 ***
Telecommunication Services	132	2.10	-1.81	0.29	-0.05	0.25	39	0.39	-0.23	0.17	0.03	0.09	3.16 ***
Utilities	191	46.44	-19.48	26.95	0.04	2.46	76	5.73	-3.51	2.22	-0.14	0.75	-0.91
Germany													
Consumer Discretionary	2,208	50.03	-40.91	9.12	-0.09	1.48	922	16.05	-15.00	1.05	-0.17	1.05	-1.72 *
Consumer Staples	565	26.64	-22.35	4.29	-0.07	1.35	260	1.89	-0.75	1.14	0.01	0.13	1.40
Energy	118	25.27	-22.92	2.35	-0.46	2.64	43	36.56	-30.33	6.22	-0.81	4.78	-0.45
Healthcare	896	88.96	-45.29	43.67	-1.01	4.80	362	46.88	-44.67	2.21	-1.44	4.99	-1.38
Industrials	2,440	57.89	-30.37	27.51	-0.00	1.09	1,038	47.34	-31.25	16.08	-0.09	1.50	-1.78 *
Information Technology	2,252	62.12	-46.58	15.54	-0.18	1.87	901	57.15	-42.98	14.17	-0.43	2.69	-2.60 ***
Materials	716	32.47	-29.48	2.99	-0.17	1.86	308	2.84	-1.90	0.94	-0.01	0.24	2.23 **
Real Estate	749	58.65	-18.87	39.78	0.34	2.77	335	64.99	-41.39	23.60	-0.23	4.24	-2.26 **
Telecommunication Services	140	18.68	-17.93	0.75	-0.35	2.30	54	4.31	-3.56	0.75	-0.31	0.79	0.21
Utilities	371	40.48	-0.56	39.91	0.60	4.07	161	38.55	-5.19	33.35	0.26	2.69	-1.11
Ireland													
Consumer Discretionary	83	68.74	-67.99	0.74	-1.37	8.07	140	4.36	-3.56	0.80	-0.06	0.44	1.48
Consumer Staples	81	0.82	-0.54	0.29	0.03	0.10	141	0.85	-0.26	0.59	0.04	0.09	0.39
Energy	37	62.50	-62.06	0.44	-4.48	11.87	57	61.53	-46.52	15.00	-3.27	9.34	0.53
Healthcare	142	68.59	-68.00	0.59	-3.55	11.39	219	59.23	-58.52	0.71	-2.76	10.09	0.67
Industrials	216	7.08	-6.52	0.56	0.01	0.64	347	6.08	-3.57	2.51	0.03	0.29	0.51
Information Technology	93	21.43	-20.76	0.66	-0.70	2.87	129	49.98	-49.23	0.76	-0.84	4.76	-0.27
Materials	61	4.52	-4.29	0.23	-0.21	0.81	102	4.17	-3.68	0.49	-0.10	0.48	0.91
Real Estate	20	8.63	-5.35	3.28	0.23	1.64	28	25.83	-5.28	20.55	0.43	4.26	0.23
Telecommunication Services	20	6.00	-5.82	0.18	-0.68	1.58	26	8.59	-8.40	0.18	-1.00	2.10	-0.59
Utilities	18	73.13	-72.94	0.19	-4.07	18.00	29	5.15	-4.84	0.31	-0.14	0.95	0.93
Italy													
Consumer Discretionary	937	22.40	-17.93	4.47	-0.01	0.67	504	5.50	-3.66	1.84	-0.05	0.34	-1.39
Consumer Staples	157	3.56	-2.65	0.91	0.02	0.26	76	2.99	-2.43	0.56	-0.02	0.32	-0.83
Energy	82	1.00	-0.30	0.69	0.11	0.12	51	1.70	-1.38	0.31	-0.01	0.27	-2.97 ***
Healthcare	156	25.73	-25.49	0.24	-0.83	2.98	91	10.50	-9.92	0.57	-0.64	1.89	0.61
Industrials	793	32.58	-23.25	9.33	-0.05	1.36	459	18.51	-11.92	6.58	-0.14	1.25	-1.19
Information Technology	352	38.39	-37.79	0.61	-0.19	2.19	195	8.72	-5.38	3.34	-0.07	0.60	0.93
Materials	311	4.53	-0.85	3.67	0.06	0.23	122	9.40	-8.54	0.86	-0.13	0.83	-2.47 **
Real Estate	159	28.01	-19.22	8.79	-0.18	2.36	84	68.80	-37.47	31.32	-1.30	6.66	-1.49
Telecommunication Services	74	18.75	-18.54	0.20	-0.92	2.91	39	1.49	-1.33	0.16	-0.12	0.29	2.33 **
Utilities	290	9.49	-3.55	5.94	0.07	0.45	171	8.20	-5.32	2.88	-0.02	0.56	-1.82 *

	Non-Crises						Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	T-Stats
Return on Sales (ROS)													
Japan													
Consumer Discretionary	7,518	5.64	-3.40	2.25	0.01	0.13	10,178	7.78	-3.54	4.25	-0.00	0.17	-5.34 ***
Consumer Staples	2,753	3.10	-0.80	2.30	0.02	0.06	3,693	0.98	-0.76	0.22	0.01	0.04	-3.22 ***
Energy	284	0.32	-0.05	0.28	0.03	0.04	371	0.82	-0.40	0.41	0.01	0.05	-3.42 ***
Healthcare	1,243	5.00	-4.54	0.46	-0.02	0.43	1,626	4.91	-4.17	0.74	-0.02	0.40	0.18
Industrials	9,218	4.74	-2.93	1.82	0.02	0.09	12,631	4.32	-2.81	1.51	0.01	0.10	-7.96 ***
Information Technology	5,127	7.17	-3.66	3.51	0.01	0.20	6,677	7.94	-4.55	3.39	-0.00	0.21	-3.43 ***
Materials	3,230	1.50	-1.14	0.36	0.02	0.06	4,454	5.49	-3.89	1.60	0.01	0.10	-7.66 ***
Real Estate	1,020	5.93	-3.22	2.71	0.10	0.28	1,235	6.41	-3.80	2.61	0.05	0.31	-4.24 ***
Telecommunication Services	89	4.20	-3.13	1.07	-0.00	0.39	114	4.40	-4.13	0.27	-0.04	0.43	-0.72
Utilities	246	1.78	-1.14	0.64	0.02	0.11	340	1.03	-0.93	0.10	0.02	0.07	0.75
Netherlands													
Consumer Discretionary	361	24.13	-23.08	1.06	-0.15	1.60	300	19.25	-11.20	8.06	-0.18	1.29	-0.26
Consumer Staples	166	0.57	-0.18	0.39	0.06	0.06	147	0.80	-0.41	0.40	0.05	0.09	-0.50
Energy	109	3.96	-2.81	1.16	0.09	0.36	95	4.13	-3.54	0.59	0.06	0.43	-0.52
Healthcare	142	26.01	-24.81	1.20	-1.01	3.49	125	23.72	-23.39	0.32	-0.93	3.62	0.19
Industrials	701	2.63	-1.64	1.00	0.03	0.13	568	5.28	-4.36	0.92	0.00	0.26	-2.36 **
Information Technology	381	23.62	-15.86	7.75	-0.11	1.31	291	22.23	-19.30	2.93	-0.27	1.72	-1.34
Materials	162	2.06	-1.14	0.92	0.05	0.14	116	0.82	-0.35	0.47	0.03	0.09	-1.48
Real Estate	157	11.83	-8.07	3.76	0.40	1.16	131	26.22	-4.24	21.99	0.32	2.05	-0.42
Telecommunication Services	65	9.26	-8.74	0.53	-0.29	1.25	55	7.38	-7.09	0.28	-0.40	1.28	-0.48
Utilities	28	1.98	-1.62	0.37	0.06	0.36	21	1.97	-1.67	0.31	-0.01	0.40	-0.67
Norway													
Consumer Discretionary	240	42.29	-12.63	29.66	2.12	5.34	175	67.73	-30.50	37.23	1.33	5.97	-1.40
Consumer Staples	176	25.47	-15.94	9.54	0.25	1.94	139	53.43	-42.51	10.92	-0.52	4.63	-1.82 *
Energy	273	216.81	-93.25	123.55	5.04	21.66	236	181.62	-113.28	68.34	-1.74	25.97	-3.17 ***
Healthcare	62	155.66	-61.66	93.99	-0.17	21.63	43	114.35	-91.76	22.59	-4.58	15.21	-1.23
Industrials	487	221.89	-123.06	98.84	2.04	16.00	361	166.11	-84.11	82.00	0.55	13.72	-1.46
Information Technology	301	247.22	-127.70	119.52	0.64	24.73	233	208.71	-80.47	128.24	0.22	20.41	-0.21
Materials	135	30.39	-25.93	4.45	-0.03	2.55	102	18.65	-17.16	1.49	-0.60	2.79	-1.61
Real Estate	32	76.99	-5.88	71.11	5.06	13.43	33	108.22	-94.64	13.59	-4.33	20.58	-2.19 **
Telecommunication Services	30	157.42	-71.82	85.60	5.85	23.44	23	57.30	-14.45	42.86	12.13	14.29	1.20
Utilities	34	157.84	-23.92	133.92	31.37	44.11	23	80.38	-14.91	65.47	10.48	20.34	-2.41 **
Poland													
Consumer Discretionary	867	94.51	-68.77	25.75	-0.45	4.26	663	30.33	-28.37	1.96	-0.18	1.48	1.72 *
Consumer Staples	281	5.62	-1.98	3.65	0.02	0.31	398	6.12	-5.90	0.23	-0.01	0.38	-0.88
Energy	58	42.70	-31.68	11.02	-0.64	4.80	289	12.29	-10.52	1.77	-0.10	0.90	0.85
Healthcare	203	31.25	-30.25	1.00	-0.75	3.43	328	52.23	-50.87	1.36	-0.29	3.20	1.52
Industrials	1,133	89.11	-48.16	40.95	-0.06	3.00	1,296	82.64	-51.77	30.87	-0.13	2.25	-0.57
Information Technology	638	62.20	-55.82	6.38	-0.48	3.76	634	52.97	-48.78	4.20	-0.26	2.43	1.25
Materials	353	69.38	-68.61	0.77	-0.22	3.68	959	10.87	-10.12	0.74	0.03	0.34	1.28
Real Estate	185	75.90	-15.80	60.11	0.42	5.88	280	36.39	-21.00	15.40	-0.26	2.14	-1.50
Telecommunication Services	105	8.06	-5.21	2.85	-0.02	0.75	131	8.70	-3.16	5.53	-0.00	0.99	0.18
Utilities	119	91.30	-43.69	47.62	-0.47	6.52	130	31.92	-23.92	8.00	-0.29	3.21	0.27
Spain													
Consumer Discretionary	352	4.38	-2.04	2.34	0.08	0.26	173	8.82	-8.00	0.81	-0.08	0.71	-2.79 ***
Consumer Staples	279	3.10	-2.62	0.48	0.04	0.22	112	1.28	-0.73	0.54	0.03	0.16	-0.56
Energy	106	0.89	-0.25	0.64	0.09	0.10	54	0.94	-0.60	0.34	0.08	0.17	-0.41
Healthcare	118	3.72	-3.18	0.54	0.04	0.34	98	4.69	-1.78	2.91	0.00	0.48	-0.68
Industrials	582	13.52	-2.07	11.45	0.14	0.78	277	35.69	-15.47	20.22	0.15	2.25	0.12
Information Technology	100	3.76	-3.23	0.53	-0.11	0.58	68	2.53	-2.27	0.26	-0.09	0.34	0.39
Materials	363	33.81	-8.22	25.58	0.11	1.52	146	13.91	-13.37	0.54	-0.13	1.15	-1.96 *
Real Estate	433	52.52	-25.93	26.58	0.25	2.65	178	33.50	-23.68	9.82	-1.23	3.94	-4.60 ***
Telecommunication Services	46	10.81	-10.54	0.27	-0.42	1.67	36	1.20	-0.98	0.22	0.01	0.20	1.73 *
Utilities	172	0.85	0.01	0.85	0.12	0.10	87	2.87	-2.50	0.37	0.03	0.40	-2.14 **
Sweden													
Consumer Discretionary	994	49.06	-20.86	28.21	-0.21	1.98	316	66.38	-65.64	0.74	-0.44	4.02	-0.95
Consumer Staples	274	15.45	-8.19	7.26	-0.21	1.13	78	10.32	-9.97	0.35	-0.39	1.57	-0.93
Energy	153	91.13	-68.64	22.49	-1.95	8.08	39	56.43	-56.05	0.38	-2.37	9.24	-0.26
Healthcare	948	93.48	-74.63	18.86	-3.09	9.02	284	75.65	-74.16	1.50	-3.14	9.60	-0.08
Industrials	1,586	82.44	-69.30	13.14	-0.40	3.19	582	33.73	-19.08	14.65	-0.17	1.54	2.28 **
Information Technology	1,448	102.00	-76.11	25.89	-0.92	4.90	450	37.65	-36.41	1.23	-1.14	3.80	-1.01
Materials	410	89.33	-55.62	33.71	-1.69	6.63	189	51.32	-48.41	2.91	-1.24	6.19	0.81
Real Estate	377	55.14	-42.42	12.72	0.35	2.57	126	54.51	-50.15	4.36	-0.60	4.65	-2.18 **
Telecommunication Services	123	96.12	-62.12	34.00	-1.19	7.15	44	57.00	-56.79	0.21	-2.58	9.61	-0.88
Utilities	78	0.72	-0.48	0.24	0.05	0.12	39	0.92	-0.35	0.57	0.09	0.14	1.48
Switzerland													
Consumer Discretionary	504	44.56	-42.02	2.54	-0.22	2.70	231	11.77	-11.25	0.53	-0.05	0.98	1.23
Consumer Staples	242	0.76	-0.30	0.46	0.05	0.06	103	0.52	-0.34	0.18	0.03	0.05	-2.71 ***
Energy	75	33.41	-23.66	9.75	-0.82	4.49	29	52.91	-47.69	5.22	-1.24	9.01	-0.24
Healthcare	331	61.59	-60.22	1.37	-1.68	7.44	128	12.29	-11.99	0.30	-0.51	2.09	2.61 ***
Industrials	956	4.76	-4.28	0.48	0.03	0.24	512	7.51	-4.46	3.05	0.01	0.27	-1.04
Information Technology	459	57.09	-54.61	2.47	-0.70	4.36	180	16.80	-14.20	2.60	-0.27	1.56	1.84 *
Materials	348	46.35	-44.00	2.35	-0.42	3.51	148	12.16	-1.31	10.85	0.12	0.91	2.64 ***
Real Estate	222	71.04	-14.57	56.47	0.48	4.02	82	11.27	-5.31	5.96	0.20	1.09	-0.93
Telecommunication Services	25	4.78	-3.85	0.93	-0.06	0.83	8	0.94	-0.58	0.36	0.11	0.29	0.89
Utilities	175	7.91	-4.21	3.70	0.10	0.61	81	36.99	-35.77	1.22	-0.30	4.00	-0.89
UK													
Consumer Discretionary	6,135	107.08	-69.57	37.51	-0.27	2.85	1,913	85.10	-45.32	39.78	-0.15	2.35	1.86 *
Consumer Staples	1,501	84.39	-60.91	23.48	-0.20	2.96	447	34.86	-32.67	2.19	-0.27	3.07	-0.41
Energy	881	83.03	-58.53	24.50	-1.66	7.07	449	80.03	-57.87	22.16	-1.73	6.97	-0.18
Healthcare	1,459	80.70	-71.25	9.45	-2.30	7.80	521	71.53	-61.39	10.14	-1.61	6.88	1.90 *
Industrials	5,268	76.74	-67.85	8.89	-0.32	3.31	1,808	130.39	-67.81	62.58	-0.31	3.63	0.16
Information Technology	3,639	93.91	-65.41	28.50	-0.84	4.19	1,169	97.16	-65.52	31.64	-0.50	3.65	2.68 ***
Materials	1,580	126.29	-66.57	59.72	-1.01	6.28	600	128.65	-66.10	62.54	-1.47	7.40	-1.36
Real Estate	1,204	41.39	-26.30	15.09	0.13	1.81	396	79.98	-34.96	45.01	-0.49	4.72	-2.55 **
Telecommunication Services	344	55.84	-33.98	21.85	-0.77	3.61	118	47.02	-19.54	27.48	0.22	4.14	2.32 **
Utilities	603	56.88	-44.55	12.32	-0.16	2.91	232	32.94	-31.15	1.79	-0.04	2.14	0.64
US													
Consumer Discretionary	20,752	171.95	-92.04	79.92	-0.62	4.84	7,829	124.96	-89.92	35.05	-0.75	4.97	-1.99 **
Consumer Staples	5,539	148.35	-92.12	56.23	-0.73	5.13	2,209	120.86	-92.05	28.81	-0.72	6.01	-2.00 **
Energy	6,967	160.10	-89.21	70.89	-1.01	6.29	3,503	174.11	-91.87	82.24	-1.50	8.56	-2.97 ***
Healthcare	14,753	163.58	-92.14	71.44	-3.07	10.13	6,311	166.57	-92.21	74.36	-3.19	10.58	-0.77
Industrials	17,094	132.39	-92.05	40.34	-0.75	5.36	6,618	136.90	-92.09	44.81	-0.83	5.43	-0.93
Information Technology	23,371	170.93	-92.22	78.72	-1.43	6.58	9,148	168.59	-91.40	77.19	-1.35	6.74	1.00
Materials	6,424	139.83	-92.11	47.72	-1.24	6.97	2,461	153.21	-88.90	64.31	-1.36	7.76	-0.63
Real Estate	21	4.00	-3.64	0.35	-0.38	0.84	8	0.68	-0.64	0.04	-0.28	0.22	0.47
Telecommunication Services	2,520	150.86	-91.44	59.42	-1.78	7.55	857	132.67	-89.87	42.80	-1.10	6.28	2.58 **
Utilities	4,755	92.32	-84.64	7.69	-0.21	3.56	2,105	106.33	-87.72	18.61	-0.43	4.56	-1.99 **
Developed countries													
Consumer Discretionary	50,771	255.01	-165.21	89.80	-0.41	4.43	25,006	201.98	-90.08	111.90	-0.28	3.23	4.63 ***
Consumer Staples	15,910	217.34	-161.11	56.23	-0.53	5.35	8,574	120.86	-92.05	28.81	-0.30	3.34	4.03 ***
Energy	19,907	301.96	-175.16	126.80	-2.98	13.77	6,534	287.72	-174.71	113.00	-1.79	10.97	7.16 ***
Healthcare	25,535	289.49	-173.34	116.14	-3.30	11.63	11,053	225.09	-147.30	77.79	-2.38	9.22	8.02 ***
Industrials	51,280	265.59	-166.75	98.84	-0.48	5.07	28,292	257.30	-147.89	109.41	-0.26	3.72	7.16 ***
Information Technology	46,833	313.36	-170.01	143.35	-1.34	7.70	21,628	264.11	-135.87	128.24	-0.74	5.48	11.63 ***
Materials	29,435	321.29	-175.62	145.67	-5.25	18.20	11,467	259.73	-166.12	93.61	-1.23	8.37	31.13 ***
Real Estate	8,780	244.93	-149.52	95.41	0.08	4.66	3,819	178.61	-133.60	45.01	-0.28	4.26	-4.15 ***
Telecommunication Services	4,677	244.96	-159.36	85.60	-1.38	7.22	1,667	163.71	-120.85	42.86	-0.78	7.23	2.92 ***
Utilities	8,522	301.97	-168.05	133.92	-0.36	7.14	3,693	176.82	-111.35	65.47	-0.26	4.67	0.92
Overall													
Consumer Discretionary	80,822	255.01	-165.21	89.80	-0.31	3.75	32,920	201.98	-90.08	111.90	-0.24	2.97	3.43 ***
Consumer Staples	24,445	217.34	-161.11	56.23	-0.36	4.43	12,384	141.12	-92.05	49.07	-0.21	3.02	3.66 ***
Energy	25,488	301.96	-175.16	126.80	-2.37	12.27	7,960	287.72	-174.71	113.00	-1.53	10.06	6.22 ***
Healthcare	32,569	289.49	-173.34	116.14	-2.61	10.41	12,544	225.09	-147.30	77.79	-2.13	8.74	4.89 ***
Industrials	75,107	265.59	-166.75	98.84	-0.35	4.32	36,967	257.30	-147.89	109.41	-0.22	3.44	5.36 ***
Information Technology	58,152	313.36	-170.01	143.35	-1.10	6.97	24,378	264.11	-135.87	128.24	-0.68	5.22	9.52 ***
Materials	49,472	321.29	-175.62	145.67	-3.16	14.33	17,286	259.73	-166.12	93.61	-0.81	7.02	28.13 ***
Real Estate	18,549	244.93	-149.52	95.41	0.16	3.73	7,351	184.64	-133.60	51.04	-0.08	4.01	-4.36 ***
Telecommunication Services	6,209	244.96	-159.36	85.60	-1.07	6.33	2,513	163.71	-120.85	42.86	-0.54	6.13	3.58 ***
Utilities	13,923	301.97	-168.05	133.92	-0.19	5.70	5,833	176.82	-111.35	65.47	-0.14	3.81	0.72

