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ESSAYS ON FINANCIAL REPORTING UNDER FINANCIAL CRISIS

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<div align="center">Tiago Gonçalves</div>

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I

RESUMO

Esta dissertação tem como objetivo investigar a associação entre o relato financeiro (escolha de politicas contabilísticas e divulgação da informação financeira selecionadas) e a evolução dos períodos de crise económica e financeira. Na realização da dissertação optou-se por uma metodologia de artigos científicos individualizados. Esta metodologia permite focalizar num aspeto específico do tema geral em estudo, permitindo assim estruturar e divulgar as análises efetuadas para cada tópico, tendo em mente *targets* distintos.

No primeiro artigo, intitulado "Financial Reporting and the Dynamics of Crises: a Literature Review", é feita uma revisão da literatura relativa ao envolvimento da contabilidade em períodos de crise económica e financeira. A investigação existente, quer teórica quer empírica, não permite concluir que o reporte financeiro e o sistema contabilístico desempenham um papel primordial no despoletar das crises. Pistas para investigação futura são apresentadas.

Em seguida, procuramos detalhar mais o tópico em estudo, tentando apresentar resposta à questão: "Does Earnings Quality Mitigate Negative Shocks to Stock Markets?". A qualidade da informação financeira, aproximada pelo conceito de *earnings quality,* deverá mitigar a incerteza relativa ao valor da empresa e, consequentemente, aliviar os efeitos de choques negativos ao mercado de capitais. Os resultados obtidos permitem encontrar prova de que as empresas que divulgam informação contabilística de menor qualidade experienciam maiores quedas nos seus preços do que aquelas cuja

informação contabilística tem maior qualidade. Os resultados obtidos são robustos e significativos, quer estatisticamente, quer economicamente. Quando os mercados de capitais apresentam resultados anormalmente bons, o inverso não se verifica, pelo que podemos concluir que a qualidade da informação financeira não representa um fator de risco sistemático de mercado.

Finalmente, no último artigo intitulado "The Impact of Measurement Criteria on Investors' Judgement and Decisions", pretendemos aprofundar a investigação relativa às consequências da escolha de um dado critério de mensuração, (em especial o contraste entre custo histórico e justo valor), nas decisões e julgamentos dos investidores. Os resultados, obtidos através de uma metodologia de experiência, permitem identificar um efeito estatisticamente significativo ao nível do julgamento relativo à relevância dos diferentes critérios de mensuração, em especial para os diferentes níveis de determinação do justo valor. Relativamente às decisões dos investidores na estimativa de uma previsão dos resultados a partir das demonstrações financeiras obtidas com mensuração ao custo histórico vs. justo valor verifica-se um efeito de volatilidade acrescida deste ultimo critério face ao primeiro.

Palavras-chave: Relato Financeiro, Sistema Contabilístico**,** Crise Económica, Crise Financeira, Justo Valor, Qualidade dos Resultados, Choques, Risco de Informação, Rendibilidade das Acções

ABSTRACT

This dissertation aims to investigate the association between financial reporting (and related accounting choices and disclosure policies) with periods of economic and financial crises. In order to do that, a paper methodology was used. This approach allows focusing on a particular topic under that broad theme at each time, while allowing structuring the research and its dissemination to particular targets.

On the first paper entitled "Financial Reporting and the Dynamics of Crises: a Literature Review", we review extant literature on the role played by financial reporting (and broadly the accounting system) on periods of economic and financial crises. Previous literature, both theoretical and empirical, shows that financial reporting should have low importance in causing an economic crisis. Opportunities for future research are presented.

To further understand this subject in higher detail, we then proceed on a paper that aims to answer the question: "Does Earnings Quality Mitigate Negative Shocks to Stock Markets?" Accounting quality proxied by earnings quality should mitigate uncertainty about firms' value and prevent some of the dynamics associated with the negative shocks to the market. Results show that firms with lower accounting quality exhibit stock prices decreases larger than those of firms with better accounting quality during those events. This association is both statistically and economically significant. When the analysis is extended to market booms, results are not symmetric, suggesting earnings quality do not proxy for market betas.

Lastly, in an article titled "The Impact of Measurement Criteria on Investors' Judgement and Decisions", we aim to extend our research of the impact of different measurement criteria on investors' decisions and judgements, especially concerning historical cost vs fair value reporting. Results obtained in an experiment show that there are statistically significant effects on relevance judgements of the different criteria. Additional effects are detected for different levels of fair value judgement, (mark-to-market vs mark-to-model). Regarding investors' earnings prediction we found a volatility effect as we move from historical cost to fair value measurement.

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Financial Reporting and the Dynamics of Crises: a Literature Review

Abstract: This paper reviews extant literature on the role played by financial reporting (and broadly the accounting system) on periods of economic and financial crises. Previous literature, both theoretical and empirical, shows that financial reporting should have low importance in causing an economic crisis. Accounting is probably just a secondary causal factor that amplifies (or mitigates) a crisis. Still, the body of knowledge of how this comes to be is extremely limited. Likely we may have not been asking the full set of relevant questions. Opportunities for future research on the role of accounting during periods of crisis are presented and framed under a setting that combines economic intuition and accounting theory.