* - significant at 10%, ** - significant at 5%, and *** - significant at 1%

APPENDIX F.4

	Non-Crises						Crises						
Free Cash Flow (FCF)	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	T-Stats
Consumer Discretionary	1,707	112.85	-54.70	58.15	-0.31	5.90	1,293	120.71	-53.93	66.78	-0.40	6.44	-0.41
Consumer Staples	761	123.76	-56.98	66.78	0.04	6.25	593	111.39	-60.81	50.58	-0.04	6.48	-0.24
Energy	196	80.26	-51.00	29.26	-0.37	7.14	141	63.14	-49.88	13.26	-1.26	6.91	-1.14
Healthcare	367	108.22	-43.87	64.35	0.28	7.60	319	103.49	-58.77	44.72	-0.38	7.31	-1.15
Industrials	2,119	129.82	-66.45	63.37	-0.25	6.74	1,734	125.77	-64.34	61.43	-0.22	7.13	0.12
Information Technology	325	68.07	-36.49	31.59	0.23	5.46	283	97.68	-40.79	56.89	-0.29	5.78	-1.13
Materials	973	102.69	-59.31	43.38	-0.06	5.54	816	124.92	-64.00	60.92	-0.45	6.36	-1.36
Real Estate	806	121.56	-56.35	65.20	0.26	8.05	730	129.35	-63.68	65.67	-0.35	7.62	-1.51
Telecommunication Services	232	94.49	-66.49	28.01	0.17	5.61	200	77.19	-34.29	42.90	-0.11	5.65	-0.51
Utilities	1,272	115.87	-52.49	63.39	0.30	7.02	861	124.29	-58.27	66.02	-0.18	6.89	-1.57
Chile													
Consumer Discretionary	333	53.57	-33.43	20.14	-0.39	4.36	353	71.45	-38.55	32.90	-0.19	4.91	0.56
Consumer Staples	351	69.07	-34.25	34.82	0.04	4.15	344	67.20	-28.69	38.51	-0.28	4.70	-0.94
Energy	49	15.00	-12.15	2.85	-0.14	1.91	45	28.45	-23.72	4.73	-0.53	4.21	-0.58
Healthcare	40	14.69	-11.23	3.47	-0.24	2.11	41	3.80	-1.24	2.56	0.22	0.73	1.29
Industrials	573	67.88	-38.72	29.17	-0.18	3.59	592	63.34	-35.91	27.43	-0.01	4.29	0.70
Information Technology	12	3.90	-1.55	2.35	0.25	1.11	12	5.56	-3.38	2.18	-0.13	1.31	-0.77
Materials	287	47.62	-7.90	39.72	0.63	3.60	285	53.43	-39.02	14.42	-0.16	3.05	-2.83 ***
Real Estate	137	41.90	-13.59	28.30	0.29	3.66	147	42.04	-15.83	26.21	-0.00	4.02	-0.64
Telecommunication Services	144	61.57	-21.57	40.00	0.52	6.82	148	49.13	-33.14	15.99	-0.65	4.02	-1.79 *
Utilities	391	41.62	-7.57	34.05	0.26	2.47	388	50.72	-17.20	33.52	0.22	2.71	-0.22
China													
Consumer Discretionary	6,391	124.16	-60.85	63.31	-0.19	5.83	5	3.93	-2.06	1.88	0.03	1.54	0.31
Consumer Staples	2,610	121.23	-60.19	61.04	-0.33	5.93	4	2.11	0.00	2.11	1.42	0.63	5.24 ***
Energy	1,073	105.44	-52.93	52.50	0.05	5.41	2	0.65	0.00	0.65	0.47	0.25	1.74 *
Healthcare	2,698	103.94	-42.07	61.86	0.05	4.73	4	0.59	-0.32	0.27	-0.06	0.26	-0.73
Industrials	7,714	129.82	-64.57	65.25	-0.17	6.27	13	15.41	-4.30	11.11	0.99	4.14	1.01
Information Technology	4,940	113.40	-60.88	52.52	-0.16	5.66	11	20.15	-6.47	13.68	0.02	5.23	0.12
Materials	5,997	125.51	-61.93	63.59	-0.23	5.77	8	12.33	-10.38	1.95	-2.75	4.62	-1.54
Real Estate	2,595	120.08	-61.55	58.52	-0.95	7.07	9	24.35	-10.36	13.98	0.22	6.28	0.56
Telecommunication Services	97	59.03	-27.20	31.83	-0.28	4.87	0	0.00	0.00	0.00			
Utilities	1,238	119.45	-56.95	62.50	0.42	5.07	2	1.24	0.00	1.24	0.98	0.38	1.82 *
India													
Consumer Discretionary	10,425	156.75	-77.61	79.14	-0.38	7.73	1,117	139.81	-64.71	75.10	-0.49	6.72	-0.53
Consumer Staples	988	149.39	-71.76	77.63	-0.48	7.43	390	151.76	-77.76	74.00	0.19	9.32	1.25
Energy	2,705	111.60	-54.48	57.13	-0.21	8.05	67	35.33	-15.54	19.80	-0.27	4.78	-0.10
Healthcare	1,851	148.52	-78.86	69.67	-0.15	7.60	263	99.64	-39.25	60.38	-0.05	5.92	0.24
Industrials	3,277	154.19	-77.07	77.12	-0.54	7.43	885	147.35	-81.08	66.26	-0.67	7.84	-0.42
Information Technology	1,453	156.44	-77.18	79.26	-0.57	8.26	352	142.50	-68.08	74.43	-0.44	9.25	0.23
Materials	7,816	160.60	-80.53	80.07	-0.27	7.14	986	114.54	-63.30	51.24	-0.48	5.60	-1.03
Real Estate	1,255	159.66	-80.11	79.55	-1.04	10.52	209	132.69	-70.77	61.92	-0.92	11.22	0.14
Telecommunication Services	355	86.38	-59.38	27.00	-0.67	7.22	16	9.65	-8.04	1.61	-0.42	2.21	0.38
Utilities	408	138.47	-75.76	62.71	-0.41	7.76	48	54.07	-45.70	8.37	-1.18	7.07	-0.71
Indonesia													
Consumer Discretionary	484	96.28	-58.87	37.41	-0.16	5.43	718	110.84	-59.29	51.55	-0.43	6.94	-0.77
Consumer Staples	350	102.85	-44.78	58.07	0.03	6.30	518	94.47	-41.03	53.45	-0.10	4.99	-0.33
Energy	209	63.47	-40.55	22.92	-0.37	5.06	263	109.32	-60.00	49.32	-0.42	8.27	-0.08
Healthcare	80	72.06	-51.47	20.60	-1.10	8.22	136	76.55	-25.45	51.10	0.34	6.51	1.35
Industrials	391	89.03	-48.75	40.27	-0.10	6.26	560	87.14	-44.55	42.59	-0.06	5.67	0.11
Information Technology	43	64.60	-50.71	13.89	-0.99	8.88	61	96.09	-34.06	62.03	2.75	13.44	1.71 *
Materials	370	95.14	-54.79	40.35	-0.76	6.26	607	88.24	-43.82	44.42	-0.08	6.32	1.64
Real Estate	235	94.66	-59.96	34.70	0.00	7.49	344	106.32	-53.70	52.61	-0.37	7.59	-0.59
Telecommunication Services	51	20.18	-7.12	13.06	0.51	2.68	71	17.87	-10.40	7.47	-0.21	2.32	-1.55
Utilities	20	3.45	-0.87	2.57	0.45	0.80	24	21.43	-6.21	15.22	0.33	3.55	-0.17
Mexico													
Consumer Discretionary	390	36.55	-21.55	15.01	-0.36	2.98	213	31.23	-20.39	10.84	-0.36	3.28	0.01
Consumer Staples	336	35.91	-15.77	20.13	-0.05	2.97	199	20.22	-11.29	8.92	-0.03	1.92	0.07
Energy	27	25.61	-19.79	5.82	-0.87	4.19	12	4.44	-3.31	1.13	-0.43	1.16	0.51
Healthcare	35	24.01	-18.47	5.54	-1.21	4.14	18	6.46	-2.29	4.17	-0.01	1.44	1.55
Industrials	289	34.84	-15.47	19.37	0.08	2.72	143	19.36	-14.40	4.96	-0.34	2.14	-1.73 *
Information Technology	10	15.02	-1.37	13.65	1.89	4.77	9	15.38	-4.69	10.69	-0.37	4.38	-1.08
Materials	265	29.44	-12.06	17.37	0.28	2.35	159	35.49	-13.59	21.89	0.25	3.15	-0.08
Real Estate	44	17.50	-3.72	13.77	-0.52	2.57	8	18.56	-12.22	6.35	-1.09	5.13	-0.31
Telecommunication Services	72	6.70	-3.78	2.92	0.07	0.83	57	9.04	-6.62	2.42	-0.06	1.27	-0.68
Utilities	20	8.86	-5.42	3.44	-0.08	1.74	8	1.23	-0.86	0.37	-0.28	0.34	-0.49
Russia													
Consumer Discretionary	150	86.49	-60.00	26.50	-1.34	8.64	67	34.20	-23.03	11.16	-0.54	3.72	0.95
Consumer Staples	174	58.13	-46.77	11.36	-0.28	4.52	92	83.70	-59.45	24.25	-0.67	7.80	-0.44
Energy	314	93.25	-45.03	48.22	0.56	4.77	177	41.48	-17.74	23.74	0.27	3.98	-0.70
Healthcare	40	51.74	-16.69	35.05	1.82	8.56	19	19.48	-4.93	14.55	0.67	3.91	-0.71
Industrials	414	131.52	-67.84	63.68	-0.40	7.96	195	91.30	-48.26	43.04	-0.56	6.64	-0.27
Information Technology	42	39.97	-30.68	9.29	-1.11	8.05	21	38.15	-22.13	16.01	-0.66	6.32	0.26
Materials	490	104.27	-27.57	76.70	0.35	6.00	222	94.68	-76.50	18.18	-0.91	8.06	-2.09 **
Real Estate	43	51.04	-33.04	18.00	-3.31	8.89	13	11.51	-2.61	8.89	0.34	2.86	2.32 **
Telecommunication Services	109	27.22	-23.44	3.78	0.10	2.37	77	16.99	-1.34	15.64	0.71	2.26	1.80 *
Utilities	490	94.88	-51.13	43.76	-0.43	5.97	226	119.44	-74.06	45.38	0.10	10.26	0.73
South Africa													
Consumer Discretionary	644	36.66	-26.07	10.59	-0.09	2.69	249	59.74	-25.57	34.17	0.11	3.96	0.72
Consumer Staples	327	70.59	-29.11	41.48	0.33	4.46	146	43.08	-23.05	20.03	0.10	4.29	-0.55
Energy	87	98.15	-49.05	49.11	0.35	12.62	45	37.14	-23.44	13.70	-0.42	4.73	-0.50
Healthcare	67	34.00	-10.70	23.31	0.44	4.26	33	5.09	-2.81	2.27	-0.05	0.96	-0.90
Industrials	694	79.81	-34.69	45.11	-0.00	4.80	287	56.74	-15.38	41.35	0.40	4.86	1.21
Information Technology	362	77.57	-42.18	35.39	-0.03	5.80	133	65.93	-48.26	17.66	-1.22	6.43	-1.88 *
Materials	790	82.98	-29.81	53.17	0.33	5.71	366	77.63	-47.78	29.84	-0.15	4.58	-1.55
Real Estate	259	64.85	-24.18	40.67	0.57	5.87	105	48.13	-35.13	13.00	-1.63	6.51	-3.00 ***
Telecommunication Services	62	19.20	-14.24	4.95	-0.12	2.10	28	11.26	-2.18	9.09	0.81	2.06	1.98 **
Utilities	23	8.65	-7.15	1.49	-0.08	1.60	14	7.78	-1.14	6.64	0.36	1.84	0.75
Turkey													
Consumer Discretionary	139	98.96	-70.13	28.83	-1.53	8.86	515	125.69	-73.54	52.15	-0.84	8.17	0.82
Consumer Staples	98	26.40	-19.70	6.69	-0.69	2.83	264	114.46	-45.62	68.85	-0.67	7.57	0.04
Energy	15	44.21	-42.66	1.55	-2.73	11.08	42	34.68	-26.53	8.15	-1.47	5.49	0.42
Healthcare	10	10.30	-8.02	2.27	-1.47	3.14	32	47.62	-37.51	10.11	-1.31	7.24	0.10
Industrials	130	69.97	-45.11	24.86	-0.86	5.49	437	131.65	-49.12	82.53	-0.30	9.30	0.85
Information Technology	25	12.11	-5.21	6.90	-1.30	2.40	75	53.02	-40.63	12.39	-1.43	5.81	-0.16
Materials	121	68.11	-34.17	33.94	-0.16	5.65	399	98.66	-35.72	62.95	0.46	6.43	1.03
Real Estate	42	63.32	-30.33	32.99	-0.13	8.39	151	103.52	-80.51	23.01	-1.59	9.53	-0.97
Telecommunication Services	7	1.22	-0.44	0.78	0.09	0.42	18	43.72	-24.28	19.44	-0.00	7.56	-0.05
Utilities	18	26.32	-22.41	3.90	-0.89	5.67	49	53.77	-5.97	47.80	0.95	7.12	1.09
Developing countries (I)													
Consumer Discretionary	20,663	156.75	-77.61	79.14	-0.31	6.75	4,530	148.64	-73.54	75.10	-0.43	6.45	-1.14
Consumer Staples	5,995	149.39	-71.76	77.63	-0.22	5.91	2,550	151.76	-77.76	74.00	-0.13	6.37	0.60
Energy	4,675	111.60	-54.48	57.13	-0.11	7.22	794	109.32	-60.00	49.32	-0.46	6.37	-1.39
Healthcare	5,188	148.52	-78.86	69.67	-0.01	6.19	865	119.15	-58.77	60.38	-0.13	6.27	-0.48
Industrials	15,601	154.19	-77.07	77.12	-0.26	6.43	4,846	163.61	-81.08	82.53	-0.24	6.82	0.13
Information Technology	7,212	156.44	-77.18	79.26	-0.23	6.29	957	142.50	-68.08	74.43	-0.37	7.94	-0.54
Materials	17,109	160.60	-80.53	80.07	-0.18	6.36	3,848	139.45	-76.50	62.95	-0.25	5.84	-0.66
Real Estate	5,416	159.66	-80.11	79.55	-0.65	8.06	1,716	146.18	-80.51	65.67	-0.58	8.00	0.35
Telecommunication Services	1,129	106.48	-66.49	40.00	-0.10	5.66	615	77.19	-34.29	42.90	-0.11	4.21	-0.01
Utilities	3,880	139.14	-75.76	63.39	0.16	5.99	1,620	140.08	-74.06	66.02	-0.03	6.70	-0.98

	Non-Crises					Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	T-Stats
Free Cash Flow (FCF)													
Hong Kong													
Consumer Discretionary	3,630	104.39	-54.61	49.78	-0.29	5.17	806	107.01	-54.50	52.50	-0.14	5.66	0.70
Consumer Staples	618	102.43	-47.97	54.45	0.14	6.09	130	22.50	-6.28	16.22	0.14	2.61	0.01
Energy	351	82.07	-33.45	48.62	-0.34	6.25	83	34.07	-12.35	21.72	-0.33	3.75	0.02
Healthcare	451	55.69	-31.67	24.02	-0.29	3.85	94	74.08	-47.31	26.77	-0.08	6.73	0.30
Industrials	2,084	107.26	-52.85	54.41	-0.20	5.88	462	86.14	-40.76	45.38	0.03	5.98	0.75
Information Technology	1,723	101.15	-48.09	53.06	-0.27	5.68	361	98.20	-47.50	50.70	-0.68	6.13	-1.18
Materials	913	96.95	-42.76	54.20	-0.33	6.10	200	69.95	-48.44	21.50	-0.91	5.46	-1.32
Real Estate	1,793	107.31	-53.22	54.09	-0.56	5.71	459	74.77	-31.90	42.87	-0.08	4.33	1.98 **
Telecommunication Services	159	60.33	-33.15	27.18	0.01	5.56	37	6.44	-4.84	1.60	-0.24	1.05	-0.54
Utilities	299	62.23	-33.79	28.43	-0.25	4.13	67	74.16	-26.88	47.28	0.96	8.48	1.14
Singapore													
Consumer Discretionary	439	90.52	-39.14	51.38	0.00	5.86	749	84.89	-41.93	42.96	-0.13	4.69	-0.42
Consumer Staples	179	89.51	-50.14	39.36	-0.10	6.34	317	84.58	-33.19	51.39	-0.31	5.64	-0.37
Energy	156	80.07	-30.34	49.73	-1.26	6.94	291	78.15	-33.18	44.97	-0.01	6.14	1.90 *
Healthcare	69	21.64	-11.74	9.90	-0.11	2.53	119	22.92	-12.64	10.28	-0.28	2.21	-0.44
Industrials	879	73.45	-42.91	30.54	-0.37	4.16	1,604	99.87	-53.73	46.15	-0.22	4.84	0.82
Information Technology	442	64.93	-37.34	27.58	-0.26	4.58	766	106.69	-52.78	53.92	-0.30	5.98	-0.12
Materials	194	50.18	-21.23	28.96	-0.35	4.48	355	102.62	-51.10	51.52	-0.63	6.59	-0.59
Real Estate	244	84.98	-52.78	32.20	-0.34	6.24	492	101.26	-55.11	46.15	-0.57	5.65	-0.49
Telecommunication Services	39	13.48	-8.44	5.04	-0.10	2.35	68	37.08	-6.67	30.42	0.32	4.05	0.68
Utilities	24	34.10	-27.27	6.83	-1.17	5.99	49	17.09	-10.36	6.74	-0.42	2.43	0.59
Developing countries (II)													
Consumer Discretionary	4,069	105.99	-54.61	51.38	-0.26	5.25	1,555	107.01	-54.50	52.50	-0.14	5.21	0.79
Consumer Staples	797	104.60	-50.14	54.45	0.08	6.14	447	84.58	-33.19	51.39	-0.18	4.95	-0.82
Energy	507	83.18	-33.45	49.73	-0.63	6.48	374	78.15	-33.18	44.97	-0.08	5.70	1.33
Healthcare	520	55.69	-31.67	24.02	-0.27	3.70	213	74.08	-47.31	26.77	-0.19	4.76	0.22
Industrials	2,963	107.26	-52.85	54.41	-0.25	5.43	2,066	99.87	-53.73	46.15	-0.17	5.12	0.59
Information Technology	2,165	101.15	-48.09	53.06	-0.27	5.47	1,127	106.69	-52.78	53.92	-0.42	6.03	-0.72
Materials	1,107	96.95	-42.76	54.20	-0.33	5.84	555	102.62	-51.10	51.52	-0.73	6.21	-1.24
Real Estate	2,037	107.31	-53.22	54.09	-0.54	5.78	951	101.26	-55.11	46.15	-0.34	5.06	0.96
Telecommunication Services	198	60.33	-33.15	27.18	-0.01	5.08	105	37.08	-6.67	30.42	0.12	3.32	0.27
Utilities	323	62.23	-33.79	28.43	-0.32	4.29	116	74.16	-26.88	47.28	0.38	6.64	1.06
Australia													
Consumer Discretionary	2,838	104.45	-51.05	53.40	-0.11	4.64	249	47.84	-12.19	35.65	0.37	4.27	1.72 *
Consumer Staples	1,088	90.89	-42.54	48.35	0.07	5.57	115	30.50	-19.88	10.62	-0.23	3.19	-0.89
Energy	2,955	107.23	-51.93	55.31	0.52	4.75	203	53.49	-27.48	26.01	0.15	4.00	-1.26
Healthcare	2,009	106.04	-48.69	57.35	0.12	4.34	155	51.87	-14.58	37.30	0.60	4.56	1.25
Industrials	3,660	104.51	-52.42	52.09	-0.08	4.56	268	52.31	-13.10	39.21	0.03	3.75	0.46
Information Technology	1,581	99.87	-46.92	52.95	0.19	5.48	137	48.72	-14.97	33.74	0.89	5.29	1.48
Materials	8,615	105.69	-49.92	55.77	0.48	4.66	521	50.93	-21.60	29.33	0.14	3.77	-1.99 **
Real Estate	1,353	105.35	-49.36	55.99	-0.42	5.36	116	19.02	-10.26	8.77	-0.31	2.22	0.42
Telecommunication Services	379	66.21	-33.59	32.62	0.58	4.67	33	12.75	-1.92	10.82	0.55	2.41	-0.05
Utilities	451	80.90	-25.00	55.90	0.17	4.82	24	43.25	-39.03	4.22	-1.95	8.30	-1.24
Belgium													
Consumer Discretionary	101	28.04	-4.62	23.43	0.34	2.75	125	22.81	-14.44	8.37	-0.02	2.34	-1.05
Consumer Staples	47	8.17	-2.27	5.91	0.28	1.23	102	14.49	-3.98	10.51	0.14	1.36	-0.62
Energy	9	4.02	-1.27	2.75	0.32	1.32	20	10.83	-5.00	5.83	0.60	2.28	0.42
Healthcare	36	20.00	-6.85	13.15	0.26	3.07	107	44.96	-23.13	21.83	-0.31	3.82	-0.89
Industrials	71	25.48	-14.28	11.20	-1.11	3.96	152	26.42	-15.23	11.20	-0.62	2.65	0.94
Information Technology	88	43.92	-22.32	21.60	-0.04	4.20	158	36.08	-22.32	13.76	-0.25	3.63	-0.38
Materials	68	8.44	-3.69	4.76	0.22	1.17	129	31.52	-21.60	9.92	-0.17	2.68	-1.41
Real Estate	41	16.74	-14.86	1.88	-1.03	2.78	159	37.07	-22.85	14.22	-0.33	3.04	1.41
Telecommunication Services	11	6.20	-0.78	5.42	0.54	1.68	20	5.55	-0.78	4.77	0.19	1.12	-0.61
Utilities	12	0.72	-0.32	0.40	0.02	0.22	25	4.06	-2.44	1.62	-0.09	0.86	-0.61
Canada													
Consumer Discretionary	3,685	115.48	-52.44	63.04	-0.06	5.38	467	101.60	-46.44	55.16	-0.17	5.05	-0.43
Consumer Staples	1,481	126.11	-57.97	68.14	0.14	6.03	192	50.49	-16.48	34.01	0.18	3.86	0.14
Energy	9,455	130.63	-64.29	66.34	0.25	6.28	1,302	105.94	-45.70	60.24	0.32	5.40	0.39
Healthcare	2,536	117.67	-55.75	61.93	0.54	5.41	374	35.98	-18.07	17.90	0.11	2.59	-2.51 **
Industrials	4,004	127.40	-64.06	63.34	-0.12	5.77	543	104.01	-64.94	39.07	-0.37	6.16	-0.90
Information Technology	4,544	132.97	-66.04	66.93	-0.17	6.24	525	105.50	-63.38	42.12	-0.38	5.60	-0.78
Materials	21,089	134.82	-66.57	68.25	0.43	6.01	3,087	128.56	-61.43	67.14	0.57	5.85	1.25
Real Estate	1,657	133.93	-65.89	68.05	0.04	6.09	233	71.45	-15.18	56.27	1.18	7.94	2.10 **
Telecommunication Services	557	111.34	-45.02	66.32	0.52	6.98	60	50.79	-4.53	46.25	1.11	6.95	0.62
Utilities	979	124.12	-61.33	62.80	0.25	5.12	150	53.28	-7.58	45.70	0.66	4.57	1.00
France													
Consumer Discretionary	1,789	87.51	-41.59	45.92	-0.03	4.43	529	61.30	-33.05	28.24	-0.16	3.52	-0.69
Consumer Staples	717	63.21	-32.20	31.01	-0.08	3.26	189	81.15	-44.03	37.13	-0.32	5.12	-0.61
Energy	178	43.19	-30.36	12.83	0.14	3.19	51	34.21	-18.20	16.01	-0.19	3.63	-0.59
Healthcare	604	79.14	-42.74	36.40	-0.20	4.06	229	63.19	-45.79	17.41	-0.40	4.26	-0.62
Industrials	1,652	93.26	-48.98	44.28	-0.06	3.96	487	61.67	-49.05	12.62	-0.24	3.99	-0.90
Information Technology	1,645	98.87	-48.83	50.04	-0.30	4.76	544	82.88	-44.66	38.21	-0.23	4.93	0.32
Materials	555	79.43	-36.70	42.73	0.29	3.95	153	49.50	-36.33	13.17	-0.38	4.30	-1.72 *
Real Estate	530	86.44	-48.46	37.98	-0.79	5.49	262	82.62	-45.33	37.29	-0.46	5.04	0.82
Telecommunication Services	92	36.04	-32.48	3.56	-0.83	3.90	32	11.25	-6.90	4.35	-0.12	1.98	1.33
Utilities	133	51.38	-34.58	16.80	-0.10	3.84	60	26.54	-10.44	16.10	-0.14	3.07	-0.07
Germany													
Consumer Discretionary	1,633	112.08	-52.50	59.58	0.13	5.42	701	101.23	-61.49	39.75	-0.27	5.08	-1.72 *
Consumer Staples	382	64.46	-42.39	22.06	-0.15	3.54	163	86.31	-53.16	33.15	-0.11	5.99	0.08
Energy	76	58.01	-38.97	19.04	-1.23	7.12	23	48.89	-8.83	40.06	0.89	8.84	1.05
Healthcare	718	81.95	-27.95	53.99	0.26	4.41	291	34.71	-10.92	23.78	0.03	2.43	-1.07
Industrials	1,764	109.80	-49.56	60.24	0.07	5.24	707	76.92	-38.99	37.93	-0.30	4.67	-1.72 *
Information Technology	1,730	118.39	-60.99	57.41	-0.02	6.53	777	91.58	-32.00	59.58	-0.13	5.21	-0.43
Materials	487	65.12	-45.89	19.23	-0.09	4.00	189	61.86	-23.50	38.37	0.42	5.25	1.20
Real Estate	508	99.91	-57.26	42.65	-0.58	6.67	211	37.00	-14.81	22.19	-0.41	3.38	0.46
Telecommunication Services	117	35.65	-18.59	17.06	0.48	4.22	47	22.09	-9.36	12.72	0.24	2.93	-0.41
Utilities	228	34.48	-16.68	17.80	-0.06	2.88	75	56.58	-10.50	46.09	1.46	6.96	1.85 *
Ireland													
Consumer Discretionary	80	44.19	-39.76	4.43	-0.49	4.73	114	37.81	-16.34	21.47	-0.32	4.20	0.24
Consumer Staples	70	7.58	-1.14	6.44	0.09	0.97	103	38.97	-30.83	8.14	-0.17	3.44	-0.72
Energy	62	24.74	-11.85	12.89	-0.53	3.67	89	48.55	-14.59	33.95	0.72	6.36	1.53
Healthcare	144	47.54	-26.75	20.79	0.16	3.49	209	36.47	-10.99	25.47	0.20	2.67	0.13
Industrials	198	49.51	-33.95	15.57	0.25	3.01	286	52.00	-6.05	45.95	0.29	2.89	0.14
Information Technology	84	89.01	-36.39	52.61	0.20	8.81	111	22.77	-14.55	8.22	-0.14	2.55	-0.34
Materials	109	46.35	-16.76	29.59	0.11	3.71	168	85.30	-46.12	39.18	-0.24	6.29	-0.59
Real Estate	11	6.30	-3.97	2.33	-0.05	1.79	13	23.43	-2.29	21.13	1.68	5.95	1.00
Telecommunication Services	19	14.55	-0.44	14.11	1.08	3.48	20	11.75	-6.14	5.61	-0.13	2.09	-1.32
Utilities	17	4.72	-1.07	3.66	0.30	0.99	27	4.61	-3.05	1.56	-0.01	0.74	-1.10
Italy													
Consumer Discretionary	690	76.65	-38.57	38.08	-0.15	4.80	453	74.48	-38.76	35.72	-0.51	4.50	-1.31
Consumer Staples	115	55.36	-32.77	22.59	-0.71	5.93	70	18.81	-8.19	10.63	0.16	2.49	1.38
Energy	58	17.36	-1.64	15.72	0.44	2.34	47	6.99	-2.79	4.20	0.03	1.03	-1.20
Healthcare	128	52.90	-39.86	13.05	-1.04	5.49	86	21.91	-15.61	6.30	-0.07	2.06	1.82 *
Industrials	571	63.44	-35.78	27.66	-0.39	4.41	412	53.27	-28.67	24.59	-0.21	3.67	0.69
Information Technology	255	57.47	-30.44	27.03	-0.51	4.98	171	39.85	-7.06	32.79	0.07	3.96	1.32
Materials	238	48.77	-29.04	19.74	-0.34	5.01	104	68.58	-33.79	34.79	-0.37	5.18	-0.05
Real Estate	102	64.02	-33.03	30.99	-1.54	6.48	77	31.22	-7.40	23.82	-0.07	3.72	1.91 *
Telecommunication Services	55	32.88	-6.28	26.59	0.61	4.58	31	39.34	-8.34	31.00	0.62	5.87	0.00
Utilities	219	46.25	-25.02	21.23	0.25	3.65	155	55.11	-35.35	19.76	-0.14	3.75	-1.02

	Non-Crises						Crises						
	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	Observ.	Range	Minimum	Maximum	Mean	Std. Deviation	T-Stats
Free Cash Flow (FCF)													
Japan													
Consumer Discretionary	4,927	85.74	-42.84	42.91	-0.13	3.77	6,258	80.30	-43.55	36.74	-0.21	3.67	-1.20
Consumer Staples	1,816	64.65	-27.58	37.07	0.03	3.60	2,296	77.64	-41.63	36.02	-0.12	3.73	-1.29
Energy	174	67.57	-24.52	43.05	-0.12	4.77	223	41.20	-20.49	20.71	-0.04	3.59	0.19
Healthcare	846	69.47	-34.30	35.17	0.06	3.27	1,075	76.16	-37.39	38.77	-0.09	3.81	-0.91
Industrials	5,940	84.15	-41.93	42.22	-0.34	4.20	7,941	85.61	-43.15	42.46	-0.27	4.16	1.07
Information Technology	3,622	82.33	-43.38	38.95	-0.22	4.23	4,405	82.39	-43.01	39.38	-0.14	4.12	0.79
Materials	1,965	84.36	-42.95	41.41	0.18	3.47	2,736	84.88	-43.58	41.30	0.00	3.44	-1.73 *
Real Estate	725	54.45	-22.02	32.43	0.17	4.04	817	65.89	-38.73	27.16	-0.26	3.78	-2.19 **
Telecommunication Services	66	10.72	-2.26	8.47	0.16	1.38	91	35.79	-5.54	30.25	0.49	3.54	0.81
Utilities	178	33.01	-27.05	5.96	-0.36	2.55	230	40.14	-28.24	11.90	-0.03	2.30	1.33
Netherlands													
Consumer Discretionary	297	56.33	-35.94	20.39	0.19	4.09	235	51.29	-16.55	34.74	0.31	3.62	0.36
Consumer Staples	145	14.37	-9.69	4.69	-0.04	1.57	116	62.82	-33.82	29.00	-0.10	4.35	-0.15
Energy	98	22.20	-14.73	7.47	0.00	2.08	84	26.79	-9.61	17.19	0.13	2.61	0.37
Healthcare	117	47.19	-29.19	18.00	0.06	4.40	107	66.58	-44.80	21.78	-0.19	5.47	-0.37
Industrials	589	67.66	-40.81	26.86	-0.17	4.05	457	92.59	-40.58	52.01	0.07	4.83	0.87
Information Technology	334	63.92	-41.53	22.39	-0.59	5.20	265	84.85	-44.07	40.77	-0.25	5.50	0.77
Materials	140	58.28	-7.92	50.36	0.67	4.98	90	50.37	-29.64	20.72	0.35	4.76	-0.49
Real Estate	112	55.41	-46.06	9.35	-1.23	6.58	104	19.07	-11.40	7.67	-0.36	2.45	1.30
Telecommunication Services	55	12.40	-9.26	3.14	-0.28	2.02	51	15.24	-3.77	11.47	0.25	2.46	1.21
Utilities	24	3.51	-2.85	0.66	-0.32	1.13	18	22.56	-3.28	19.28	1.76	6.14	1.42
Norway													
Consumer Discretionary	221	54.01	-7.71	46.30	0.21	4.22	159	27.99	-14.06	13.93	-0.35	3.03	-1.50
Consumer Staples	152	89.85	-52.02	37.84	-0.50	7.76	122	27.22	-18.48	8.74	-0.25	2.68	0.37
Energy	397	91.80	-42.92	48.88	0.39	6.69	318	103.83	-46.73	57.10	-0.09	6.70	-0.95
Healthcare	83	44.81	-15.45	29.36	0.03	3.99	60	20.02	-13.22	6.79	-0.01	2.73	-0.07
Industrials	480	91.38	-47.13	44.25	-0.03	6.17	365	83.52	-42.92	40.59	-0.16	4.19	-0.37
Information Technology	346	73.76	-44.35	29.41	-0.39	4.35	261	110.77	-59.46	51.30	-0.74	7.28	-0.69
Materials	125	48.45	-3.96	44.49	0.96	5.61	88	7.83	-2.18	5.65	0.13	1.25	-1.59
Real Estate	88	20.73	-13.42	7.31	-0.43	2.55	80	22.34	-13.60	8.74	-0.36	2.73	0.16
Telecommunication Services	39	20.63	-6.37	14.26	0.82	2.85	26	39.29	-1.70	37.59	2.02	8.09	0.73
Utilities	50	42.17	-23.19	18.98	-0.45	4.79	35	36.80	-22.93	13.87	0.16	5.86	0.51
Poland													
Consumer Discretionary	709	134.22	-70.65	63.57	-0.80	8.11	481	122.54	-62.36	60.18	0.09	7.27	1.97 **
Consumer Staples	237	41.42	-22.35	19.07	-0.21	3.39	313	78.82	-31.95	46.87	0.14	5.25	0.94
Energy	51	34.44	-22.14	12.30	-0.84	4.33	239	8.05	-4.99	3.06	0.02	0.59	1.41
Healthcare	174	39.55	-17.41	22.13	-0.11	3.91	265	118.14	-65.97	52.17	0.18	6.07	0.61
Industrials	968	107.81	-67.20	40.62	-0.38	5.89	953	114.97	-63.92	51.04	-0.45	5.77	-0.27
Information Technology	524	131.83	-64.78	67.04	-0.30	7.58	480	125.70	-62.17	63.54	-0.62	7.24	-0.69
Materials	306	97.42	-42.63	54.78	-0.36	6.73	769	43.38	-13.10	30.27	-0.63	1.92	-0.69
Real Estate	161	95.35	-35.18	60.17	-0.25	7.50	210	97.14	-51.68	45.46	-0.50	6.18	-0.33
Telecommunication Services	90	35.94	-7.62	28.32	0.36	3.58	99	14.47	-3.39	11.08	0.10	1.92	-0.61
Utilities	111	94.16	-23.88	70.28	1.09	9.14	94	46.68	-30.08	16.61	-0.28	3.79	-1.44
Spain													
Consumer Discretionary	142	35.80	-13.85	21.95	0.46	3.27	148	43.91	-18.67	25.24	0.01	4.73	-0.95
Consumer Staples	86	42.55	-8.62	33.93	0.63	4.27	87	13.24	-8.68	4.55	-0.10	1.61	-1.48
Energy	44	24.59	-20.56	4.03	-0.51	3.33	47	29.08	-3.18	25.90	0.29	3.92	1.06
Healthcare	54	42.03	-9.69	32.33	0.92	5.57	83	35.21	-9.88	25.33	0.44	4.27	-0.54
Industrials	203	86.42	-39.66	46.75	-0.03	6.35	221	38.52	-26.79	11.73	-0.69	3.43	-1.31
Information Technology	50	10.59	-5.66	4.92	-0.00	1.65	55	25.29	-21.29	3.99	-0.78	3.34	-1.54
Materials	120	55.76	-34.39	21.37	-0.34	5.35	118	16.57	-9.42	7.16	-0.06	1.53	0.55
Real Estate	118	74.34	-50.13	24.21	-1.17	7.34	142	55.98	-31.94	24.04	-0.60	4.15	0.75
Telecommunication Services	32	40.84	-3.39	37.45	1.16	6.67	26	7.48	-5.83	1.65	-0.32	1.44	-1.22
Utilities	68	9.38	-5.91	3.47	-0.06	1.10	63	17.26	-8.52	8.74	0.09	1.98	0.50
Sweden													
Consumer Discretionary	862	87.40	-43.35	44.05	-0.13	4.49	265	80.69	-32.60	48.09	-0.30	5.75	-0.43
Consumer Staples	234	55.75	-27.06	28.69	0.36	3.68	66	18.85	-13.21	5.65	-0.28	2.67	-1.57
Energy	168	59.11	-15.32	43.78	1.33	7.10	42	24.85	-19.28	5.58	-0.87	3.48	-2.75 ***
Healthcare	850	59.94	-27.46	32.48	0.03	4.04	240	46.62	-14.75	31.87	0.73	4.36	2.24 **
Industrials	1,392	90.38	-45.49	44.89	-0.13	4.02	415	69.63	-24.22	45.41	0.33	4.43	1.89 *
Information Technology	1,263	81.17	-47.26	33.92	-0.37	5.20	410	74.09	-34.05	40.04	-0.03	4.71	1.22
Materials	379	64.90	-34.75	30.14	-0.11	4.10	119	63.78	-19.38	44.40	0.82	6.35	1.50
Real Estate	312	46.79	-24.17	22.62	0.10	4.32	90	57.18	-40.23	16.95	-0.20	5.06	-0.52
Telecommunication Services	106	60.68	-35.01	25.67	0.29	5.21	36	48.86	-17.65	31.21	0.48	6.14	0.17
Utilities	74	19.46	-13.00	6.46	-0.38	2.46	21	18.11	-14.17	3.95	-0.60	3.38	-0.28
Switzerland													
Consumer Discretionary	452	35.33	-16.01	19.31	-0.09	2.44	164	23.71	-4.05	19.66	0.27	2.51	1.55
Consumer Staples	215	22.47	-7.74	14.73	0.17	1.52	69	14.50	-3.43	11.07	0.08	1.60	-0.42
Energy	83	31.11	-19.12	11.99	-0.18	3.28	29	12.28	-9.94	2.34	-0.63	2.37	-0.79
Healthcare	322	21.70	-11.09	10.60	0.05	1.86	112	23.27	-12.92	10.35	0.14	2.05	0.38
Industrials	856	31.80	-19.99	11.81	-0.23	2.26	330	26.57	-15.00	11.56	-0.09	1.99	1.07
Information Technology	418	34.45	-18.29	16.16	0.07	2.68	149	37.18	-19.35	17.83	0.11	3.90	0.09
Materials	339	33.66	-20.53	13.13	-0.06	2.40	117	23.69	-8.39	15.30	0.31	2.36	1.48
Real Estate	187	24.04	-7.59	16.44	0.21	2.48	53	31.92	-14.17	17.75	-0.13	4.35	-0.54
Telecommunication Services	22	5.59	-0.81	4.78	0.26	1.11	7	0.96	-0.81	0.15	-0.05	0.35	-1.17
Utilities	159	16.58	-4.83	11.75	0.02	1.40	61	22.55	-5.05	17.50	0.53	2.66	1.42
UK													
Consumer Discretionary	5,388	94.43	-46.44	47.99	-0.05	4.30	1,499	82.56	-44.15	38.41	-0.02	3.91	0.27
Consumer Staples	1,343	67.22	-34.29	32.94	0.15	3.13	320	54.93	-13.53	41.40	0.28	2.95	0.71
Energy	904	65.58	-30.32	35.25	0.03	3.89	489	71.76	-46.50	25.26	0.07	4.27	0.17
Healthcare	1,344	85.29	-37.73	47.56	0.26	4.23	482	60.73	-39.36	21.37	-0.16	3.51	-2.14 **
Industrials	4,691	96.05	-47.71	48.33	-0.05	3.72	1,446	75.45	-29.20	46.25	-0.05	3.53	-0.02
Information Technology	3,176	94.84	-48.71	46.13	-0.10	4.98	1,035	93.41	-46.62	46.79	-0.10	5.07	0.01
Materials	1,667	95.86	-49.02	46.84	0.25	4.23	585	69.78	-26.28	43.50	0.49	4.34	1.15
Real Estate	931	90.25	-47.17	43.08	-0.22	4.92	323	62.31	-22.61	39.70	-0.42	4.67	-0.63
Telecommunication Services	298	72.90	-27.01	45.89	0.24	4.86	111	47.60	-39.29	8.31	-0.64	5.58	-1.46
Utilities	507	53.48	-33.65	19.82	0.16	2.40	185	45.32	-37.41	7.91	-0.15	3.22	-1.18
US													
Consumer Discretionary	19,037	97.91	-48.91	49.00	0.07	4.83	7,607	94.61	-47.06	47.55	-0.07	4.12	-2.26 **
Consumer Staples	5,121	96.80	-47.70	49.09	0.04	4.22	2,147	95.14	-48.15	47.00	0.04	4.72	0.01
Energy	6,578	97.22	-48.09	49.14	0.30	4.86	3,497	88.75	-43.01	45.74	0.12	4.15	-1.91 *
Healthcare	14,543	97.60	-48.70	48.90	0.12	4.25	6,704	96.06	-47.07	48.99	0.12	3.86	-0.10
Industrials	15,945	96.76	-47.85	48.91	-0.08	4.58	6,567	95.65	-47.28	48.37	-0.02	4.27	0.91
Information Technology	21,613	97.36	-48.38	48.97	0.04	5.04	9,044	96.11	-47.19	48.92	-0.08	4.64	-2.09 **
Materials	6,494	89.84	-42.13	47.71	0.09	4.01	2,757	84.82	-44.42	40.40	0.18	4.12	1.01
Real Estate	19	9.63	-4.18	5.44	-0.27	2.31	8	8.20	-7.54	0.67	-0.99	2.73	-0.65
Telecommunication Services	2,312	93.42	-45.61	47.81	0.31	5.24	848	82.54	-41.22	41.31	0.10	4.41	-1.09
Utilities	4,469	86.36	-42.31	44.05	0.00	2.45	2,052	69.49	-35.63	33.86	0.07	2.71	0.98
Developed countries													
Consumer Discretionary	42,851	134.22	-70.65	63.57	-0.02	4.73	19,454	122.54	-62.36	60.18	-0.12	4.13	-2.84 ***
Consumer Staples	13,249	126.11	-57.97	68.14	0.05	4.34	6,470	100.15	-53.16	47.00	-0.03	4.16	-1.13
Energy	21,290	130.63	-64.29	66.34	0.29	5.52	6,703	106.97	-46.73	60.24	0.14	4.50	-2.24 **
Healthcare	24,508	117.67	-55.75	61.93	0.16	4.33	10,579	118.14	-65.97	52.17	0.09	3.85	-1.51
Industrials	42,984	130.54	-67.20	63.34	-0.13	4.57	21,550	116.95	-64.94	52.01	-0.16	4.27	-0.93
Information Technology	41,273	133.08	-66.04	67.04	-0.05	5.22	18,527	126.92	-63.38	63.54	-0.13	4.74	-1.76 *
Materials	42,696	134.82	-66.57	68.25	0.34	5.22	11,730	128.56	-61.43	67.14	0.19	4.46	-3.15 ***
Real Estate	6,855	133.93	-65.89	68.05	-0.26	5.49	2,898	107.94	-51.68	56.27	-0.22	4.60	0.34
Telecommunication Services	4,250	111.93	-45.61	66.32	0.34	5.24	1,538	87.47	-41.22	46.25	0.17	4.39	-1.28
Utilities	7,679	131.60	-61.33	70.28	0.06	3.32	3,275	85.12	-39.03	46.09	0.09	3.21	0.40
Overall													
Consumer Discretionary	67,583	156.75	-77.61	79.14	-0.12	5.31	25,539	148.64	-73.54	75.10	-0.18	4.70	-1.59
Consumer Staples	20,041	149.39	-71.76	77.63	-0.03	4.79	9,467	151.76	-77.76	74.00	-0.06	4.89	-0.50
Energy	26,472	130.63	-64.29	66.34	0.20	5.81	7,871	120.24	-60.00	60.24	0.07	4.79	-2.04 **
Healthcare	30,216	148.52	-78.86	69.67	0.12	4.67	11,657	126.35	-65.97	60.38	0.07	4.18	-1.17
Industrials	61,548	154.19	-77.07	77.12	-0.17	5.01	28,462	163.61	-81.08	82.53	-0.18	4.86	-0.26
Information Technology	50,650	156.44	-77.18	79.26	-0.09	5.28	20,611	142.50	-68.08	74.43	-0.16	5.01	-1.65
Materials	60,912	160.60	-80.53	80.07	0.18	5.52	16,133	143.64	-76.50	67.14	0.05	4.90	-2.90 ***
Real Estate	14,308	159.66	-80.11	79.55	-0.45	6.25	5,565	146.18	-80.51	65.67	-0.35	5.93	1.02
Telecommunication Services	5,577	132.80	-66.49	66.32	0.24	5.25	2,258	87.47	-41.22	46.25	0.09	4.30	-1.31
Utilities	11,882	146.03	-75.76	70.28	0.08	4.35	5,011	140.08	-74.06	66.02	0.06	4.72	-0.33