1. Introduction

Several crises, particularly the most recent one, have questioned the role of financial reporting, in its weaknesses; bear any role in destabilizing the economy. In fact, it is important to understand, on the face of claims recently voiced, what is the relationship between accounting and (economic/ financial[1]) crises.

Previous literature, both theoretical and empirical, shows that financial reporting should have low importance in causing a crisis. Much of the focus has been on fundamental economic characteristics such as speculation and leverage propagating negative economic shocks (Reinhart and Rogoff, 2009). At most, financial reporting is mentioned within financial fraud or regulatory constraints based on accounting (Kindleberger, 2000; Financial Crises Inquiry Commission (FCIC), 2011). During the 2000's internet bubble, investors ignored accounting fundamentals on speculating over prices (Wolff, 1998). Additionally, momentum investors, contrarians, and even technical analysis traders, base their decisions on past prices and choose to ignore information provided by financial reporting. It should be intuitive, on the light of these, that at most accounting plays a role ex-post in magnifying (or preventing) crisis rather than at its source (ex-ante).

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[1] A financial crisis is one that affects only the financial markets and may or may not spillover to the economy as a whole. An economic crisis as broader consequences and can be sourced to many different reasons (please refer to section 3). In this paper we are concerned with financial markets. As so, we focus on financial crisis or on a broader economic crisis where financial markets are also disturbed. Consequently, we will use both terms interchangeably.

This paper aims to review literature so that light is shed on two main concerns, particularly salient due to the accusations made to accounting during the 2007 crisis. The first issue is whether financial reporting, in its accounting choices, plays any role at contributing to initiate or amplify crises. We call that the "ex-ante relationship". The second topic covers literature on the "ex-post relationship" of accounting with financial/economic crisis. Economic intuition suggest that under information and liquidity shocks to markets, robust accounting settings should mitigate some of those risks and allow firms to signal investors facing increasing risk premia. Question remains what are the desirable attributes of accounting to make it robust under crises settings.

Results show that, in assessing whether accounting is a primordial factor behind crisis, existing evidence does not support such conclusion. In fact, accounting is probably just a secondary causal factor that amplifies (or mitigates) a crisis. Still, the body of knowledge of how this comes to be is extremely limited. Likely we may have not been asking the full set of relevant questions. Opportunities for future research on the role of accounting during periods of crisis are considerable.

This literature review and proposed venues to conduct further research on these topics matter to a broad group of individuals. Academics can find here a starting point of reflection to ask relevant and unanswered economic phenomena related questions. Students and practitioners can use its references to broader their understanding of the state of art in research conducted on accounting systems and crises settings. Regulators

and supervisors take from this paper the research findings and economic reasoning that frames the issues at stake and gives it a structure.

The paper is structured as follows. Section 2 discusses the 2007 crisis and the relationship with (fair value or mark-to-market) accounting. Section 3 reviews extant literature relating to the links between accounting and previous crises. Section 4 analyzes the financial reporting atributtes and its importance during crises. Section 5 concludes.

2. The 2007 financial crisis

The financial crisis initiated in 2007 had prevailing effects on US and global economies. Luhby (2009) presents estimation for the amount of USD loss of around 14 trillion. Several causes were presented to justify its inception. Regulation over mortgage lending, real estate bubble, the increasing use of derivatives such as collaterized debt obligations and increasing risk banking practices are the most cited.

At the beginning of the century, US economy faced negative shocks that created incentives for expansionist economic policies. Around 2000, capital markets experienced the internet firms bubble. Shortly after, in September 11, 2001, US were attacked in its financial center. To face the impact of those events and promote economic growth, policies of low interest rates, easy credit, lower taxes and cheap dollar were put in place. The decrease in interest rates created incentives for many to own a home, which was a goal long encouraged by governments. Relaxation of criteria to lend funds to pursue that goal was promoted by Fannie Mae and Freddie Mac which led banks to engage in subprime mortgage market. An increasing number of new home loans were granted to individuals with low credit ratings that ultimately wouldn't be able to pay monthly installments once interest rates would shift upwards. On the other hand, increased securitization practices of mortgage backed loans and servicing interest income of those loans deeply increased financial profits, creating further incentives to originate more high risk credit, regardless of the credit quality of

borrowers. Finally, investors in pursue of new investment opportunities led demand for mortgage backed instruments. On their term, banking system supplied with increasing securitization of home lending, which ultimately were poorly judged by credit analysts who failed to correctly judge default risk.

By 2005, interest rates began to rise. Consequently, increasing number of home owners defaulted on their monthly payments. In 2007, New Century Financial disclosed a restatement of financial statements from previous year caused by underestimated loan loss provisions. Shortly after, several firms with long subprime positions announced large unexpected losses.

This led to a considerable debate on the pros and cons of using a full mark-to-market accounting system for banks and insurance companies. In fact, the US Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) took steps in this direction in an attempt to globalize accounting standards. The recent accounting standards SFAS 157 and IAS 39 adapt the fair value approach and attempt to use only market prices where appropriate. For example, SFAS 157 distinguishes between different levels of input to the valuation process. Level 1 input are quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. In this context, an active market is one with sufficient frequency and volume to provide pricing information on an ongoing basis. In cases where market prices are not appropriate, level 2 inputs

should be used if possible. Examples include quoted prices for similar assets and interest rate and yield curves or other market corroborated inputs. Finally, if this kind of information is also unavailable, then level 3 inputs can be used, consisting in unobservable prices that reflect firms own assumptions and information about the asset. IAS 39 has similar provisions.

There is a considerable debate on this move towards mark-to-market[2] accounting. Proponents argue that this method reflects the true and relevant value of the balance sheets of financial institutions. Thus, it should allow investors and regulators to improve their assessment about risk profiles. On the other hand, opponents claim fair value accounting leads to increasing volatility. Consequently, balance sheet values will be driven by short term fluctuations in the market, not reflecting the value of the fundamentals.

This is a debate with many relevant factors. During financial crisis, the interaction of institutions and markets can drive prices in illiquid markets to deviate from its intrinsic value reflected in future payoffs towards cash availability to buyers in the market. This raises concerns about the possibility of a liquidity pricing. Plantin, Sapra,

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[2] For the sake of clarity we stress what was explained in the previous paragraph: Fair value accounting is one that updates measurement of balance sheet items to the most recent data, as opposed to historical cost measurement criterium. Fair value measurement can be applied at three different levels – the full mark-to-market model where assets are valued at liquid market prices; the mixed model where market prices are used to assess fair values of items not traded on liquid markets; and, finally, level 3 mark-to-model criterium where companies use their best estimates to update item's value. We will refer to fair value accounting broadly bearing in mind that those three levels are ranked and companies are only allowed to relax pure market prices where there is no liquid markets' information available. Finally, market value accounting and mark-to-market accounting, in that vein, will be along side used interchangeably.

and Shin (2008) argue that mark-to-market pricing causes an increase in price volatility and suboptimal real decisions due to feedback effects. Their analysis shows sensitivity to when claims are long-lived, illiquid and senior. Allan and Carletti (2008) extend this analysis by claiming that market values further induce contagion. O'Hara (1993) analyses the effects of market value accounting on loan maturity, concluding that this accounting system increases interest rates for long maturity loans, consequently inducing shifts to short term loans. This shift in maturities reduces the ability to create liquidity by banks and expose borrowers to increasing liquidation. Burkahardt and Strausz (2006), on the other hand, argue that market value accounting plays a role on reducing asymmetric information and increasing liquidity. Finally, Freixas and Tsomocos (2004) stress that mark-to-market accounting prevents the role of banks in smoothing intertemporal shocks.

In what concerns accounting standards, Kothari and Lester (2011) show that fair value played a trifold role. Originators/ Securitizers of loans as well as investors in securitized instruments, reported gains on securitization of those loans under US GAAP accounting standards. Cumulatively, financial institutions recorded loan servicing and residual interest assets along with loan loss provisions using historical prime mortgage performance in estimations. Finally, investors on credit securitization instruments wrote those securities under fair value accounting rules allowing them to mark assets up to market value. Therefore the authors claim that fair value standards, by inconsistent implementation and subsequent misapplication, played a role in financial

crisis. It allowed firms to report immediate gains on securitization which led to more subprime lending. It also permitted switches between the three levels of fair value measurement once home loans started to default. Consequently, home loans related amounts originally classified as level 1 (direct market prices recognized fair values) or level 2 (fair values estimated using market value based inputs) changed to level 3, where internal estimates are used instead of adjusting to true fair value. Eventually this enabled firms to assume more risk.

In light of these events, there was a lot of debate on whether accounting (through its fair value accounting standards) contributed to the crisis. According to Katz (2008), former Federal Deposit Insurance Corporation (FDIC) chairman, at a Securities and Exchange Commission (SEC) panel, the accounting system was to blame on the destruction of capital and diminishing bank lending of around USD 5 trillion. In fact, Magnan and Markarian (2011), Whalen (2008) and Katz (2008) argue that fair value accounting played a significant role during the crisis since it increased uncertainty that led to rising market volatility. They blame the accounting system lacked decision usefulness, which created incentives to manipulation and were irrelevant to assess risks. It ultimately lost relevance and reliability to market participants.

On the other hand, Professor Ray Ball was quoted, at the same panel, saying "I think it would be a terrible shame if we shoot the messenger and ignore the message" conveyed by fair value accounting. Among the defenders of fair value accounting, Laux

and Leuz (2010) and Barth and Landsman (2010) find that there is only limited evidence of the impact of fair value changes on banking income and regulatory capital. SEC (2008) report also concludes that fair value accounting did not play a prominent role in bank failures. It further concludes that bank failures probably resulted from growing credit losses, low quality assets and eroding lender and low investor confidence. In fact, most opponents of the idea that fair value accounting was the source of the widespread crisis argued that it was rather the consequence of failure of many risk management policies, poor regulating practices and biased cognitive analysts, borrowers, and lenders. Badertscher et al. (2010) and Turner (2008) argue that regulators and banks alike are to blame for the turmoil of financial markets and that accounting is just a "mere recorder of events".