*- significant at 10%, ** - significant at 5%, and *** - significant at 1%*

APPENDIX G

Table G.1 – Industry Panel Data Regression Analysis for ROE

ROE Panel or Cross-Section		Exp. Orient.	Concentr.	Prod. Charact.	R²	Observ.	Groups
S2 (Panel)		**0.012**	**0.037**	**-0.247***	0.052	382	286
	SE	(0.076)	(0.380)	(0.074)			
S4 (Panel)		**0.029**	**0.064**	**-0.026**	0.007	2,053	946
	SE	(0.089)	(0.385)	(0.094)			
S7 (Panel)		**-0.007**	**-0.243**	**-0.123***	0.018	243	138
	SE	(0.073)	(0.433)	(0.075)			
S9 (Panel)		**0.002**	**0.129**	**0.023**	0.022	960	790
	SE	(0.033)	(0.155)	(0.034)			
S16 (Panel)		**-0.035****	**-0.086**	**-0.006**	0.004	13,559	2,904
	SE	(0.017)	(0.079)	(0.017)			
Developing countries (I)							
S4 (Panel)		**-0.009**	**-0.101**	**-0.055***	0.011	1,733	799
	SE	(0.033)	(0.106)	(0.031)			
S16 (Panel)		**-0.011**	**-0.208**	**-0.024**	0.007	3,818	977
	SE	(0.032)	(0.142)	(0.031)			
Developing countries (II)							
S1 (Panel)		**-0.049**	**-0.087**	**-0.070**	0.001	9,198	5,133
	SE	(0.057)	(0.405)	(0.058)			
S4 (Panel)		**-0.006**	**0.620***	**0.018**	0.005	6,930	3,443
	SE	(0.046)	(0.225)	(0.047)			
S7 (Panel)		**-0.049**	**0.466**	**-0.070**	0.002	9,668	5,080
	SE	(0.063)	(0.318)	(0.064)			
S16 (Panel)		**-0.030**	**0.053**	**-0.023**	0.001	36,632	11,471
	SE	(0.030)	(0.148)	(0.030)			
Developed countries							

Note: Table G.1 reports the results from the estimation of equation (2) to disentangle the relationship between industry profitability and their determinants. In the first column is reported in brackets the model in use, panel or OLS when cross sectional data. In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets. this means that this variable was dropped due to collinearity or endogeneity problems. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table G.2 – Industry Panel Data Regression Analysis for ROS

ROS — Panel or Cross-Section		Exp. Orient.	Concentr.	Prod. Charact.	R²	Observ.	Groups
Independent Variables							
S2 (Panel)		-0.015	0.003	-0.071***	0.081	374	282
	SE	(0.022)	(0.100)	(0.022)			
S4 (Panel)		-0.011	-0.091	0.003	0.017	2,043	943
	SE	(0.014)	(0.059)	(0.015)			
S7 (Panel)		-0.067	-0.857	-0.127	0.002	245	138
	SE	(0.302)	(0.931)	(0.288)			
S9 (Panel)		-0.043*	-0.066	0.004	0.009	957	789
	SE	(0.022)	(0.108)	(0.023)			
S16 (Panel)		-0.003	0.024	-0.037*	0.004	13,571	2,902
	SE	(0.019)	(0.079)	(0.019)			
Developing countries (I)							
S4 (Panel)		-0.056	-0.659	0.243	0.003	1,747	806
	SE	(0.299)	(0.802)	(0.286)			
S16 (Panel)		0.043	0.001	-0.057	0.004	3,822	979
	SE	(0.065)	(0.279)	(0.063)			
Developing countries (II)							
S1 (Panel)		-0.541***	0.005	0.196**	0.011	9,185	5,113
	SE	(0.077)	(0.530)	(0.078)			
S4 (Panel)		-0.091	-0.677**	-0.156**	0.004	6,914	3,440
	SE	(0.067)	(0.312)	(0.067)			
S7 (Panel)		-0.502***	0.029	0.198**	0.009	9,666	5,069
	SE	(0.076)	(0.352)	(0.077)			
S16 (Panel)		-0.424***	0.178	0.078	0.008	36,537	11,410
	SE	(0.048)	(0.197)	(0.048)			
Developed countries							

Note: Table G.2 reports the results from the estimation of equation (2) to disentangle the relationship between industry profitability and their determinants. In the first column is reported in brackets the model in use, panel or OLS when cross sectional data. In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets. this means that this variable was dropped due to collinearity or endogeneity problems. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table G.3 – Industry Panel Data Regression Analysis for SMR

SMR Panel or Cross-Section		Independent Variables					
		Exp. Orient.	*Concentr.*	*Prod. Charact.*	R²	Observ.	Groups
S2 (Panel)		-0.006	0.134	-0.083**	0.142	335	244
	SE	(0.038)	(0.215)	(0.037)			
S4 (Panel)		0.046*	0.039	-0.030	0.172	1,463	728
	SE	(0.024)	(0.103)	(0.025)			
S7 (Panel)		-0.106	-0.000**		0.386	29	16
	SE	(0.125)	(0.000)				
S9 (Panel)		-0.040	-0.251*	-0.001	0.105	748	620
	SE	(0.031)	(0.148)	(0.032)			
S16 (Panel)		0.004	0.265***	-0.017	0.073	9,240	2,257
	SE	(0.015)	(0.076)	(0.015)			
Developing countries (I)							
S4 (Panel)		0.048**	-0.034	-0.092***	0.381	1,218	638
	SE	(0.022)	(0.065)	(0.021)			
S16 (Panel)		-0.025	-0.039	-0.039	0.205	2,911	802
	SE	(0.027)	(0.117)	(0.026)			
Developing countries (II)							
S1 (Panel)		0.031**	-0.139	0.006	0.101	6,922	3,866
	SE	(0.013)	(0.091)	(0.013)			
S4 (Panel)		-0.009	-0.032	-0.023**	0.191	6,079	3,086
	SE	(0.010)	(0.052)	(0.010)			
S7 (Panel)		0.039***	0.247***	-0.029***	0.160	7,536	3,955
	SE	(0.009)	(0.051)	(0.010)			
S16 (Panel)		0.024***	0.024	-0.008	0.013	27,715	9,063
	SE	(0.007)	(0.039)	(0.007)			
Developed countries							

Note: Table G.3 reports the results from the estimation of equation (2) to disentangle the relationship between industry profitability and their determinants. In the first column is reported in brackets the model in use, panel or OLS when cross sectional data. In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets. this means that this variable was dropped due to collinearity or endogeneity problems. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table G.4 – Industry Panel Data Regression Analysis for FCF

FCF Panel or Cross-Section	Independent Variables			R²	Observ.	Groups
	Exp. Orient.	Concentr.	Prod. Charact.			
S2 (Panel)	-0.104	-1.287	-0.291	0.020	378	284
SE	(0.334)	(1.857)	(0.328)			
S4 (Panel)	0.495	5.129**	0.184	0.006	1,969	935
SE	(0.559)	(2.419)	(0.589)			
S7 (Panel)	0.443	4.675	-0.365	0.014	234	135
SE	(0.652)	(3.808)	(0.664)			
S9 (Panel)	-0.300	-0.158	0.352	0.002	900	767
SE	(0.424)	(2.047)	(0.440)			
S16 (Panel)	-0.018	-0.033	-0.079	0.001	12,627	2,824
SE	(0.120)	(0.604)	(0.120)			
Developing countries (I)						
S4 (Panel)	-2.414	-2.442	-1.469	0.005	1,680	772
SE	(2.637)	(8.443)	(2.517)			
S16 (Panel)	0.118	0.040	-0.429	0.004	3,692	958
SE	(0.289)	(1.361)	(0.284)			
Developing countries (II)						
S1 (Panel)	0.182	0.877	-0.134	0.003	9,003	4,998
SE	(0.116)	(0.856)	(0.118)			
S4 (Panel)	0.269**	0.669	-0.178	0.004	6,799	3,402
SE	(0.108)	(0.533)	(0.109)			
S7 (Panel)	0.181*	-0.103	-0.137	0.001	9,461	4,958
SE	(0.099)	(0.496)	(0.100)			
S16 (Panel)	0.033	0.225	-0.041	0.000	35,629	11,306
SE	(0.055)	(0.295)	(0.056)			
Developed countries						

Note: Table G.4 reports the results from the estimation of equation (2) to disentangle the relationship between industry profitability and their determinants. In the first column is reported in brackets the model in use, panel or OLS when cross sectional data. In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets. this means that this variable was dropped due to collinearity or endogeneity problems. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table H.1 – Descriptive statistics per country – Liquidity – Developing Countries I

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Liquidity													
Brazil	1.648	5,29	0,00	5,29	1,19	0,75	1.398	5,15	0,00	5,15	1,03	0,72	-5.97***
Chile	642	7,86	0,08	7,94	1,31	0,83	749	7,36	0,05	7,41	1,26	0,88	-0.97
China	12.513	7,31	0,00	7,31	1,26	1,00	488	6,02	0,15	6,17	1,34	0,93	1.77
India	11.769	11,29	0,01	11,30	1,33	1,32	1.985	11,17	0,08	11,25	1,30	1,24	-0.78
Indonesia	1.739	9,36	0,01	9,38	1,27	1,19	2.764	9,71	0,00	9,72	1,16	1,21	-2.90***
Mexico	810	4,94	0,03	4,97	1,28	0,88	553	4,90	0,06	4,95	1,21	0,90	-1.42
Russia	925	4,85	0,04	4,89	1,08	0,80	538	5,17	0,00	5,18	0,97	0,77	-2.62***
South Africa	1.307	3,64	0,01	3,66	1,13	0,65	655	3,52	0,08	3,60	1,08	0,58	-1.75*
Turkey	532	7,35	0,04	7,39	1,35	1,14	1.368	8,37	0,04	8,40	1,30	1,08	-0.90

Table H.2 – Descriptive statistics per country – Leverage – Developing Countries I

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Leverage													
Brazil	1.650	51,79	-21,11	30,68	1,05	2,85	1.404	45,85	-20,43	25,41	0,90	2,73	-1.54
Chile	643	21,09	-10,50	10,59	0,66	1,09	751	20,87	-7,48	13,39	0,73	1,06	1.27
China	12.700	24,21	-11,05	13,16	0,68	1,14	496	11,04	-7,71	3,33	0,45	0,58	-8.13***
India	11.874	14,97	-6,51	8,46	1,06	1,14	2.007	10,82	-2,79	8,04	0,99	0,94	-3.11***
Indonesia	1.742	49,78	-25,46	24,32	0,85	2,40	2.767	53,44	-25,21	28,23	0,98	3,58	1.50
Mexico	831	57,94	-23,05	34,89	0,80	2,35	566	34,60	-12,77	21,82	0,73	1,87	-0.69
Russia	944	51,42	-30,26	21,16	0,75	2,85	535	61,02	-31,40	29,62	0,82	2,88	0.45
South Africa	1.328	78,82	-44,52	34,30	0,52	3,11	671	82,23	-33,57	48,66	0,54	3,27	0.15
Turkey	529	24,59	-11,13	13,46	0,74	1,60	1.378	25,32	-13,26	12,05	0,80	1,55	0.66

Table H.3 – Descriptive statistics per country – Gross Margin – Developing Countries I

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Gross Margin													
Brazil	1.654	9,51	-2,01	7,51	1,55	0,60	1.412	6,47	0,68	7,15	1,56	0,62	0.35
Chile	630	5,37	0,25	5,62	1,54	0,50	738	5,47	0,19	5,66	1,56	0,56	0.72
China	12.594	7,16	0,00	7,16	1,30	1,08	491	6,32	0,15	6,47	1,36	1,00	1.50
India	11.905	36,64	-14,71	21,93	1,54	1,01	2.012	29,03	-11,97	17,06	1,45	1,14	-3.12***
Indonesia	1.748	6,97	0,12	7,09	1,50	0,70	2.789	9,89	-1,47	8,42	1,50	0,70	-0.32
Mexico	824	3,67	0,10	3,77	1,59	0,51	560	3,12	0,63	3,75	1,64	0,53	1.76*
Russia	946	14,23	-2,58	11,65	1,76	1,03	536	10,66	0,20	10,85	1,89	1,14	2.27**
South Africa	1.325	11,94	-3,28	8,66	1,61	0,76	666	20,77	-0,09	20,68	1,58	1,07	-0.58
Turkey	528	5,14	-0,68	4,46	1,30	0,36	1.371	9,20	-3,42	5,78	1,30	0,41	-0.15

Table H.4 – Descriptive statistics per country – External Dependence – Developing Countries I

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Ext. Depend.													
Brazil	1.625	233,53	-128,92	104,61	-3,24	14,73	1.393	245,52	-121,78	123,75	-0,69	11,55	5.33***
Chile	641	109,15	-62,46	46,69	-1,51	6,14	746	122,57	-64,76	57,80	-2,31	8,56	-2.02**
China	12.550	199,30	-101,63	97,67	-1,02	10,26	487	193,14	-94,38	98,76	0,62	11,37	3.12***
India	11.661	246,29	-127,17	119,12	-1,40	15,21	1.993	216,12	-107,00	109,13	0,65	10,88	7.26***
Indonesia	1.725	176,31	-100,05	76,26	-1,17	9,59	2.755	171,88	-99,88	72,01	-2,11	11,83	-2.91***
Mexico	822	138,31	-75,18	63,13	-1,49	9,00	562	119,52	-71,60	47,92	-1,45	8,14	0.07
Russia	937	113,98	-56,31	57,67	-0,57	7,37	537	71,19	-57,36	13,83	-2,04	6,42	-4.01***
South Africa	1.317	151,78	-76,05	75,73	-0,93	6,92	667	82,70	-51,59	31,11	-0,78	4,24	0.61
Turkey	527	209,60	-103,60	106,00	-0,72	10,28	1.367	216,14	-109,93	106,21	-0,41	10,86	0.58

Table H5 – Descriptive statistics per country – Liquidity – Developing Countries II

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Liquidity													
Hong Kong	5.360	9,29	0,00	9,30	1,55	1,30	1.214	8,89	0,02	8,90	1,48	1,30	-1.79*
Singapore	1.756	5,20	0,03	5,23	1,30	0,85	3.357	5,18	0,04	5,22	1,36	0,88	2.42**

Table H.6 – Descriptive statistics per country – Leverage – Developing Countries II

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Leverage													
Hong Kong	5.430	22,78	-10,98	11,79	0,50	1,07	1.222	20,15	-9,13	11,02	0,46	1,03	-1.16
Singapore	1.789	28,82	-15,94	12,87	0,55	1,28	3.424	32,51	-17,42	15,09	0,55	1,30	0.07