The most important critic to fair value accounting, based on macroeconomic grounds, is probably that mark-to-market financial reporting is strongly procyclical. This procyclicality worked in two ways. On one hand banks were unable to find demand for new credit financing as private consumption slumped and the market for new loans froze. Due to economic contraction, banks and other financial institutions were required to impair toxic assets. On the other hand, financial institutions were forced to sell their assets to be able to meet minimum capital requirements. In turn, this led to asset fire-sales which further impaired down prices supposedly already unrealistically low. Mark-to-market accounting was blamed for promoting forced sales that deepened and amplified the economic crisis. Contrarily, Laux and Leuz (2010) argue that

downward spirals can be rooted in many reasons. According to them, confusion stem from the voluntary use of market prices in private arrangements with problems that resulted from mandatory use of market values in accounting. They urge to the importance of being specific about the links trough which write-downs under fair value accounting can create problems, be it regulation induced, contracts or just a fixation on accounting number by managers or investors, not forgetting the effects of inefficient markets.

3. The role of accounting on the dynamics of crises

To frame this issue it is important to first understand what an economic crisis is. According to Ribstein (2003), economic crises are periods of sharp drops that change expectations about future prospects and frequently appear after a speculative market. Reinhart and Rogoff (2009), show the taxonomy of crisis according to seven types. Three of them are based on currency (inflation crisis; currency crashes; and currency debasement). Two of them reflect asset value bubbles (first one relates to equity – a cumulative decline of 25% or more in equity prices –; and the other one to banking assets) and the last two reflect sovereign debt crisis (external and domestic debt crises). Accounting should be mostly concerned with asset bubbles based crises.

Crises differ in the extent accounting plays an underlying role on it. Poor accounting led to inflating and bursting asset bubbles that ultimately create demand for securities regulation (Littleton, 1933; Chatfield, 1974; Baskin and Miranti, 1977; Banner, 1997; Partnoy, 2000; Ribstein, 2003).

To adequately place accounting role on this period it is important to understand what is its function. According to Waymire (2009), accounting helps entrepreneurs making decisions in its origin. Thus managerial accounting drives initial developments for reporting since this allowed achieving goals, as well as monitoring and performance evaluation of agents (stewardship). Ball (1989) argues that accounting coordinates transactions within the firm as prices do on the markets. In this light, accounting

systems should be valuable in a wide range of economic settings. In fact, financial reporting should provide feedback to managers as well as control relevant information for principals. Dickhaut et al. (2010) define robust accounting practices as those which reflect broad principles and that have stood the test of time.

Taking in consideration what was said, question remains of how accounting can be on the inception of an economic crisis. In order for that to happen, one has to argue that the accounting system, or at least some of its elements, provides poor feedback. On the light of the current crisis, for example, fair value accounting was accused of encouraging excessive asset sales by banks during the economic crisis based on capital requirements (SEC (2008)). So accounting could play a fundamental role in an economic downturn by providing low quality feedback.

The focus of this paper on the recent crisis is whether accounting played a vital role on it. Some argued mark-to-market accounting amplified the crisis further (as summarized in SEC (2008)). Fair value accounting was accused of causing procyclicality since it promotes risk taking during expansions and asset liquidation in downturns. This was justified with holding gains increase income during the bubble and assets fire-sale to meet capital requirements after the burst. On the other hand, Barth and Landsman (2010) and Laux and Leuz (2009) argued that fair value accounting had little to do with the recent financial crisis.

The view that accounting played at most a secondary role during the crisis is consistent with extant literature on other previous crises. In fact, Bowen et al. (1989) studied stock price responses to earnings announcements around the market crash on 1987. According to their evidence, although frequent, corporate earnings releases played little role during that market downturn.

Under the setting of the 1929 stock market crash, White (1990) showed that reporting on lower earnings expectations (as proxied by dividends) was not the cause of the downturn. Benston (1969) showed that absence of legal suits for accounting fraud around 1929 reinforces that conclusion.

Keating et al. (2003) argued that there is no evidence that financial information disclosed regarding earnings and other non-financial indicators were associated with the decline in internet stock prices in 2000. According to them, the downturn was mostly motivated by changes in investors' valuations and revaluations of previously disclosed financial reporting information.

Chaney and Philipich (2002) analyzed effects from the Enron fraud scandal in other Arthur Andersen clients. They found evidence of stock price revaluations especially for clients of Houston office. Nevertheless, effects were smaller than those obtained in stock market crashes. Additionally, Nelson el al. (2008) argued that these documented effects reflect confounding events.

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Finally, Waymire and Basu (2011) did a fairly simple test of analyzing indexes of recent books about the economic crises (Allen and Gale, 2008; Reinhart and Rogoff, 2009; Rajan, 2010) and found that the terms "accounting", "fair value" or "FASB" do not appear mentioned in any of those books.

In conclusion, though many contend that accounting is important in the emergency and bursting of asset bubbles, there is no direct evidence that shows a primordial role for accounting. In fact, it could be that financial reporting settings only deepen a crisis (or an asset price bubble for that matter). Following a Keynesian "beauty contest", where investors believe the price is defined by what other investors believe about what the remaining other will pay for the stock in the future and not its fundamental value, poor accounting in reflecting those fundamentals could increase an asset bubble without playing a source role.

In fact, in a context where value (reflecting fundamentals) and prices deviate, such as in a Keynesian setting, poor accounting could magnify an asset price bubble. In this context, extant literature (both theoretical and empirical) on accounting and market bubbles is presented.

Porter and Smith (1994) show, on an experimental market where a security pays a mean dividend in each of fifteen periods reflecting four possible outcomes, that the price on trades significantly deviates from fundamental value on early periods, declining later on. Results are consistent with Hussam et al. (2008) showing that asset

bubbles are less drastic when uncertainty is moderate proxied by sequential participation in identical experiments. Dickhaut et al. (2010) show experimental results consistent with asset prices bubbling and subsequently crashing according to asset durability. When assets perish and are not retradable they do not show tendency to bubble.

Hirota and Sunder (2007) show on an experience that asset price bubbles strongly associate with investors' horizon. Investors care about horizon since when they need to liquidate their positions before the realization of dividends. Short horizons are consistent with Keynesian "beauty contests" because investors estimate the price at which they can sell and not the fundamental value. In this sense, the authors show that short horizon traders experience bubble and crash more likely.

Finally, a group of experimental investigations show the impact of differential private information about fundamental on market prices (Forsythe et al., 1982; Plott and Sunder, 1982, 1988) but lack testing the ability of accounting information to raise asset bubbles propensity. On the other hand, Hobson (2011) shows the relevance of public accounting information on assets value and promptness to bubble. In this study, the author runs an experiment to test whether investors' performance improves with less complex public accounting information in a market prone to bubble. Findings are mixed since investors trade closer to fundamental value when accounting information is less complex, but results are less evident when the market exhibits price bubbles.

On what concerns archival capital markets research, similar inconclusive results can be found. Mitton (2002) investigates the association between several corporate governance factors and firm-specific stock returns during the 1997 Asian crisis. Results suggest that firms with better quality reporting (measured by auditors' size and whether firms are traded on US markets) performed better during those events.

Lang and Maffett (2011) study the relationship between accounting transparency and stocks liquidity during periods of stock market downturns using an international sample. The authors argue that market crises associate with reduced liquidity, which shows variation trough time and is moderated by accounting transparency. They posit that higher reporting transparency associates with more firm specific liquidity and thus less covariance with large declines on market downturns.

Finally, Barton and Waymire (2004) examine if firms with more transparent reporting practices showed less negative returns during the 1929 market crash. In its original results, the authors find that firms with better quality reporting policies exhibited more negative returns. Since their proxy for reporting quality correlates heavily with incentive related variables, endogeneity prevents any interpretation of the results. Finally, after correcting for endogeneity based on errors-in-variables, results reverse showing a positive association between reporting quality and stock returns during the 1929 crisis.

In sum, extant literature shows some association between accounting quality (and reporting transparency) and stock price dynamics during crises, though still incipient. Waymire and Basu (2011) ague that there is a need for further research explaining the causal links between financial reporting quality and investors behavior on a crisis setting, especially at an experimental level.

4. Financial Reporting attributes and market shocks

Based on evidence from the evolution of accounting systems a particular salient role of financial reporting is to prevent malpractices by the managers to whom the shareholders delegate the management of their assets. Consequently, accounting allows necessary oversight of managers and their use of resources in accordance with their implicit agency contract (Jensen and Mekling, 1976). Accounting literature also identifies financial reporting as a source of information used to value companies (Ohlson, 1995; Barth et al., 2001). Two streams of literature emerge around the function of accounting: the positive accounting theory and the information perspective.

For the positive accounting theory, financial reporting allows the principle to ensure that managers are managing assets judiciously. Accounting has a supervisory role (Watts and Zimmerman, 1986, 1990).

In the information perspective (Barth and Landsman, 1995; Barth 1994, 2007), financial reporting provides useful information if it has an impact on investment decisions, while accounting information is relevant only when it reflects market values.

The dual accounting function of supervision and information intersect, since it would be hard to disclose accounts without informing. In fact, accounting has a role as a source of information for its users and it should increase their ability to make economic decisions, such as provide an economic evaluation of an entity.

In sum, the role of accounting is limited to a description as relevant as possible of the situation at a given moment, including those characterized by high volatility that reflects disturbances in the environment.

The debate on fair value accounting raises issues that tent to improperly consider the role of accounting lumped together with the suitability of fair value and its measurement. In fact, the discussion about the measurement of fair value makes relevant the distinction between price and value. Question is whether accounts should reflect prices or values.

Keynes (1936) defines the value of an asset as resulting from the discounting of its cash flows generated by ownership (intrinsic value). Price, contrarily, is the outcome of the law of supply and demand. Although based on the value of the company, price also reflects subjective elements such as the negotiating power of buyers and sellers, their relationship, the desire to complete the transaction, and their interest in doing so, among other elements.

On the light of this, only when markets are perfect and complete, market value is fair value[3]. Barth and Landsman (1995) argue that under that condition, the balance

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[3] International Valuation Standards (IVS 2007), distinguishes between fair value, as defined in the IFRS, and market value, as defined in the IVS:
"As the term is generally used, Fair Value can be clearly distinguished from Market Value. It requires the assessment of the price that is fair between two specific parties taking into account the respective advantages or disadvantages that each will gain from the transaction. Although Market Value may meet these criteria, this is not necessarily always the case. Fair Value is frequently used when undertaking due diligence in corporate transactions, where particular synergies between the two parties may mean that the price that is fair between them is higher than the price that might be obtainable on the wider market. On other words *Special Value* may be generated. *Market Value* requires this element of *Special Value* to be disregarded, but it forms part of the assessment of *Fair Value*."

sheet includes all the information useful to a valuation of a company. In this scenario, management and market are capable of ascertaining the necessary elements of assets to come up with a fair value, and thus making the observation of an income is not necessary to the valuation of a company. When the market is imperfect, on the other hand, it is necessary to determine a value with a method whose reliability must be proven.