Table H.7 – Descriptive statistics per country – Gross Margin – Developing Countries II

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Gross Margin													
Hong Kong	5.400	109,97	-33,22	76,76	1,84	3,78	1.189	79,21	-4,06	75,15	2,19	5,42	2.07**
Singapore	1.741	72,75	-0,75	72,00	1,70	3,70	3.327	95,39	-13,38	82,00	1,87	4,58	1.42

Table H.8 – Descriptive statistics per country – External Dependence – Developing Countries II

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Ext. Depend.													
Hong Kong	5.366	243,72	-128,53	115,20	-1,36	13,98	1.208	235,18	-121,16	114,02	-2,49	16,11	-2.251**
Singapore	1.769	190,61	-105,51	85,10	-1,75	10,85	3.387	211,68	-108,91	102,77	-1,16	13,06	1.71*

Table H.9 – Descriptive statistics per country – Liquidity – Developed Countries

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Liquidity													
Australia	6.509	7,16	0,02	7,18	1,18	0,93	646	7,08	0,00	7,09	1,15	0,99	-0.71
Belgium	314	3,69	0,05	3,75	1,09	0,67	410	4,10	0,12	4,22	1,10	0,72	0.27
Canada	10.751	7,54	0,00	7,54	1,25	1,11	1.183	7,55	0,01	7,56	1,22	1,02	-0.84
France	2.550	6,61	0,09	6,70	1,39	0,89	687	6,71	0,05	6,76	1,17	0,86	-5.92***
Germany	4.007	9,23	0,02	9,24	1,54	1,24	1.702	9,17	0,04	9,21	1,58	1,36	0.87
Ireland	361	4,91	0,10	5,02	1,23	0,76	634	4,98	0,02	5,00	1,29	0,83	1.06
Italy	1.373	5,12	0,04	5,16	1,20	0,71	812	4,45	0,09	4,54	1,01	0,55	-7.21***
Japan	4.693	5,11	0,04	5,15	1,35	0,83	17.538	5,14	0,01	5,15	1,28	0,85	-4.99***
Netherlands	991	3,61	0,07	3,68	1,07	0,61	783	3,71	0,01	3,72	1,06	0,63	-0.49
Norway	755	4,04	0,12	4,16	1,27	0,69	626	4,07	0,09	4,16	1,22	0,73	-1.12
Poland	1.067	4,57	0,05	4,62	1,12	0,70	1.081	4,54	0,07	4,61	1,12	0,75	-0.17
Spain	702	2,74	0,06	2,80	0,92	0,46	557	2,72	0,00	2,73	0,93	0,44	0.33
Sweden	2.251	6,84	0,03	6,87	1,33	0,95	712	6,80	0,08	6,89	1,42	0,98	2.04**
Switzerland	1.517	4,58	0,16	4,74	1,38	0,80	543	4,59	0,04	4,63	1,34	0,71	-1.23
UK	13.077	4,95	0,02	4,96	1,06	0,70	3.074	4,94	0,03	4,97	1,05	0,71	-0.59
US	52.351	8,46	0,00	8,46	1,54	1,34	21.198	8,45	0,00	8,45	1,51	1,31	-3.33***

Table H.10 – Descriptive statistics per country – Leverage – Developed Countries

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Leverage													
Australia	6.562	40,83	-20,43	20,40	0,64	1,65	661	23,18	-6,80	16,38	0,57	1,20	-1.35
Belgium	322	12,42	-1,46	10,95	0,80	1,21	414	20,72	-7,05	13,67	0,75	1,18	-0.62
Canada	10.918	65,01	-32,12	32,89	0,61	2,78	1.186	60,23	-33,11	27,12	0,51	3,23	-1.02
France	2.585	64,00	-30,71	33,29	0,82	2,62	690	43,96	-30,25	13,71	0,69	2,01	-1.35
Germany	4.050	65,35	-26,50	38,85	0,83	2,44	1.717	52,65	-19,74	32,91	1,01	2,23	2.72**
Ireland	371	66,40	-38,42	27,98	0,66	3,43	641	63,34	-30,21	33,13	0,72	4,16	-0.26
Italy	1.392	20,76	-9,21	11,55	0,96	1,19	801	22,53	-10,01	12,53	1,05	1,54	1.34*
Japan	4.770	36,89	-9,59	27,30	0,79	1,37	17.821	57,43	-27,49	29,94	1,21	2,55	15.14***
Netherlands	1.016	56,75	-39,64	17,12	0,79	2,86	790	89,25	-43,45	45,80	1,02	3,80	1.43
Norway	783	32,45	-16,41	16,04	0,75	1,64	634	42,03	-17,82	24,21	0,94	2,34	1.78*
Poland	1.083	13,84	-6,29	7,55	0,47	0,79	1.085	15,45	-7,50	7,95	0,48	0,87	0.17
Spain	719	28,46	-10,22	18,24	1,06	1,65	561	60,12	-30,15	29,98	1,58	3,36	3.42***
Sweden	2.277	45,86	-20,20	25,67	0,74	1,97	724	35,26	-12,77	22,49	0,83	1,96	1.08
Switzerland	1.531	35,40	-15,80	19,60	0,62	1,16	548	27,20	-9,41	17,79	0,73	1,49	1.52
UK	13.247	75,15	-37,29	37,85	0,52	2,61	3.094	70,06	-34,34	35,71	0,67	3,28	2.32**
US	53.161	87,48	-43,31	44,16	0,68	3,49	23.668	88,76	-43,72	45,04	0,60	3,68	-3.10***

Table H.11 – Descriptive statistics per country – Gross Margin – Developed Countries

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Gross Margin													
Australia	6.431	111,39	-9,40	102,00	3,54	8,91	609	102,55	-2,42	100,14	7,77	15,90	6.47***
Belgium	320	9,80	-1,71	8,09	1,79	1,01	412	24,16	0,13	24,29	1,78	1,36	-0.07
Canada	10.954	27,40	-10,47	16,94	1,66	1,27	1.190	18,93	-2,53	16,40	1,66	1,24	0.04
France	2.552	11,46	-1,05	10,41	1,89	1,09	683	11,61	-1,30	10,31	1,91	1,16	0.51
Germany	4.050	24,67	-10,64	14,02	1,80	0,96	1.722	16,23	-2,67	13,56	1,84	1,03	1.43
Ireland	368	8,74	-1,28	7,46	1,75	1,09	641	12,57	-1,31	11,26	1,85	1,38	1.25
Italy	1.386	7,01	-1,12	5,89	1,67	0,71	799	7,02	-1,36	5,66	1,71	0,71	1.24
Japan	4.711	2,78	0,50	3,28	1,45	0,39	17.639	3,50	-0,21	3,28	1,40	0,36	-7.71***
Netherlands	1.013	17,16	-3,46	13,70	1,90	1,40	794	19,39	-5,39	14,00	1,93	1,43	0.50
Norway	776	11,95	-1,77	10,18	2,08	1,34	631	11,60	-1,48	10,12	2,04	1,18	-0.58
Poland	1.090	8,65	-2,08	6,57	1,39	0,55	1.096	4,10	0,53	4,63	1,37	0,41	-1.18
Spain	707	71,82	-26,94	44,88	2,72	4,60	559	48,57	-8,57	40,00	2,95	4,39	0.88
Sweden	2.273	12,69	-3,09	9,60	1,79	1,11	720	11,28	-2,14	9,15	1,72	1,04	-1.60
Switzerland	1.532	22,84	-3,16	19,68	2,07	1,24	550	8,84	-1,44	7,40	2,05	0,85	-0.24
UK	13.235	45,34	-19,21	26,13	2,01	2,11	3.106	37,05	-11,38	25,68	2,09	2,15	1.81*
US	53.238	22,00	-9,19	12,82	1,72	1,04	21.461	21,24	-8,54	12,70	1,74	1,10	2.61***

Table H.12 – Descriptive statistics per country – External Dependence – Developed Countries

	Non-Crises						Crises						
	Observ.	Range	Min.	Max.	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Mean	Std. Dev.	T-Stats
Ext. Depend.													
Australia	6.467	215,66	-106,66	109,00	-1,28	13,91	655	181,94	-76,47	105,47	0,62	10,85	4.15***
Belgium	316	92,00	-54,30	37,70	-0,73	6,49	415	166,15	-85,25	80,90	-0,30	8,62	0.76
Canada	10.776	239,89	-117,61	122,28	1,14	14,53	1.179	194,51	-110,11	84,40	-2,77	10,76	-11.39***
France	2.572	157,60	-80,17	77,44	-0,85	8,67	681	141,13	-75,50	65,63	-0,56	8,48	0.78
Germany	4.027	160,87	-82,97	77,89	-0,74	7,57	1.704	147,33	-66,67	80,66	-0,58	7,86	0.70
Ireland	366	100,21	-53,93	46,29	-1,34	7,49	632	119,25	-56,91	62,35	-1,66	8,33	-0.62
Italy	1.391	156,43	-78,96	77,47	-1,05	8,25	795	146,07	-70,32	75,74	-1,82	9,94	-1.84*
Japan	4.719	148,14	-77,54	70,60	-1,93	8,72	17.671	154,20	-78,52	75,68	-1,67	9,31	1.77*
Netherlands	1.014	118,89	-60,70	58,20	-1,11	6,25	792	114,67	-65,65	49,03	-1,73	7,75	-1.84*
Norway	767	168,90	-99,00	69,90	-1,68	11,35	628	143,06	-91,61	51,45	-1,33	9,74	0.62
Poland	1.069	129,19	-65,06	64,13	-1,33	8,76	1.083	121,99	-68,68	53,31	-1,15	7,52	0.51
Spain	709	149,47	-92,56	56,91	-2,39	9,34	553	143,40	-90,28	53,12	-2,11	10,51	0.48
Sweden	2.245	253,86	-127,97	125,89	0,02	16,02	719	161,30	-97,80	63,50	0,13	8,58	0.23
Switzerland	1.518	65,81	-34,36	31,45	-1,01	3,90	547	64,26	-31,50	32,76	-0,46	3,75	2.92***
UK	13.091	191,46	-98,00	93,46	-1,13	10,26	3.065	185,08	-97,00	88,08	-2,62	12,20	-6.28***
US	52.693	212,82	-102,53	110,29	1,24	12,34	21.087	213,87	-103,44	110,43	0,75	13,98	-4.43***

Note: The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table I.1 – Descriptive statistics per regime – Liquidity – Developing Countries I

	LIQUIDITY												
	1990 - 2004							2005 - 2014					
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S1	720	5,46	0,04	5,50	1,04	1,23	0,85	233	5,39	0,06	5,46	0,92	1,20	1,00
S2	2.046	23,89	0,04	23,93	0,93	1,34	1,73	256	2,63	0,13	2,76	0,94	1,04	0,51
S3	369	14,90	0,03	14,93	0,88	1,31	1,57							
S4	1.373	7,45	0,05	7,50	0,96	1,20	0,94	1.967	9,70	0,02	9,72	0,97	1,25	1,09
S5	174	4,13	0,08	4,21	0,77	0,96	0,67	93	6,71	0,09	6,80	0,83	1,08	0,97
S6	807	26,56	0,00	26,56	0,75	1,30	2,04							
S7	149	6,81	0,06	6,87	0,91	1,11	0,96	237	4,08	0,05	4,13	0,72	0,92	0,69
S8	21	1,23	0,23	1,45	0,70	0,74	0,33							
S9	513	6,99	0,05	7,04	1,03	1,23	0,87	899	9,92	0,06	9,98	0,98	1,28	1,13
S10	223	20,91	0,01	20,92	0,88	1,60	2,45							
S12	82	2,86	0,16	3,02	0,82	1,03	0,61							
S15	170	4,47	0,05	4,52	0,51	0,79	0,79							
S16	18.145	19,06	0,00	19,06	0,97	1,39	1,60	12.874	6,50	0,00	6,50	0,98	1,26	0,99

Table I.2 – Descriptive statistics per regime – Leverage – Developing Countries I

	LEVERAGE												
	1990 - 2004							2005 - 2014					
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S1	720	13,87	-6,32	7,55	0,39	0,54	0,79	233	42,31	-24,06	18,25	0,47	0,79	3,12
S2	2.046	13,83	-5,62	8,20	0,64	0,90	1,06	256	11,31	-5,00	6,30	0,36	0,55	1,06
S3	369	26,51	-10,18	16,33	0,31	0,72	2,09							
S4	1.373	29,18	-13,96	15,22	0,60	0,82	1,42	1.967	59,90	-23,51	36,39	0,56	0,92	2,62
S5	174	52,46	-24,92	27,54	1,20	1,83	3,72	93	82,87	-31,40	51,48	0,96	1,50	7,62
S6	807	99,92	-46,37	53,55	0,40	0,56	5,95							
S7	149	19,84	-6,43	13,41	0,54	0,81	1,55	237	19,17	-8,86	10,31	0,53	0,88	1,57
S8	21	0,58	0,03	0,61	0,33	0,30	0,21							
S9	513	3,04	0,00	3,04	0,42	0,58	0,53	899	17,70	-7,48	10,22	0,51	0,86	1,42
S10	223	28,09	-10,64	17,45	0,45	0,91	2,66							
S12	82	4,98	0,00	4,98	0,43	0,72	0,89							
S15	170	57,25	-24,04	33,21	1,15	2,29	6,27							
S16	18.145	20,72	-9,47	11,25	0,60	0,92	1,14	12.874	48,79	-23,77	25,02	0,47	0,78	1,90

Table I.3 – Descriptive statistics per regime – Gross Margin – Developing Countries I

	GROSS MARGIN												
	1990 - 2004							2005 - 2014					
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S1	720	0,92	-0,15	0,77	0,26	0,28	0,15	233	1,27	-0,36	0,91	0,33	0,36	0,20
S2	2.046	1,21	-0,30	0,91	0,28	0,29	0,17	256	0,87	-0,05	0,82	0,27	0,30	0,17
S3	369	1,38	-0,47	0,91	0,28	0,32	0,21							
S4	1.373	1,14	-0,28	0,85	0,29	0,31	0,17	1.967	1,25	-0,37	0,88	0,21	0,24	0,17
S5	174	0,65	0,03	0,68	0,29	0,31	0,15	93	0,96	-0,10	0,86	0,29	0,35	0,21
S6	807	0,94	-0,17	0,76	0,25	0,27	0,17							
S7	149	0,72	-0,01	0,70	0,25	0,29	0,15	237	1,06	-0,21	0,85	0,32	0,36	0,21
S8	21	0,68	0,14	0,82	0,35	0,45	0,24							
S9	513	1,04	-0,09	0,95	0,31	0,32	0,16	899	1,06	-0,28	0,78	0,22	0,25	0,16
S10	223	1,10	-0,29	0,81	0,20	0,26	0,20							
S12	82	0,79	-0,05	0,74	0,31	0,32	0,16							
S15	170	0,78	0,01	0,80	0,35	0,36	0,16							
S16	18.145	2,85	-1,67	1,18	0,27	0,29	0,19	12.874	2,70	-1,70	1,00	0,24	0,28	0,20

Table I.4 – Descriptive statistics per regime – External Dependence – Developing Countries I

| | EXTERNAL DEPENDENCE | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
All variables													
S1	720	126,45	-62,70	63,75	0,39	0,53	8,07	233	141,11	-35,53	105,58	-0,04	1,27	10,62
S2	2.046	144,75	-72,61	72,13	0,17	-0,34	8,80	256	69,52	-51,59	17,93	-0,45	-1,17	5,03
S3	369	176,41	-96,51	79,90	-0,16	-1,34	10,99							
S4	1.373	161,10	-64,78	96,33	0,21	0,45	8,27	1.967	170,57	-82,43	88,14	0,03	-0,75	9,44
S5	174	39,29	-24,91	14,38	0,56	0,29	4,02	93	36,37	-22,54	13,83	-0,34	-0,54	3,49
S6	807	222,87	-111,55	111,32	-0,62	-3,15	13,75							
S7	149	43,93	-16,13	27,80	0,07	0,08	4,45	237	155,19	-102,22	52,97	-0,13	-2,05	12,75
S8	21	9,79	-5,80	3,99	-0,44	-0,54	2,09							
S9	513	86,89	-66,32	20,58	-0,56	-1,80	6,01	899	205,88	-99,67	106,21	0,07	-0,36	10,80
S10	223	124,12	-67,69	56,42	-0,12	-1,82	12,17							
S12	82	43,75	-30,55	13,20	-0,51	-1,80	5,29							
S15	170	127,04	-78,22	48,82	-0,29	-3,41	13,66							
S16	18.145	241,15	-123,81	117,34	-0,04	-1,21	13,56	12.874	197,93	-101,46	96,47	-0,03	-0,75	9,41

Table I.5 – Descriptive statistics per regime – Liquidity – Developing Countries II

| | LIQUIDITY | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S4	2.841	6,97	0,02	6,98	1,10	1,40	1,07	1.652	7,21	0,04	7,25	1,18	1,47	1,03
S16	3.271	8,63	0,00	8,63	1,12	1,51	1,26	3.656	10,80	0,02	10,82	1,14	1,55	1,33

Table I.6 – Descriptive statistics per regime – Leverage – Developing Countries II

| | LEVERAGE | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S4	2.841	34,53	-17,42	17,11	0,34	0,57	1,36	1.652	16,52	-7,95	8,57	0,37	0,50	0,98
S16	3.271	11,52	-5,28	6,23	0,31	0,47	0,78	3.656	28,41	-12,83	15,59	0,33	0,55	1,20

Table I.7 – Descriptive statistics per regime – Gross Margin – Developing Countries II

| | GROSS MARGIN | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S4	2.841	3,02	-2,02	1,00	0,26	0,32	0,27	1.652	1,18	-0,32	0,86	0,24	0,27	0,17
S16	3.271	1,71	-0,71	1,00	0,26	0,32	0,24	3.656	1,13	-0,27	0,86	0,24	0,28	0,18

Table I.8 – Descriptive statistics per regime – External Dependence – Developing Countries II

| | EXTERNAL DEPENDENCE | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S4	2.841	216,50	-113,73	102,77	-0,23	-1,48	13,67	1.652	214,78	-99,59	115,19	-0,31	-0,81	13,79
S16	3.271	235,40	-120,20	115,20	-0,22	-1,25	13,84	3.656	208,13	-106,16	101,97	-0,07	-0,64	11,90

Table I.9 – Descriptive statistics per regime – Liquidity – Developed Countries

| | LIQUIDITY | | | | | | | | | | | | |
| | 1990 - 2004 | | | | | | | 2005 - 2014 | | | | | |
	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.	Observ.	Range	Min.	Max.	Median	Mean	Std. Dev.
S1	7.574	5,22	0,02	5,25	1,05	1,28	0,85	11.789	10,61	0,00	10,62	1,08	1,39	1,21
S2	4.880	15,72	0,00	15,72	1,19	1,83	1,98							
S4	7.739	13,72	0,00	13,72	1,09	1,62	1,69	5.819	4,65	0,01	4,67	1,05	1,26	0,80
S7	5.529	21,69	0,05	21,74	1,01	1,33	1,30	10.052	4,89	0,00	4,89	1,00	1,20	0,80
S12	219	3,15	0,32	3,48	1,00	1,16	0,64							
S16	65.874	9,45	0,00	9,45	1,08	1,49	1,35	32.351	5,71	0,00	5,71	1,06	1,28	0,89

Table I.10 – Descriptive statistics per regime – Leverage – Developed Countries

| | | | LEVERAGE | | | | | | | | | | | |
| | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. |
			1990 - 2004								**2005 - 2014**			
S1	7.574	50,19	-21,07	29,12	0,56	1,29	2,65	11.789	89,70	-44,30	45,39	0,46	0,70	3,65
S2	4.880	99,83	-44,59	55,24	0,34	0,63	3,48							
S4	7.739	74,83	-36,67	38,16	0,43	0,74	3,08	5.819	42,93	-19,73	23,20	0,44	0,78	1,74
S7	5.529	82,44	-37,26	45,19	0,59	1,47	3,67	10.052	116,21	-58,14	58,08	0,52	0,81	4,44
S12	219	13,19	0,00	13,19	0,85	1,55	2,04							
S16	65.874	68,02	-32,98	35,04	0,40	0,68	2,72	32.351	73,73	-35,99	37,74	0,46	0,70	2,89

Table I.11 – Descriptive statistics per regime – Gross Margin – Developed Countries

| | | | GROSS MARGIN | | | | | | | | | | | |
| | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. |
			1990 - 2004								**2005 - 2014**			
S1	7.574	0,80	-0,14	0,66	0,22	0,24	0,13	11.789	11,52	-10,53	1,00	0,34	0,34	0,35
S2	4.880	11,55	-10,55	1,00	0,34	0,34	0,47							
S4	7.739	4,51	-3,51	1,00	0,33	0,34	0,26	5.819	1,30	-0,38	0,92	0,24	0,28	0,18
S7	5.529	0,78	-0,13	0,64	0,22	0,24	0,13	10.052	4,11	-3,11	1,00	0,34	0,36	0,25
S12	219	0,66	0,03	0,69	0,26	0,29	0,14							
S16	65.807	7,38	-6,34	1,04	0,33	0,34	0,31	32.351	7,82	-6,82	1,00	0,31	0,32	0,30

Table I.12 – Descriptive statistics per regime – External Dependence – Developed Countries

| | | | EXTERNAL DEPENDENCE | | | | | | | | | | | |
| | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. | Observ. | Range | Min. | Max. | Median | Mean | Std. Dev. |
			1990 - 2004								**2005 - 2014**			
S1	7.574	187,45	-96,45	91,00	-0,78	-2,05	11,51	11.789	231,86	-112,56	119,30	-0,68	-0,12	13,90
S2	4.880	235,08	-107,80	127,28	-0,39	1,38	14,38							
S4	7.739	149,73	-72,69	77,04	-0,26	0,26	9,69	5.819	192,69	-102,38	90,30	-0,65	-1,99	11,41
S7	5.529	156,18	-80,50	75,68	-0,32	-1,47	9,11	10.052	253,57	-125,00	128,57	-0,72	-0,72	14,12
S12	219	13,50	-10,38	3,13	0,04	-0,27	1,46							
S16	65.874	179,14	-87,31	91,83	-0,21	0,57	10,32	32.351	231,54	-112,93	118,60	-0,49	-0,07	13,40

Note: The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

APPENDIX J

Table J.1 – Descriptive analysis per regime – ROE

	Observ.	Range	Minimun	Maximun	Median	Mean	Std. Deviation	Skewness	Kurtosis			
Return on Equity (ROE)												
S1	1.799	26,26	-15,05	11,21	0,12	0,03	0,94	-7,82	120,86			
S2	8.683	23,35	-13,56	9,78	0,08	0,06	0,75	-3,60	83,78			
S3	549	14,17	-5,95	8,21	0,11	0,13	0,71	1,99	59,13			
S4	12.534	34,80	-16,89	17,91	0,10	0,14	0,97	1,01	97,72			
S5	259	17,76	-7,52	10,24	0,04	-0,06	1,14	1,07	37,42			
S6	973	17,61	-7,49	10,13	0,14	0,20	1,00	2,78	39,19			
S7	1.036	24,55	-18,27	6,28	0,09	0,02	1,04	-8,85	127,56			
S8	89	3,53	-2,82	0,71	0,12	0,09	0,38	-5,49	40,83			
S9	3.138	29,21	-18,16	11,04	0,10	0,11	0,64	-5,95	257,54			
S10	306	14,93	-9,36	5,57	0,07	0,02	0,82	-4,29	64,19			
S11	50	0,90	-0,28	0,62	0,08	0,09	0,14	0,81	5,25			
S12	289	5,36	-3,00	2,36	0,05	0,01	0,48	-1,43	13,03			
S13	4	0,28	0,00	0,28	0,13	0,13	0,13	0,18	-3,18			
S15	237	15,06	-9,77	5,29	0,03	-0,22	1,64	-2,56	12,08			
Developing countries (I)												
S4	8.698	39,53	-18,39	21,14	0,09	0,08	1,07	-0,19	102,19			
Developing countries (II)												
S1	31.837	53,07	-26,42	26,66	0,09	0,10	1,79	0,87	74,64			
S2	10.234	57,00	-28,29	28,71	0,08	0,03	2,38	0,48	38,75			
S4	50.704	83,32	-44,02	39,31	0,08	-0,00	1,95	-1,00	109,91			
S6	2	0,34	0,19	0,53	0,36	0,36	0,24					
S7	35.761	52,88	-26,22	26,66	0,08	0,03	1,63	-0,74	80,45			
S9	136	6,98	-4,59	2,39	0,07	-0,02	0,64	-4,07	28,75			
S12	2.548	17,15	-8,89	8,26	0,07	0,04	0,55	-6,31	116,83			
Developed countries												
S1	**33.636**	**53,07**	**-26,42**	**26,66**	**0,09**	**0,09**	**1,76**	**0,82**	**77,05**			
S2	**18.917**	**57,00**	**-28,29**	**28,71**	**0,08**	**0,04**	**1,83**	**0,44**	**63,74**			
S3	**549**	**14,17**	**-5,95**	**8,21**	**0,11**	**0,13**	**0,71**	**1,99**	**59,13**			
S4	**71.936**	**83,32**	**-44,02**	**39,31**	**0,08**	**0,03**	**1,73**	**-1,03**	**129,46**			
S5	**259**	**17,76**	**-7,52**	**10,24**	**0,04**	**-0,06**	**1,14**	**1,07**	**37,42**			
S6	**975**	**17,61**	**-7,49**	**10,13**	**0,14**	**0,20**	**1,00**	**2,78**	**39,26**			
S7	**36.797**	**17,61**	**-26,22**	**26,66**	**0,08**	**0,03**	**1,61**	**-0,81**	**81,49**			
S8	**89**	**24,55**	**-2,82**	**0,71**	**0,12**	**0,09**	**0,38**	**-5,49**	**40,83**			
S9	**3.274**	**29,21**	**-18,16**	**11,04**	**0,10**	**0,10**	**0,64**	**-5,85**	**247,37**			
S10	**306**	**29,21**	**-9,36**	**5,57**	**0,07**	**0,02**	**0,82**	**-4,29**	**64,19**			
S11	**50**	**14,93**	**-0,28**	**0,62**	**0,08**	**0,09**	**0,14**	**0,81**	**5,25**			
S12	**2.837**	**17,15**	**-8,89**	**8,26**	**0,07**	**0,04**	**0,55**	**-5,98**	**111,12**			
S13	**4**	**5,36**	**0,00**	**0,28**	**0,13**	**0,13**	**0,13**	**0,18**	**-3,18**			
S14	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**			
S15	**237**	**0,28**	**-9,77**	**5,29**	**0,03**	**-0,22**	**1,64**	**-2,56**	**12,08**			
Overall												

Table J.2 – Descriptive analysis per regime – ROS

	Observ.	Range	Minimun	Maximun	Median	Mean	Std. Deviation	Skewness	Kurtosis
Return on Sales (ROS)									
S1	1.817	39,10	-22,05	17,05	0,09	0,04	0,89	-7,73	319,20
S2	8.476	89,12	-50,00	39,11	0,03	-0,16	2,32	-9,38	189,43
S3	548	25,13	-14,25	10,88	0,04	0,03	0,96	-2,09	134,20
S4	12.334	103,49	-52,44	51,04	0,05	-0,03	2,77	-2,34	150,57
S5	263	18,25	-4,30	13,95	0,02	0,01	1,20	9,14	101,56
S6	984	19,47	-11,79	7,68	0,04	-0,13	1,13	-3,69	39,35
S7	1.018	53,04	-42,75	10,29	0,03	-0,15	2,26	-12,66	196,18
S8	89	3,91	-0,46	3,45	0,09	0,14	0,42	5,79	43,37
S9	3.052	107,70	-74,16	33,54	0,05	0,05	2,72	-9,10	319,52
S10	305	15,39	-6,07	9,32	0,03	0,06	0,82	4,46	71,21
S11	52	2,31	-1,80	0,51	0,06	0,05	0,29	-5,18	34,43
S12	308	49,03	-13,83	35,20	0,03	0,13	2,40	10,74	160,57
S13	7	1,05	-0,07	0,98	0,24	0,34	0,43	0,93	-0,99
S15	244	15,49	-8,00	7,49	-0,05	-0,38	1,36	-1,61	15,73
Developing countries (I)									
S4	8.749	117,60	-61,57	56,03	0,05	-0,20	2,75	-8,65	181,29
Developing countries (II)									
S1	29.307	173,18	-90,95	82,24	0,02	-0,68	5,12	-8,39	119,09
S2	9.674	286,61	-174,71	111,90	0,01	-2,31	10,91	-7,14	74,49
S4	45.092	276,13	-147,89	128,24	0,02	-0,59	5,95	-8,70	185,60
S6	2	0,03	0,08	0,11	0,09	0,09	0,02		
S7	31.819	162,32	-92,21	70,11	0,01	-0,61	4,75	-9,55	135,42
S9	138	21,60	-14,73	6,88	0,04	0,00	1,43	-7,25	87,13
S12	2.593	4,40	-1,96	2,43	0,01	0,01	0,09	0,08	264,46
Developed countries									
S1	**31.124**	**173,18**	**-90,95**	**82,24**	**0,02**	**-0,64**	**4,97**	**-8,63**	**126,17**
S2	**18.150**	**286,61**	**-174,71**	**111,90**	**0,02**	**-1,31**	**8,19**	**-9,42**	**131,94**
S3	**548**	**25,13**	**-14,25**	**10,88**	**0,04**	**0,03**	**0,96**	**-2,09**	**134,20**
S4	**66.175**	**276,13**	**-147,89**	**128,24**	**0,02**	**-0,43**	**5,15**	**-9,41**	**230,47**
S5	**263**	**18,25**	**-4,30**	**13,95**	**0,02**	**0,01**	**1,20**	**9,14**	**101,56**
S6	**986**	**19,47**	**-11,79**	**7,68**	**0,04**	**-0,13**	**1,13**	**-3,69**	**39,44**
S7	**32.837**	**19,47**	**-92,21**	**70,11**	**0,01**	**-0,60**	**4,70**	**-9,64**	**138,15**
S8	**89**	**53,04**	**-0,46**	**3,45**	**0,09**	**0,14**	**0,42**	**5,79**	**43,37**
S9	**3.190**	**107,70**	**-74,16**	**33,54**	**0,05**	**0,05**	**2,67**	**-9,17**	**326,13**
S10	**305**	**107,70**	**-6,07**	**9,32**	**0,03**	**0,06**	**0,82**	**4,46**	**71,21**
S11	**52**	**15,39**	**-1,80**	**0,51**	**0,06**	**0,05**	**0,29**	**-5,18**	**34,43**
S12	**2.901**	**49,03**	**-13,83**	**35,20**	**0,01**	**0,02**	**0,79**	**32,47**	**1.487,53**
S13	**7**	**49,03**	**-0,07**	**0,98**	**0,24**	**0,34**	**0,43**	**0,93**	**-0,99**
S14	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
S15	**244**	**1,05**	**-8,00**	**7,49**	**-0,05**	**-0,38**	**1,36**	**-1,61**	**15,73**
Overall									

Table J.3 – Descriptive analysis per regime – SMR

	Observ.	Range	Minimun	Maximun	Median	Mean	Std. Deviation	Skewness	Kurtosis
Stock Market Return (SMR)									
S1	1.201	4,53	-1,00	3,53	0,00	0,08	0,49	1,47	5,26
S2	6.026	3,99	-1,00	2,99	-0,05	0,03	0,51	1,58	4,10
S3	331	3,69	-0,99	2,70	0,18	0,26	0,62	0,62	0,78
S4	4.159	3,76	-1,00	2,76	-0,06	-0,03	0,39	1,54	5,58
S5	358	3,21	-0,75	2,47	0,43	0,63	0,83	0,50	-1,00
S6	740	3,02	-0,89	2,13	-0,15	-0,05	0,52	1,32	2,13
S7	309	4,49	-0,95	3,54	-0,17	-0,13	0,48	3,19	17,04
S8	245	3,67	-1,00	2,67	0,01	0,10	0,47	1,41	4,18
S9	2.762	3,51	-1,00	2,51	-0,03	0,03	0,45	1,46	3,67
S10	182	2,88	-0,99	1,88	-0,06	0,03	0,44	1,25	2,49
S11	26	4,37	-1,00	3,37	0,17	0,39	1,26	1,13	0,85
S12	469	4,56	-0,92	3,64	-0,06	0,10	0,70	1,75	4,10
S13	4	0,90	-0,90	-0,00	-0,13	-0,29	0,41	-1,84	3,48
S15	200	3,53	-1,00	2,54	-0,25	-0,07	0,68	1,42	2,01
Developing countries (I)									
S4	6.351	4,34	-0,99	3,35	-0,18	-0,14	0,42	1,52	6,36
Developing countries (II)									
S1	26.440	5,30	-1,00	4,30	0,03	0,07	0,49	1,60	7,64
S2	11.892	5,27	-1,00	4,27	0,11	0,23	0,70	1,61	4,27
S4	43.080	5,00	-1,00	4,00	-0,13	-0,14	0,40	0,94	4,46
S6	4	1,40	-0,01	1,39	0,84	0,76	0,58	-0,71	1,27
S7	30.079	5,26	-1,00	4,26	-0,20	-0,19	0,38	1,64	10,15
S9	233	2,20	-0,93	1,27	-0,20	-0,16	0,28	1,03	3,62
S12	2.905	2,47	-1,00	1,48	-0,32	-0,28	0,23	1,55	5,90
S14	3	0,81	-0,99	-0,18	-0,21	-0,46	0,46	-1,73	
Developed countries									
S1	**27.641**	**5,30**	**-1,00**	**4,30**	**0,02**	**0,07**	**0,49**	**1,60**	**7,53**
S2	**17.918**	**5,27**	**-1,00**	**4,27**	**0,04**	**0,16**	**0,65**	**1,71**	**4,89**
S3	**331**	**3,69**	**-0,99**	**2,70**	**0,18**	**0,26**	**0,62**	**0,62**	**0,78**
S4	**53.590**	**5,00**	**-1,00**	**4,00**	**-0,13**	**-0,13**	**0,40**	**1,05**	**4,81**
S5	**358**	**3,21**	**-0,75**	**2,47**	**0,43**	**0,63**	**0,83**	**0,50**	**-1,00**
S6	**744**	**3,02**	**-0,89**	**2,13**	**-0,15**	**-0,04**	**0,52**	**1,31**	**2,03**
S7	**30.388**	**4,49**	**-1,00**	**4,26**	**-0,20**	**-0,19**	**0,38**	**1,68**	**10,39**
S8	**245**	**3,67**	**-1,00**	**2,67**	**0,01**	**0,10**	**0,47**	**1,41**	**4,18**
S9	**2.995**	**3,51**	**-1,00**	**2,51**	**-0,05**	**0,02**	**0,44**	**1,50**	**3,89**
S10	**182**	**2,88**	**-0,99**	**1,88**	**-0,06**	**0,03**	**0,44**	**1,25**	**2,49**
S11	**26**	**4,37**	**-1,00**	**3,37**	**0,17**	**0,39**	**1,26**	**1,13**	**0,85**
S12	**3.374**	**4,63**	**-1,00**	**3,64**	**-0,30**	**-0,23**	**0,36**	**3,48**	**21,00**
S13	**4**	**0,90**	**-0,90**	**-0,00**	**-0,13**	**-0,29**	**0,41**	**-1,84**	**3,48**
S14	**3**	**0,81**	**-0,99**	**-0,18**	**-0,21**	**-0,46**	**0,46**	**-1,73**	
S15	**203**	**3,53**	**-1,00**	**2,54**	**-0,25**	**-0,07**	**0,68**	**1,42**	**2,01**
Overall									

Table J.3 – Descriptive analysis per regime – FCF

	Observ.	Range	Minimun	Maximun	Median	Mean	Std. Deviation	Skewness	Kurtosis	
Free Cash Flow (FCF)										
S1	459	124,15	-57,37	66,78	-0,09	-0,36	6,82	0,74	52,62	🟦
S2	6.377	156,19	-81,08	75,10	-0,32	-0,31	6,95	-0,11	43,91	🟨 🟩 🟥
S3	379	100,63	-59,45	41,18	-0,16	-0,20	6,06	-1,95	37,48	🟩 🟥
S4	9.865	163,04	-80,51	82,53	-0,21	-0,31	6,56	0,07	42,77	🟥
S5	155	89,89	-37,34	52,55	-0,12	0,89	8,90	1,30	13,50	🟦 🟨 🟩 🟥
S6	863	115,74	-53,70	62,03	-0,36	-0,18	5,88	0,10	44,38	🟦 🟩 🟥
S7	838	137,42	-76,50	60,92	-0,09	-0,33	7,21	-1,07	33,75	🟦 🟥
S8	26	32,53	-14,35	18,18	0,17	1,00	5,69	1,08	5,81	🟨 🟩 🟥
S9	2.643	138,78	-69,93	68,85	-0,06	-0,20	5,48	-0,84	51,95	🟩 🟥
S10	247	97,57	-48,26	49,31	-0,27	-0,15	6,78	1,10	32,68	🟩 🟥
S11	2	5,26	-0,70	4,57	1,93	1,93	3,72			🟦 🟨 🟩 🟥
S12	78	97,54	-73,54	24,00	0,31	-0,49	9,38	-6,09	49,31	🟦 🟩 🟥
S13	1	0,00	-0,58	-0,58	-0,58	-0,58				
S15	186	99,67	-47,06	52,61	-0,48	-0,72	10,97	-0,66	9,79	🟦 🟨 🟩 🟥
Developing countries (I)										
S4	7.426	109,02	-55,11	53,92	-0,24	-0,25	5,41	-0,14	38,32	🟥
Developing countries (II)										
S1	25.427	102,15	-53,16	48,99	-0,06	-0,05	4,17	0,46	44,00	🟦
S2	9.508	108,80	-57,49	51,30	-0,01	0,18	4,65	1,14	38,05	🟨 🟥
S4	38.961	133,10	-65,97	67,14	-0,13	-0,06	4,65	0,61	50,79	🟥
S6	1	0,00	-1,00	-1,00	-1,00	-1,00				🟦 🟩
S7	25.826	95,15	-47,06	48,09	-0,10	-0,07	4,00	0,64	45,61	🟦 🟥
S9	7	1,51	-1,33	0,18	-0,34	-0,50	0,60	-0,27	-1,99	🟨 🟥
S12	186	59,57	-37,39	22,18	-0,13	-0,10	3,55	-4,75	74,64	🟦 🟨 🟥
Developed countries										
S1	**25.886**	**124,15**	**-57,37**	**66,78**	**-0,06**	**-0,06**	**4,23**	**0,48**	**47,07**	🟦
S2	**15.885**	**156,19**	**-81,08**	**75,10**	**-0,10**	**-0,02**	**5,69**	**0,24**	**49,94**	🟨 🟩
S3	**379**	**100,63**	**-59,45**	**41,18**	**-0,16**	**-0,20**	**6,06**	**-1,95**	**37,48**	🟩
S4	**56.252**	**163,04**	**-80,51**	**82,53**	**-0,15**	**-0,13**	**5,14**	**0,30**	**49,99**	🟥
S5	**155**	**89,89**	**-37,34**	**52,55**	**-0,12**	**0,89**	**8,90**	**1,30**	**13,50**	🟦 🟨 🟩
S6	**864**	**115,74**	**-53,70**	**62,03**	**-0,36**	**-0,18**	**5,87**	**0,11**	**44,44**	🟦 🟩
S7	**26.664**	**115,74**	**-76,50**	**60,92**	**-0,10**	**-0,08**	**4,14**	**0,37**	**48,66**	🟦 🟩 🟥
S8	**26**	**137,42**	**-14,35**	**18,18**	**0,17**	**1,00**	**5,69**	**1,08**	**5,81**	🟨 🟩
S9	**2.650**	**138,78**	**-69,93**	**68,85**	**-0,06**	**-0,20**	**5,47**	**-0,84**	**52,09**	🟩 🟥
S10	**247**	**138,78**	**-48,26**	**49,31**	**-0,27**	**-0,15**	**6,78**	**1,10**	**32,68**	🟩 🟥
S11	**2**	**97,57**	**-0,70**	**4,57**	**1,93**	**1,93**	**3,72**			🟦 🟨 🟩
S12	**264**	**97,54**	**-73,54**	**24,00**	**-0,07**	**-0,22**	**5,89**	**-7,90**	**99,10**	🟦 🟨 🟩 🟥
S13	**1**	**97,54**	**-0,58**	**-0,58**	**-0,58**	**-0,58**				
S14	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	🟦 🟩
S15	**186**	**0,00**	**-47,06**	**52,61**	**-0,48**	**-0,72**	**10,97**	**-0,66**	**9,79**	🟦 🟨 🟩 🟥
Overall										

Note: The colours blue, yellow, green and red represent, respectively, the occurrence of banking crises, currency crises, debt crises, and recessions.