In conclusion, the reliability and relevance[4] of the attribute measured are key points of measuring assets especially during increased uncertainty environments such as the recent financial and subsequent economic crisis.

Nobes (2001) provides the first major analysis of fair value accounting. Plantin et al. (2008) and Penman (2006) argue pros and cons of contemporary fair value accounting more deeply. Conceptually, fair value accounting should provide information with a higher degree of decision usefulness and relevance of accounting data that would mitigate information asymmetries that investors face in the market. Additionally, fair value also decreases incentives to increase gains on trading and assets securitization, providing more credibility to financial reporting. Conversely, if fair value cannot be determined unambiguously it loses objectivity. As Ryan (2008) argues, when

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[4] Relevance requires that the financial accounting information should be such that the users need it and it is expected to affect their decisions. Reliability requires that the information should be accurate and true and fair.

active markets are missing, fair value can only be measured according to subjective assumptions and thus become a black box tool for discretionary earning management.

Taking the setting of the current crisis, accounting may play a role during economic and financial crisis on two levels. Firstly, accounting systems can best prevent and mitigate the effects of crisis on market participants if it provides information with the optimal tradeoff between reliability and relevance of information for decision making, especially when uncertainty most impacts it. Secondly, financial reporting and accounting policies are particularly important during disturbed markets in preventing and making more salient suboptimal opportunistic behaviors that emerge and are at the root of those periods. To understand those levels we can consider the example of the debate surrounding the role of fair values on providing feedback to magnify crises.

Accounting standards and financial reporting can have a role on the dynamics of crises by providing changes in reliability and relevance of measurements. As an example, fair value is a hypothetical value reflecting conditions and positions of all market participants under fair conditions. The reliability of these measurement is impeded when markets are inactive and illiquid and under mass fire-sales of a specific asset. Accordingly, a crisis involved in and around an asset bubble and burst should impact the reliability of the information provided by financial reporting.

In fact, Hakkio and Keton (2009) argue that a financial crisis exhibits some fundamental characteristics. The first one is uncertainty increase among traders

relating to the fundamental value of assets. This increase in uncertainty about fundamental values will impact volatility in market prices. Second, a financial crisis will raise uncertainty about the behavior of other investors. In a Keynesian environment, investors have incentives to anticipate average opinions. If uncertainty increases about the behavior of other investors this will lead also to an increase of the volatility of asset prices and, thus, deviating more from fundamental values. Another element of financial crisis is a decline in the willingness to hold risky or illiquid financial assets. Consequently, investors will demand higher risk premium and lower returns on safe assets. This shifting in preferences has come to be known as "flight to quality" and "flight to liquidity". Finally, a financial crisis tends to exhibit an increase in the asymmetry of the information between traders of financial assets. Mishkin (1990) and Gorton (2008) show that information asymmetries increase during financial stress. Consequently, financial reporting can mitigate information asymmetry risk - by providing information that investors regard as more reliable.

Extant literature shows evidence of this link in two parallel lines of research regarding the efficiency of financial reporting during a market wide downturn. One stream emphasizes accounting conservatism in mitigating information asymmetry risks (Francis et al., 2012; Watts and Zuo, 2012). Accounting conservatism, as the differential verifiability required for the recognition of economic gains versus losses, provides incentives to constrain managers' opportunistic behavior (Lafond and Watts,

2008) and thus reducing adverse selection problems especially in periods where the markets fear its effects even more.

A second stream of research connects accounting quality and transparency[5] to financial crisis (Lang and Maffett, 2011). The argument is that by providing accounting information more transparent and thus more reliable, firms are able to mitigate both information asymmetry and adverse selection problems that increase risk premia during these periods. Investors are able, using the disclosed financial reporting, to distinguish between firms and reduce uncertainty about the consequences to each firm of the sources of the turmoil in the markets. Consequently, firms with more reliable information, proxied by accounting transparency, face lower risk premium than those with poor accounting information.

In accordance, relevance of measurement is also an important and robust attribute of the accounting information most necessary during crises periods. Extant literature shows evidence on the association between relevance of financial information and economic cycle. Johnson (1999) and Jenkins et al. (2009) study the value relevance of earnings during different business cycles. They find evidence that earnings value relevance is correlated with business cycles. Using economic growth or production to

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[5] Accounting conservatism is also a measure of Accounting Quality and Transperancy. In this second stream of Literature a wider set of measures is used to account for Transparency such as measures of earnings persistence and discretionary accruals and other measures that account for scrutinized financial information. In that sense, the former stream of literature emphasizes conservatism alone wether the later takes into account the ability to gather the full set of relevant information from the financial reporting.

proxy for business cycles, respectively, their results are conflicting and thus inconclusive when taken together. The former argues that earnings are more persistent and value relevant during macroeconomic expansions, whereas the later conclude that conservatism and value relevance of earnings increase during macroeconomic contractions.