Phase 1

Table K.1 – Phase I: Dynamic Panel Data Regression Analysis for ROE

ROE Panel or Cross-Section	Lagged	Leverage	Size	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
S1 (Panel)	0.429***	-0.037***	0.005	0.011	-0.000*	0.199***	-0.009	-0.002**	0.3121	688	618
SE	(0.038)	(0.012)	(0.006)	(0.008)	(0.000)	(0.045)	(0.028)	(0.001)			
S2 (Panel)	0.316***	-0.110***	0.017***	-0.003	0.000	0.141***	0.013	-0.002***	0.3939	1,505	1,265
SE	(0.021)	(0.006)	(0.004)	(0.003)	(0.000)	(0.031)	(0.020)	(0.001)			
S3 (Panel)	0.103***	-0.020***	0.004	-0.008	0.001	0.448***	-0.074**	0.000	0.2435	321	259
SE	(0.027)	(0.007)	(0.008)	(0.008)	(0.001)	(0.070)	(0.033)	(0.001)			
S4 (Panel)	-0.007	-0.035***	0.006	0.022**	-0.000	0.152**	-0.005	-0.000	0.1065	721	503
SE	(0.014)	(0.008)	(0.006)	(0.011)	(0.000)	(0.066)	(0.028)	(0.001)			
S5 (OLS)	0.525***	-0.221***	0.041*	-0.004	0.003	0.046	0.062	0.002	0.663	123	
SE	(0.194)	(0.018)	(0.022)	(0.053)	(0.002)	(0.233)	(0.084)	(0.009)			
S6 (Panel)	-0.016	-0.021***	0.038	-0.013	0.004**	0.065	-0.021	-0.003	0.0407	725	243
SE	(0.017)	(0.006)	(0.023)	(0.019)	(0.002)	(0.216)	(0.080)	(0.002)			
S7 (OLS)	0.535***	-0.065***	0.023**	0.005	0.001**	0.096	-0.041	-0.010***	0.481	137	
SE	(0.075)	(0.011)	(0.009)	(0.017)	(0.000)	(0.106)	(0.044)	(0.003)			
S9 (Panel)	0.523***	-0.030**	0.001	0.008	-0.000	0.145***	0.001	-0.000	0.6053	454	220
SE	(0.038)	(0.012)	(0.004)	(0.006)	(0.000)	(0.035)	(0.017)	(0.001)			
S10 (OLS)	0.115***	0.007	0.017	0.004	0.001	0.506***	-0.068	-0.002	0.427	204	
SE	(0.022)	(0.009)	(0.011)	(0.007)	(0.001)	(0.096)	(0.043)	(0.001)			
S12 (OLS)	0.579***	0.003	0.002	0.090*	-0.001	0.503***	-0.118	-0.003	0.531	63	
SE	(0.162)	(0.034)	(0.019)	(0.051)	(0.001)	(0.178)	(0.096)	(0.006)			
S15 (OLS)	0.035	-0.164***	0.008	-0.018	-0.000	0.371	-0.085	-0.000	0.659	142	
SE	(0.063)	(0.011)	(0.036)	(0.071)	(0.003)	(0.388)	(0.135)	(0.005)			
S16 (Panel)	0.338***	-0.033***	0.004**	-0.004***	-0.000	0.212***	-0.010	-0.001***	0.3792	10,045	2,667
SE	(0.007)	(0.002)	(0.002)	(0.001)	(0.000)	(0.011)	(0.011)	(0.000)			
Developing countries (I)											
S4 (Panel)	0.031	-0.238***	0.027**	-0.008	-0.001	0.264***	-0.067	0.003***	0.1417	2,502	891
SE	(0.022)	(0.013)	(0.013)	(0.016)	(0.001)	(0.063)	(0.049)	(0.001)			
S16 (Panel)	-0.003	-0.048***	-0.013**	-0.026***	-0.000	0.172***	-0.026	-0.002***	0.0412	2,802	881
SE	(0.006)	(0.010)	(0.006)	(0.005)	(0.000)	(0.028)	(0.023)	(0.000)			
Developing countries (II)											
S1 (Panel)	0.117***	-0.023***	0.010***	-0.020***	-0.000***	0.263***	-0.011	-0.001***	0.1397	7,044	2,944
SE	(0.010)	(0.001)	(0.002)	(0.004)	(0.000)	(0.023)	(0.024)	(0.000)			
S2 (Panel)	0.013	-0.046***	0.021***	-0.015**	0.001***	0.147***	-0.052	-0.007***	0.0491	4,611	4,301
SE	(0.010)	(0.005)	(0.007)	(0.007)	(0.000)	(0.030)	(0.046)	(0.001)			
S4 (Panel)	0.027***	-0.084***	0.041***	-0.017**	0.001***	0.364***	0.083**	-0.007***	0.1001	7,194	5,059
SE	(0.009)	(0.004)	(0.006)	(0.006)	(0.000)	(0.046)	(0.038)	(0.001)			
S7 (Panel)	-0.128***	-0.077***	0.029***	-0.014***	-0.001***	0.272***	0.024	-0.002***	0.2126	5,278	2,652
SE	(0.020)	(0.002)	(0.005)	(0.005)	(0.000)	(0.053)	(0.064)	(0.001)			
S12 (OLS)	0.803***	-0.008**	-0.005	-0.007	-0.000	0.055	0.073*	0.004	0.572	179	
SE	(0.062)	(0.003)	(0.004)	(0.009)	(0.000)	(0.039)	(0.044)	(0.004)			
S16 (Panel)	-0.017***	-0.084***	0.028***	-0.008**	0.001***	0.245***	0.014	-0.006***	0.0595	57,955	11,412
SE	(0.003)	(0.002)	(0.003)	(0.004)	(0.000)	(0.015)	(0.020)	(0.000)			
Developed countries											

Note: Table K.1 reports the results from the estimation of equation (1) to disentangle the relationship between firm profitability and their determinants. In the first column is reported in brackets the model in use (random effects or, if not in panel, OLS). In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets, it means that this regression was not possible to run due to insufficient data. The symbols *, **, and *** represent significance levels of 10%, 5% and 1% respectively for the attached coefficient.

Table K.2 – Phase I: Dynamic Panel Data Regression Analysis for ROS

ROS Panel or Cross-Section		Independent Variable								R²	Observ.	Groups
		Lagged	Leverage	Size	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.			
S1 (Panel)		0.436***	-0.029***	0.007**	0.020***	-0.000**	0.283***	0.001	-0.001**	0.5991	675	608
	SE	(0.035)	(0.005)	(0.003)	(0.005)	(0.000)	(0.029)	(0.016)	(0.000)			
S2 (Panel)		0.615***	-0.013***	0.008**	0.003	0.000*	0.116***	0.005	-0.003***	0.4144	1,524	1,275
	SE	(0.022)	(0.004)	(0.003)	(0.003)	(0.000)	(0.028)	(0.018)	(0.001)			
S3 (Panel)		-0.018	-0.011**	0.016**	0.013**	0.000	0.349***	0.009	0.000	0.2731	325	262
	SE	(0.022)	(0.005)	(0.007)	(0.007)	(0.000)	(0.058)	(0.029)	(0.001)			
S4 (Panel)		0.306***	-0.000	0.009***	0.026***	-0.000	0.220***	-0.011	-0.002***	0.4484	719	496
	SE	(0.027)	(0.003)	(0.003)	(0.005)	(0.000)	(0.030)	(0.012)	(0.000)			
S5 (OLS)		0.008	0.006	-0.009	0.137***	0.005***	0.158	0.022	0.005	0.268	123	
	SE	(0.230)	(0.006)	(0.014)	(0.035)	(0.001)	(0.168)	(0.053)	(0.005)			
S6 (Panel)		0.289***	0.010***	-0.017	0.022*	0.002	0.268**	0.028	0.002	0.1995	719	239
	SE	(0.034)	(0.003)	(0.014)	(0.011)	(0.001)	(0.133)	(0.049)	(0.002)			
S7 (OLS)		0.451***	-0.015**	0.015***	0.017*	0.000	0.126**	0.000	-0.008***	0.500	140	
	SE	(0.090)	(0.006)	(0.005)	(0.010)	(0.000)	(0.062)	(0.024)	(0.002)			
S9 (Panel)		0.634***	-0.038*	0.006	0.011	-0.000	0.062	-0.017	0.001	0.1851	467	227
	SE	(0.090)	(0.023)	(0.007)	(0.013)	(0.000)	(0.075)	(0.029)	(0.002)			
S10 (OLS)		-0.019	-0.017***	0.013	-0.005	0.000	0.375***	-0.016	-0.001	0.250	207	
	SE	(0.040)	(0.005)	(0.008)	(0.005)	(0.001)	(0.068)	(0.030)	(0.001)			
S12 (OLS)		0.561***	-0.002	0.000	0.056**	0.000	0.010	0.017	-0.006**	0.647	70	
	SE	(0.112)	(0.016)	(0.009)	(0.024)	(0.000)	(0.089)	(0.039)	(0.003)			
S15 (OLS)		1.123***	-0.001	-0.025	0.095	0.002	-0.642**	0.072	-0.006*	0.307	146	
	SE	(0.223)	(0.007)	(0.028)	(0.059)	(0.002)	(0.302)	(0.106)	(0.003)			
S16 (Panel)		0.006***	-0.051***	0.026***	0.004*	0.000	0.741***	0.019	-0.002***	0.1127	10,043	2,594
	SE	(0.001)	(0.004)	(0.004)	(0.002)	(0.000)	(0.024)	(0.030)	(0.000)			
Developing countries (I)												
S4 (Panel)		0.092***	-0.020***	0.028***	0.014***	-0.000	0.259***	-0.036**	-0.003***	0.2022	2,535	897
	SE	(0.010)	(0.004)	(0.005)	(0.005)	(0.000)	(0.021)	(0.018)	(0.000)			
S16 (Panel)		0.256***	-0.004	0.053***	0.020***	0.000	0.250***	-0.010	-0.003***	0.2927	2,861	881
	SE	(0.018)	(0.011)	(0.006)	(0.006)	(0.000)	(0.034)	(0.025)	(0.000)			
Developing countries (II)												
S1 (Panel)		0.724***	0.000	0.002***	-0.003**	0.000	0.096***	-0.001	-0.001***	0.2633	7,034	2,934
	SE	(0.018)	(0.000)	(0.002)	(0.000)	(0.000)	(0.010)	(0.010)	(0.000)			
S2 (Panel)		0.252***	-0.002	0.066***	-0.050***	0.001	1.353***	-0.065	-0.022***	0.3334	4,697	4,385
	SE	(0.010)	(0.006)	(0.011)	(0.012)	(0.001)	(0.062)	(0.067)	(0.002)			
S4 (Panel)		0.192***	0.006	0.056***	-0.036***	0.001***	1.141***	-0.037	-0.022***	0.3167	7,371	5,156
	SE	(0.007)	(0.004)	(0.007)	(0.008)	(0.000)	(0.055)	(0.041)	(0.001)			
S7 (Panel)		0.071***	-0.001***	0.004***	0.006***	-0.000***	0.132***	0.003	-0.000***	0.2076	5,293	2,637
	SE	(0.015)	(0.000)	(0.001)	(0.001)	(0.000)	(0.007)	(0.008)	(0.000)			
S12 (OLS)		0.704***	-0.001**	-0.001	0.002	-0.000	0.015*	0.018*	-0.001	0.731	209	
	SE	(0.048)	(0.001)	(0.001)	(0.002)	(0.000)	(0.009)	(0.010)	(0.001)			
S16 (Panel)		0.089***	0.003**	0.071***	-0.020***	0.002***	1.489***	-0.035	-0.010***	0.2827	62,402	11,526
	SE	(0.001)	(0.001)	(0.004)	(0.003)	(0.000)	(0.018)	(0.028)	(0.000)			
Developed countries												

Note: Table K.2 reports the results from the estimation of equation (1) to disentangle the relationship between firm profitability and their determinants. In the first column is reported in brackets the model in use (random effects or, if not in panel, OLS). In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets, it means that this regression was not possible to run due to insufficient data. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table K.3 – Phase I: Dynamic Panel Data Regression Analysis for SMR

SMR Panel or Cross-Section		Lagged	Leverage	Size	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
					Independent Variable							
S1 (Panel)		0.118**	-0.003	-0.004	0.042	-0.000	0.329**	-0.079	0.002	0.1414	404	357
	SE	(0.050)	(0.031)	(0.019)	(0.030)	(0.001)	(0.160)	(0.089)	(0.002)			
S2 (Panel)		0.141***	-0.043**	0.033***	0.018	0.000	0.238**	0.015	-0.002	0.2489	716	553
	SE	(0.049)	(0.017)	(0.010)	(0.013)	(0.001)	(0.104)	(0.050)	(0.002)			
S3 (OLS)		0.778***	-0.031	0.058	0.018	0.001	0.036	-0.061	-0.002	0.299	165	
	SE	(0.148)	(0.021)	(0.037)	(0.032)	(0.003)	(0.298)	(0.131)	(0.004)			
S4 (Panel)		0.158***	-0.017	0.001	0.045***	0.000	0.132	-0.008	0.000	0.2061	515	385
	SE	(0.042)	(0.013)	(0.009)	(0.017)	(0.000)	(0.104)	(0.039)	(0.002)			
S5 (OLS)		-0.021	-0.022*	-0.047*	0.007	-0.002	0.926***	-0.154	0.007	0.663	134	
	SE	(0.101)	(0.012)	(0.027)	(0.064)	(0.003)	(0.307)	(0.101)	(0.010)			
S6 (Panel)		-0.027	0.009**	0.002	0.019	0.002	0.426***	-0.021	-0.001	0.2206	515	192
	SE	(0.045)	(0.004)	(0.017)	(0.012)	(0.002)	(0.146)	(0.056)	(0.002)			
S7 (OLS)		0.113*	0.021	-0.054***	-0.028	0.000	-0.123	-0.009	-0.010	0.154	101	
	SE	(0.066)	(0.017)	(0.019)	(0.031)	(0.001)	(0.210)	(0.076)	(0.007)			
S9 (Panel)		0.162***	-0.038	0.001	0.045**	-0.001	0.207*	0.054	0.000	0.3376	385	182
	SE	(0.053)	(0.042)	(0.012)	(0.021)	(0.001)	(0.117)	(0.050)	(0.003)			
S10 (OLS)		0.069	0.012	0.099***	0.008	-0.000	0.420**	0.056	-0.005	0.237	130	
	SE	(0.111)	(0.012)	(0.023)	(0.013)	(0.002)	(0.198)	(0.080)	(0.003)			
S12 (OLS)		0.001	-0.078	0.019	0.001	-0.002	0.174	-0.062	-0.014	0.424	50	
	SE	(0.007)	(0.057)	(0.037)	(0.115)	(0.002)	(0.399)	(0.159)	(0.010)			
S15 (OLS)		-0.014	0.015	0.035	0.043	0.006	-0.129	-0.060	0.003	0.072	119	
	SE	(0.119)	(0.010)	(0.043)	(0.069)	(0.004)	(0.427)	(0.136)	(0.004)			
S16 (Panel)		0.240***	0.001	-0.003	-0.010**	0.001***	0.270***	-0.011	-0.001***	0.1427	7,353	2,485
	SE	(0.013)	(0.006)	(0.004)	(0.005)	(0.000)	(0.036)	(0.025)	(0.000)			
Developing countries (I)												
S4 (Panel)		0.093***	-0.006	0.023***	0.003	0.001*	0.065**	-0.029	-0.001**	0.3518	1,818	632
	SE	(0.019)	(0.005)	(0.006)	(0.007)	(0.000)	(0.027)	(0.023)	(0.001)			
S16 (Panel)		0.096***	-0.021	0.029***	0.006	0.000	0.020	0.014	-0.001	0.164	2,068	620
	SE	(0.024)	(0.014)	(0.007)	(0.008)	(0.000)	(0.041)	(0.024)	(0.001)			
Developing countries (II)												
S1 (Panel)		0.224***	-0.000	0.009***	-0.000	0.000**	0.053	0.053	-0.002***	0.2119	6,677	2,783
	SE	(0.015)	(0.002)	(0.003)	(0.000)	(0.000)	(0.038)	(0.040)	(0.000)			
S2 (Panel)		0.121***	0.001	-0.012***	-0.002	-0.000	0.043**	-0.052**	-0.003***	0.148	3,476	3,281
	SE	(0.018)	(0.003)	(0.004)	(0.004)	(0.000)	(0.017)	(0.025)	(0.000)			
S4 (Panel)		-0.002	-0.004*	0.044***	-0.001	0.001***	0.167***	0.029	-0.005***	0.1143	5,378	3,748
	SE	(0.010)	(0.002)	(0.003)	(0.004)	(0.000)	(0.027)	(0.019)	(0.001)			
S7 (Panel)		-0.010	-0.002*	0.019***	-0.001	0.000***	0.135***	0.037	-0.002***	0.0812	4,833	2,462
	SE	(0.014)	(0.001)	(0.003)	(0.003)	(0.000)	(0.030)	(0.033)	(0.000)			
S12 (OLS)		0.354***	-0.024***	0.001	-0.044*	-0.000*	0.321***	0.183	0.000	0.394	190	
	SE	(0.065)	(0.007)	(0.012)	(0.025)	(0.000)	(0.104)	(0.115)	(0.009)			
S16 (Panel)		0.395***	-0.004***	0.008***	0.014***	-0.000**	0.081***	0.000	-0.003***	0.178	45,058	9,102
	SE	(0.005)	(0.001)	(0.001)	(0.001)	(0.000)	(0.007)	(0.005)	(0.000)			
Developed countries												

Note: Table K.3 reports the results from the estimation of equation (1) to disentangle the relationship between firm profitability and their determinants. In the first column is reported in brackets the model in use (random effects or, if not in panel, OLS). In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets, it means that this regression was not possible to run due to insufficient data. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table K.4 – Phase I: Dynamic Panel Data Regression Analysis for FCF

FCF Panel or Cross-Section	Independent Variable								R²	Observ.	Groups
	Lagged	Leverage	Size	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.			
S1 (Panel)	**-0.085**	**-0.216**	**-0.029**	**-0.324**	**0.017**	**2.082**	**-1.250**	**-0.022**	0.0672	113	103
SE	(0.067)	(0.530)	(0.365)	(0.639)	(0.018)	(3.618)	(1.737)	(0.064)			
S2 (Panel)	**0.026**	**0.114**	**0.229****	**0.083**	**-0.001**	**0.168**	**-0.839**	**0.011**	0.0191	1,127	936
SE	(0.049)	(0.161)	(0.112)	(0.101)	(0.006)	(1.000)	(0.583)	(0.019)			
S3 (Panel)	**0.037**	**0.062**	**-0.023**	**-0.399**	**0.008**	**4.093***	**1.054**	**0.019**	0.366	266	223
SE	(0.068)	(0.203)	(0.255)	(0.246)	(0.017)	(2.251)	(1.008)	(0.038)			
S4 (Panel)	**-0.008**	**0.011**	**0.082**	**-0.081**	**-0.002**	**2.458****	**0.090**	**-0.005**	0.0275	632	435
SE	(0.038)	(0.091)	(0.088)	(0.167)	(0.004)	(0.998)	(0.413)	(0.017)			
S5 (OLS)	**-0.405**	**0.095**	**-0.266**	**0.207**	**0.018**	**12.792***	**0.451**	**0.419**	0.118	77	
SE	(0.436)	(0.233)	(0.590)	(1.495)	(0.056)	(6.746)	(2.345)	(0.271)			
S6 (Panel)	**-0.020**	**0.003**	**0.156**	**-0.046**	**-0.006**	**1.610**	**-0.414**	**-0.028****	0.016	621	211
SE	(0.029)	(0.033)	(0.140)	(0.127)	(0.011)	(1.250)	(0.467)	(0.013)			
S7 (OLS)	**-0.034**	**-0.299**	**0.180**	**-0.544***	**0.014***	**2.997***	**-0.086**	**-0.238****	0.146	109	
SE	(0.050)	(0.256)	(0.159)	(0.305)	(0.007)	(1.683)	(0.744)	(0.093)			
S9 (Panel)	**0.023**	**-0.026**	**0.028**	**0.007**	**0.002**	**0.501**	**0.045**	**-0.045*****	0.0602	316	177
SE	(0.028)	(0.184)	(0.051)	(0.098)	(0.002)	(0.544)	(0.224)	(0.014)			
S10 (OLS)	**-0.184**	**0.108**	**-0.003**	**-0.066**	**-0.013**	**-0.369**	**-0.226**	**-0.135*****	0.103	190	
SE	(0.205)	(0.194)	(0.317)	(0.235)	(0.024)	(2.574)	(1.181)	(0.039)			
S12 (OLS)	**0.036**	**0.432**	**-0.479**	**-0.750**	**-0.049**	**2.690**	**1.227**	**-0.142**	0.757	27	
SE	(0.139)	(0.708)	(0.535)	(1.845)	(0.035)	(4.526)	(2.601)	(0.195)			
S15 (OLS)	**-0.047**	**-0.174***	**0.857*****	**-0.818**	**0.078*****	**-0.261**	**2.638****	**-0.035**	0.266	90	
SE	(0.059)	(0.095)	(0.323)	(0.748)	(0.027)	(3.791)	(1.315)	(0.036)			
S16 (Panel)	**-0.015**	**-0.046**	**0.041**	**-0.083****	**-0.001**	**0.844*****	**-0.397**	**-0.011*****	0.0032	10,037	3,102
SE	(0.009)	(0.053)	(0.034)	(0.038)	(0.002)	(0.312)	(0.256)	(0.004)			
Developing countries (I)											
S4 (Panel)	**-0.042****	**-0.032**	**0.104**	**0.292****	**0.000**	**0.279**	**0.089**	**-0.013**	0.0078	2,040	754
SE	(0.019)	(0.092)	(0.100)	(0.120)	(0.005)	(0.498)	(0.375)	(0.009)			
S16 (Panel)	**0.011**	**-0.028**	**0.036**	**0.009**	**0.001**	**0.496**	**-0.107**	**-0.010***	0.0054	2,193	749
SE	(0.014)	(0.100)	(0.047)	(0.057)	(0.003)	(0.338)	(0.179)	(0.005)			
Developing countries (II)											
S1 (Panel)	**-0.087*****	**-0.008**	**0.097****	**0.141**	**0.000**	**0.675**	**0.455**	**-0.019*****	0.0023	4,904	2,551
SE	(0.014)	(0.027)	(0.048)	(0.086)	(0.002)	(0.550)	(0.634)	(0.006)			
S2 (Panel)	**0.004**	**-0.007**	**0.018**	**0.006**	**-0.000**	**-0.099**	**0.200**	**0.000**	0.0035	4,459	4,232
SE	(0.010)	(0.013)	(0.022)	(0.024)	(0.001)	(0.098)	(0.138)	(0.003)			
S4 (Panel)	**-0.015**	**0.011**	**0.109*****	**0.029**	**0.001**	**0.179**	**-0.092**	**0.017*****	0.007	6,603	4,841
SE	(0.011)	(0.016)	(0.023)	(0.029)	(0.001)	(0.189)	(0.143)	(0.005)			
S7 (Panel)	**0.012**	**-0.000**	**0.091**	**-0.038**	**-0.004**	**-0.142**	**0.076**	**-0.017***	0.0093	2,623	2,132
SE	(0.020)	(0.023)	(0.061)	(0.067)	(0.003)	(0.713)	(0.848)	(0.009)			
S12 (OLS)	**0.077**	**-0.014**	**0.075**	**0.249**	**-0.000**	**-0.881**	**0.142**	**-0.141**	0.082	97	
SE	(0.081)	(0.052)	(0.085)	(0.189)	(0.002)	(0.940)	(0.696)	(0.104)			
S16 (Panel)	**-0.018***	**-0.001**	**0.007**	**0.081****	**0.000**	**-0.083**	**0.249***	**-0.002**	0.0009	10,124	2,159
SE	(0.010)	(0.015)	(0.023)	(0.038)	(0.001)	(0.153)	(0.138)	(0.005)			
Developed countries											

Note: Table K.4 reports the results from the estimation of equation (1) to disentangle the relationship between firm profitability and their determinants. In the first column is reported in brackets the model in use (random effects or, if not in panel, OLS). In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets, it means that this regression was not possible to run due to insufficient data. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.

Table K.5 – Phase II: Dynamic Panel Data Regression Analysis for ROE

ROE Panel or Cross-Section	Lagged	Leverage	Size	Market Share	Diversity	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
S2 (Panel)	0.097**	-0.059***	0.004	0.511**	-0.004	0.011	0.000	0.251**	0.007	-0.002	0.275	332	249
SE	(0.038)	(0.011)	(0.011)	(0.223)	(0.067)	(0.028)	(0.001)	(0.100)	(0.046)	(0.002)			
S4 (Panel)	0.048***	-0.046***	0.012**	0.266*	-0.001	0.004	0.000	0.335***	-0.066**	-0.003***	0.1694	1,885	894
SE	(0.014)	(0.004)	(0.006)	(0.141)	(0.043)	(0.007)	(0.000)	(0.053)	(0.028)	(0.001)			
S7 (Panel)	-0.131*	-0.093***	-0.051***	0.450	-0.011	0.037	0.000	0.803***	-0.061	-0.000	0.3176	223	129
SE	(0.078)	(0.018)	(0.018)	(0.429)	(0.113)	(0.029)	(0.001)	(0.113)	(0.063)	(0.001)			
S9 (Panel)	0.313***	-0.045***	0.011**	0.054	-0.024	0.010*	0.000	0.126***	0.003	-0.001**	0.3662	857	710
SE	(0.024)	(0.005)	(0.005)	(0.100)	(0.031)	(0.006)	(0.000)	(0.042)	(0.021)	(0.001)			
S16 (Panel)	0.003	-0.043***	-0.014***	0.484***	-0.024	-0.023***	0.000	0.476***	-0.033**	-0.001***	0.099	12,410	2,793
SE	(0.004)	(0.002)	(0.003)	(0.082)	(0.019)	(0.003)	(0.000)	(0.020)	(0.015)	(0.000)			
Developing countries (I)													
S4 (Panel)	0.190***	-0.055***	0.007	0.277*	0.041	-0.012**	0.001***	0.266***	-0.023	-0.001***	0.1963	1,553	721
SE	(0.020)	(0.008)	(0.005)	(0.165)	(0.028)	(0.006)	(0.000)	(0.041)	(0.020)	(0.000)			
S16 (Panel)	0.034***	-0.092***	0.016*	0.205	0.081	-0.008	-0.000	0.525***	-0.050	-0.001	0.0574	3,527	941
SE	(0.010)	(0.008)	(0.009)	(0.327)	(0.050)	(0.007)	(0.000)	(0.066)	(0.038)	(0.001)			
Developing countries (II)													
S1 (Panel)	-0.022***	-0.031***	0.003	0.245	-0.069	-0.056***	0.001	0.424***	0.136*	-0.004***	0.019	8,633	4,820
SE	(0.008)	(0.004)	(0.009)	(0.634)	(0.082)	(0.013)	(0.000)	(0.049)	(0.071)	(0.001)			
S4 (Panel)	0.026***	-0.072***	0.036***	-0.167	0.041	0.000	0.001***	0.179***	0.011	-0.003***	0.083	6,511	3,274
SE	(0.009)	(0.004)	(0.005)	(0.183)	(0.036)	(0.010)	(0.000)	(0.046)	(0.036)	(0.001)			
S7 (Panel)	-0.105***	-0.126***	0.048***	-0.658	-0.128	-0.052*	0.001	0.503***	0.017	-0.003**	0.059	8,921	4,709
SE	(0.011)	(0.004)	(0.012)	(0.556)	(0.100)	(0.027)	(0.000)	(0.099)	(0.083)	(0.001)			
S16 (Panel)	0.142***	-0.057***	0.027***	0.112	-0.006	-0.008	0.001***	0.172***	-0.046*	-0.004***	0.067	33,530	10,799
SE	(0.010)	(0.002)	(0.004)	(0.199)	(0.032)	(0.007)	(0.000)	(0.023)	(0.027)	(0.000)			
Developed countries													

Table K.6 – Phase II: Dynamic Panel Data Regression Analysis for ROS

ROS Panel or Cross-Section	Lagged	Leverage	Size	Market Share	Diversity	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
S2 (Panel)	0.087	0.013**	-0.006	0.303**	0.024	0.064***	-0.000	0.103*	0.052*	0.001	0.253	334	250
SE	(0.065)	(0.006)	(0.007)	(0.133)	(0.040)	(0.018)	(0.000)	(0.061)	(0.028)	(0.001)			
S4 (Panel)	0.029***	-0.002*	0.015***	-0.070	-0.020	0.024***	0.000	0.326***	-0.013	-0.001***	0.2757	1,887	900
SE	(0.005)	(0.001)	(0.003)	(0.063)	(0.019)	(0.003)	(0.000)	(0.023)	(0.013)	(0.000)			
S7 (Panel)	-0.192***	-0.029**	-0.009	0.455	0.163*	0.063***	0.000	0.373***	-0.033	0.000	0.1109	230	131
SE	(0.056)	(0.013)	(0.014)	(0.330)	(0.084)	(0.022)	(0.001)	(0.086)	(0.050)	(0.001)			
S9 (Panel)	0.286***	-0.001	0.009**	-0.016	0.003	0.018***	0.000	0.209***	-0.004	-0.001***	0.2702	868	717
SE	(0.029)	(0.004)	(0.004)	(0.080)	(0.025)	(0.005)	(0.000)	(0.034)	(0.016)	(0.000)			
S16 (Panel)	0.279***	0.001	0.017***	-0.056	0.001	0.023***	-0.000	0.488***	-0.004	-0.002***	0.237	12,452	2,783
SE	(0.009)	(0.001)	(0.002)	(0.064)	(0.015)	(0.003)	(0.000)	(0.017)	(0.011)	(0.000)			
Developing countries (I)													
S4 (Panel)	0.059***	0.010	0.041***	-0.222	0.030	0.020***	0.000	0.463***	-0.001	-0.002***	0.2131	1,559	720
SE	(0.017)	(0.007)	(0.007)	(0.206)	(0.034)	(0.006)	(0.000)	(0.046)	(0.026)	(0.000)			
S16 (Panel)	0.087***	-0.009	0.067***	-0.559	-0.012	0.064***	0.001	0.705***	-0.074	-0.000	0.0699	3,516	936
SE	(0.017)	(0.015)	(0.015)	(0.550)	(0.087)	(0.013)	(0.001)	(0.118)	(0.063)	(0.001)			
Developing countries (II)													
S1 (Panel)	0.217***	0.002	0.080***	-1.258**	-0.105	-0.032***	0.001**	1.010***	0.021	-0.015***	0.357	8,705	4,843
SE	(0.006)	(0.003)	(0.008)	(0.505)	(0.065)	(0.010)	(0.000)	(0.044)	(0.056)	(0.001)			
S4 (Panel)	0.098***	0.009*	0.032***	0.948***	0.048	0.048***	0.001***	0.358***	0.114*	-0.005***	0.131	6,500	3,261
SE	(0.010)	(0.005)	(0.008)	(0.297)	(0.058)	(0.016)	(0.000)	(0.073)	(0.060)	(0.001)			
S7 (Panel)	0.145***	0.002	0.066***	-0.474*	-0.152***	0.030**	0.001***	0.815***	-0.028	-0.006***	0.295	8,983	4,746
SE	(0.005)	(0.002)	(0.008)	(0.254)	(0.045)	(0.012)	(0.000)	(0.046)	(0.038)	(0.001)			
S16 (Panel)	0.175***	0.002	0.063***	-0.021	-0.053**	0.001	0.001***	1.047***	-0.053**	-0.006***	0.377	34,033	10,852
SE	(0.002)	(0.001)	(0.003)	(0.162)	(0.025)	(0.005)	(0.000)	(0.018)	(0.023)	(0.000)			
Developed countries													

Table K.7 – Phase II: Dynamic Panel Data Regression Analysis for SMR

SMR Panel or Cross-Section	Lagged	Leverage	Size	Market Share	Diversity	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
S2 (Panel)	0.389***	0.017	0.010	0.346	-0.044	0.048	-0.001	0.095	0.093**	-0.007**	0.381	300	219
SE	(0.051)	(0.013)	(0.011)	(0.245)	(0.065)	(0.031)	(0.000)	(0.099)	(0.046)	(0.003)			
S4 (Panel)	0.155***	-0.007	0.026***	0.111	0.003	0.013	0.001**	0.191***	-0.039	-0.001	0.2516	1,267	640
SE	(0.023)	(0.005)	(0.007)	(0.146)	(0.045)	(0.009)	(0.000)	(0.063)	(0.029)	(0.001)			
S7 (Panel)	-0.032	-0.155	-0.072	1.497	-0.603	-0.217	-0.001	1.217	-0.111	-0.048	0.6442	27	16
SE	(0.270)	(0.191)	(0.145)	(1.369)	(0.821)	(0.148)	(0.002)	(0.878)	(0.148)	(0.075)			
S9 (Panel)	0.317***	-0.006	0.019*	0.051	-0.031	0.025*	0.001*	0.164*	-0.034	0.000	0.2459	603	491
SE	(0.041)	(0.010)	(0.010)	(0.219)	(0.068)	(0.013)	(0.001)	(0.098)	(0.044)	(0.001)			
S16 (Panel)	0.060***	-0.010***	0.024***	0.182	-0.013	0.024***	0.001***	0.295***	-0.009	-0.000	0.112	7,761	2,025
SE	(0.012)	(0.003)	(0.004)	(0.117)	(0.027)	(0.006)	(0.000)	(0.033)	(0.021)	(0.001)			
Developing countries (I)													
S4 (Panel)	0.036**	0.012	0.029***	0.228	-0.027	0.020**	0.001***	0.274***	0.015	-0.002***	0.4352	984	514
SE	(0.016)	(0.010)	(0.007)	(0.168)	(0.035)	(0.009)	(0.000)	(0.054)	(0.026)	(0.001)			
S16 (Panel)	0.188***	-0.008	0.017**	-0.004	-0.014	0.007	0.000	0.257***	-0.075***	-0.001	0.2677	2,488	715
SE	(0.024)	(0.009)	(0.007)	(0.225)	(0.040)	(0.007)	(0.000)	(0.057)	(0.028)	(0.001)			
Developing countries (II)													
S1 (Panel)	0.099***	0.001	0.024***	-0.393**	-0.024	0.018***	0.000	0.035**	0.027	-0.002***	0.188	6,316	3,543
SE	(0.013)	(0.001)	(0.002)	(0.158)	(0.020)	(0.004)	(0.000)	(0.015)	(0.018)	(0.000)			
S4 (Panel)	0.213***	-0.003	0.014***	-0.001	0.032*	0.019***	0.000***	0.213***	-0.023	-0.001***	0.290	5,477	2,857
SE	(0.013)	(0.002)	(0.003)	(0.086)	(0.018)	(0.005)	(0.000)	(0.024)	(0.018)	(0.000)			
S7 (Panel)	0.112***	-0.001	0.022***	-0.083	-0.036**	0.033***	0.000***	0.125***	0.008	-0.001***	0.262	6,673	3,583
SE	(0.011)	(0.001)	(0.002)	(0.080)	(0.015)	(0.004)	(0.000)	(0.016)	(0.013)	(0.000)			
S16 (Panel)	0.147***	-0.002**	0.021***	-0.118*	-0.010	0.021***	0.000***	0.077***	-0.001	-0.002***	0.098	24,730	8,238
SE	(0.006)	(0.001)	(0.001)	(0.063)	(0.011)	(0.003)	(0.000)	(0.009)	(0.009)	(0.000)			
Developed countries													

Table K.8 – Phase II: Dynamic Panel Data Regression Analysis for FCF

FCF Panel or Cross-Section	Lagged	Leverage	Size	Market Share	Diversity	Liquidity	Age	Gross Margin	Ownersh.	Ext. Depdend.	R²	Observ.	Groups
S2 (Panel)	-0.001	0.029	-0.083	1.543	0.361	-0.050	0.007	0.645	0.245	-0.025	0.036	337	253
SE	(0.030)	(0.119)	(0.124)	(2.768)	(0.770)	(0.343)	(0.006)	(1.117)	(0.512)	(0.034)			
S4 (Panel)	0.015	0.009	0.208**	-2.339	0.594	0.195	0.006	-1.248	-0.017	-0.027*	0.0184	1,702	871
SE	(0.020)	(0.057)	(0.091)	(1.994)	(0.611)	(0.126)	(0.005)	(0.825)	(0.396)	(0.015)			
S7 (Panel)	-0.027	-0.037	0.221	1.967	1.025	-0.078	0.003	0.845	-0.234	0.003	0.0582	197	115
SE	(0.031)	(0.123)	(0.150)	(3.396)	(0.855)	(0.268)	(0.005)	(0.994)	(0.496)	(0.015)			
S9 (Panel)	0.003	0.165	0.200	-1.119	-1.194	0.356*	0.013	1.047	0.747	0.025	0.0217	787	681
SE	(0.027)	(0.171)	(0.158)	(3.444)	(1.060)	(0.212)	(0.009)	(1.496)	(0.704)	(0.022)			
S16 (Panel)	-0.017**	-0.069***	0.124***	-0.349	0.381	0.018	0.001	-0.252	-0.346**	-0.012**	0.004	11,089	2,613
SE	(0.009)	(0.026)	(0.033)	(1.002)	(0.237)	(0.052)	(0.002)	(0.279)	(0.174)	(0.005)			
Developing countries (I)													
S4 (Panel)	0.011	-0.178	0.158	-1.616	0.053	-0.037	-0.006	1.474*	0.745*	0.013	0.0201	1,501	696
SE	(0.033)	(0.162)	(0.107)	(3.077)	(0.569)	(0.141)	(0.005)	(0.870)	(0.410)	(0.011)			
S16 (Panel)	-0.001	-0.028	0.046	0.014	-0.420	-0.121*	-0.004	1.570***	-0.221	-0.029***	0.0174	3,302	888
SE	(0.016)	(0.080)	(0.063)	(2.160)	(0.356)	(0.067)	(0.003)	(0.517)	(0.242)	(0.008)			
Developing countries (II)													
S1 (Panel)	-0.026***	-0.005	0.056**	-0.931	-0.002	0.046	0.001	0.208	0.407**	0.003	0.005	8,404	4,660
SE	(0.009)	(0.011)	(0.024)	(1.604)	(0.207)	(0.036)	(0.001)	(0.132)	(0.182)	(0.003)			
S4 (Panel)	0.006	-0.021	0.025	-0.009	-0.085	-0.021	0.001	0.775***	0.210	0.001	0.005	6,297	3,208
SE	(0.011)	(0.028)	(0.029)	(0.988)	(0.212)	(0.067)	(0.001)	(0.281)	(0.204)	(0.004)			
S7 (Panel)	-0.042***	-0.007	0.058***	-0.458	-0.197	0.047	-0.001	0.015	0.034	-0.006**	0.002	8,661	4,576
SE	(0.009)	(0.009)	(0.021)	(0.956)	(0.178)	(0.053)	(0.001)	(0.187)	(0.148)	(0.003)			
S16 (Panel)	-0.043***	-0.000	0.051***	-0.207	0.035	0.045	-0.000	0.007	0.112	-0.005***	0.001	32,415	10,554
SE	(0.006)	(0.008)	(0.013)	(0.633)	(0.110)	(0.028)	(0.001)	(0.085)	(0.086)	(0.002)			
Developed countries													

Note: Tables C.5 to C.8 report the results from the estimation of equation (1) to disentangle the relationship between firm profitability and their determinants. In the first column is reported in brackets the model in use (random effects or, if not in panel, OLS). In the next columns standard errors are reported under brackets. If coefficient is equal to a solo zero and SE is equally zero under brackets, it means that this regression was not possible to run due to insufficient data. The symbols *, **, and *** represent significance levels of 10%. 5% and 1% respectively for the attached coefficient.