Graham and King (2000) show that, during the 1997 crisis in Thailand, there was a decrease of value relevance of earnings but an increase of balance sheet value relevance. Ho et al. (2001) and Davis-Friday et al. (2006), while studying the same 1997 Asian crisis but on the settings of the Korean economy, show evidence of a decline in earnings value relevance on post crisis period. Contrarily to Graham and King (2000)'s results, this earnings value relevance decrease do not associate with an increase in balance sheet value relevance. Davis-Friday and Gordon (2005) also study the impact of the currency crisis in Mexico in 1994 on the value relevance of accounting figures. Their results show that balance sheet value relevance remains stable while earnings value relevance and persistence decrease significantly.

One last factor that needs further understanding when analyzing the role of accounting during periods of downturn is whether it plays any role in promoting or mitigating suboptimal and opportunistic behavior. For example, under the current crisis mark-to-market and fair value accounting could provide incentives to premature recognition of profits in comparison with traditional historical cost model. Management

may be impelled to adverse selections in order to meet expected or targeted numbers. Thus, suboptimal behavior of companies may spillover to markets and cause systematic risk and procyclicality on the aggregate level.

On a firm's level, some argue that fair value accounting could increase information asymmetry and thus reduce transparency of financial statements. Plantin et al. (2008) develop a model that compares the economic effect of historical cost and mark-to-market measurement. The tradeoff between these two regimes results on the following. Historical cost relies on past transaction prices driving accounting values to be insensitive to more recent price signals. This lack of sensitivity to price signals induces inefficient decisions since the accounting system does not reflect the most recent fundamental value of assets. On the other hand, marking-to-market overcomes price distortion by extracting information conveyed by market prices but does it in a way that this information is also distorted. So, ultimately, the choice is either obsolete information or distorted current information.

Under the historical cost, opportunistic managers find it optimal to sell assets that recently had increases in price since recognition at historical cost understates their worth. Even if secondary markets discount for this behavior, the inertia in accounting values gives short horizon firms incentives to sell. Consequently, when asset markets bubble historical cost regime promotes inefficient sales. Finally, a shift from historical cost to a mark-to-market regime, recording assets at their current transaction price, is

an imperfect solution. On imperfectly liquid markets, in the sense that sales or purchases impact short term price dynamics, the illiquidity of the secondary market creates another type of inefficiency. A bad outcome for the asset will decrease fundamental values on one hand. But further reasons will depress its price arising from negative externalities generated by other firms selling.

In fact, under mark-to-market regimes, the recorded amount of assets will depend on the prices at which others managed to sell similar assets. So when others decide to sell, the decrease on the transaction prices is larger than what is justified by the fundamentals, and negatively affect all other transactions but, most of all, those who choose to hold on to the asset. Anticipating this outcome, short sighted firms will have incentives to preempt the fall in prices by selling the asset itself. Ultimately, this will amplify the price fall, generating endogenous volatility of prices which will impede resource allocation role of prices. According to Plantin et al. (2008) model, three main implications follow. For short (long) lived assets marking-to-market induces lower (larger) inefficiencies than historical cost. For sufficiently liquid (illiquid) assets marking-to-market induces lower (larger) inefficiencies than historical cost. Finally, the same goes for junior assets.

From what has been said, opportunities for research on the role of accounting exist on mainly two areas:

First, it is important to understand how accounting systems link to economic and financial crisis in preempting or mitigating its impacts on liquidity and consequent risk. Intuition and previous literature connect desirable attributes of accounting (relevance and reliability) to reducing information asymmetry and adverse selection problems that emerge during market imbalances. This is what we call the ex-post relationship between accounting and economic conditions, both on aggregate and firm level.

Second, little literature exists on explaining how rational or biased suboptimal behavior emerges from choices made by regulators and firms on the accounting system. Further evidence (experimental or archival) will contribute to understand this ex-ante impact of financial reporting on market participants decisions during asset bubbles and bursts.

5. Conclusions

The conclusions to draw from this paper are necessarily limited for two reasons.

First, its purpose is not to show evidence of economic phenomena but rather to contribute with a literature review on what has been argued to be the relationship of accounting with economic and financial crises. Furthermore, little is yet known about this relation between corporate accounting and bursting markets.

Second, in assessing whether accounting is a primordial factor behind crisis, existing evidence does not support such conclusion. In fact, accounting is probably just a secondary causal factor that amplifies (or mitigates) a crisis. Still, the body of knowledge of how this comes to be is extremely limited. Likely we may have not been asking the full set of relevant questions.

In the light of this, opportunities for future research on the role of accounting during periods of crisis are considerable. As preliminary work, it would be helpful to have a descriptive database on how often, and in what terms, accounting is implicated in an economic crisis. A second stream of research that emerges from this literature review concerns empirical work on systematic relations between accounting quality (both on its reliability and its relevance attributes) and the crisis effects over multiple settings. Finally, additional work can provide evidence on how accounting influences market behaviors (on individual and aggregate level) during, pre and post crisis periods. Much remains to be understood in terms of the role of accounting information on markets

that exhibit propensity to asset price bubbles. Expected conclusions can benefit several market participants. Firms and traders can mitigate the adverse effects of these market events. Regulators and accounting setters can rely on a better understanding of the effects of their rules on market transactions.

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Does Earnings Quality Mitigate Negative Shocks to Stock Markets?

Does Earnings Quality Mitigate Negative Shocks to Stock Markets?

Abstract: Stock markets negative shocks occur rarely but have overwhelming consequences for all market participants. Information risks and consequent risk premium increases are particularly salient on those days. The increase in information asymmetry also reduces liquidity which will eventually further affects stock prices. Accounting transparency proxied by earnings quality should mitigate uncertainty about firms' value and prevent some of the dynamics associated with the negative shocks to the market. Results show that firms with lower earnings quality exhibit stock prices decreases larger than those of firms with better accounting transparency during those events. This association is both statistically and economically significant. When the analysis is extended to market booms, results are not symmetric, suggesting earnings quality do not proxy for market betas.

1. Introduction

Stock markets negative shocks occur rarely but have overwhelming consequences for all market participants. In fact, almost USD five trillion was lost on the ten biggest crashes over the past twenty five years on US. To have an idea, on October 28 and 29, of the 1929 crash, the market index dropped 12 percent and on October 19, during the 1987 crisis, the index lost 17 percent. Following Kahneman and Tversky (1979), loss averse investors should have their worst days on these events. The study of these shocks is relevant not only due to the wealth destroyed but also due to the difficulty to diversify this risk. Conclusions regarding these events are important to many people. Harris (2003) shows that extreme volatility concerns many market participants: traders are concerned with large unexpected price changes that expose them to enormous amount of risk and opportunities; exchanges and brokers want to account for extreme volatility since they tend to be associated with abnormal increase in volume trading that might compromise their trading systems; clearing houses fear extreme volatility since large losses affect traders ability to settle their contracts; and micro-economists wonder how to reconcile large price changes with rational pricing and informed prices; on the other hand macro-economists want to understand how to minimize wealth effect associated with large market values changes that adversely impact investment and consumption decisions on individual levels.

This paper aims to understand the role that accounting plays during these events in the US market. In fact, extant literature shows that adverse selection and information asymmetry impact stock prices. Economic intuition is that informed traders trade on superior information with uninformed (or less informed) traders. Consequently, uninformed traders face adverse selection while responding to noise trading, thus demanding a risk premium to trade against informed traders. This should be more salient under negative market shocks. On one hand, risk premium for a fixed degree of information risk should increase as market participants become more risk averse during these market downturns. Vayanos (2004) states a setting where investors exhibit increasing risk aversion during market crashes, even with constant absolute risk aversion, due to rising expected cost of forced liquidation. On the other hand, market crashes will also impact adverse selection problems. Given this setting, earnings quality (as a proxy for accounting quality) would reduce uncertainty about firms' value and consequently mitigate the effect of market downturns on stock prices and returns.

Empirical results are consistent with predictions. In fact, prices of firms with lower earnings quality decrease more than those of firms with higher earnings quality during the ten biggest market downturn days over the period of 1981 to 2006. Results are robust to sensitivity to Fama-French (1993) three factors, analyst following, corporate governance quality, auditor size, and institutional ownership. Increasing earnings quality one standard deviation reduces in ten percent the decrease in stock prices.

Earnings quality is also more effective during negative shocks. To avoid competing explanations, namely that earnings quality proxies for higher market betas, the study is extended to the ten best days in terms of market returns. During these later events no effect is observed. The asymmetry of the results reinforces an explanation based on information risk and carves out earnings quality as a proxy for sensitivity to market events.

These conclusions relate to studies by Mitton (2002), Jin and Myers (2006), and Lang and Maffett (2011). Mitton (2002) shows that larger firms, that issued American depository receipts and where audited by a Big Six, exhibit higher returns during the 1997 Asian financial crisis. This paper shows also that earnings quality reduces financial crisis impact, but contrary to the later, large firms perform worst and auditor size has no impact. The differences can be justified as following: Mitton (2002) has a window of several months as opposed to one day returns. Corporate governance has been shown to be a source of the Asian crisis. Since the market downturns studied here are not related to disclosure and corporate governance mechanisms, the focus is not on the sources of the shock but on the mechanics of its effect. As so, we expect events on this study were not disclosure induced schocks but rather exogenous events as the September 11th attack. The focus is therefore not on the root but on the mechanics of magnifying initial shock. This is the reason why our sample includes data only up to 2006 in order to avoid the latest financial crisis which some believe to be financial reporting induced (or at least partially magnified by it). Finally, Mitton (2002) study

uses a sample comprising developing countries whereas here the focus is on one of the most liquid markets in the world.

Jin and Myers (2006), show that companies in countries with more auditors and more transparency (and better accounting quality) exhibit less negative shocks in returns. The authors stress that their focus is not on market events but rather on individual stocks, which makes it easier to diversify the risk then the market wide events studied in this paper. On the same vein, Lang and Maffett (2011) study the association between transparency (based on accounting standards, auditor choice, earnings management, analyst following and forecast accuracy) and liquidity uncertainty under the current financial crisis. Their focus is once more on a cross country market sample and assumes a period analysis centered on the latest crisis.

This paper also relates to a new stream of literature that evaluates how financial reporting attributes, (mainly conservatism, but also other measures of accounting quality), associates with firm value during the latest global financial crises. Watts and Zuo (2012) conclude that more conservative firms issue more debt and undertake more investment during the crisis period, and thus experience less negative crisis period stock returns. Results are more pronounced for firms with higher ex-ante agency costs. Their conclusions pinpoint the benefits of accounting conservatism on a setting that naturally allows isolating the effect of that attribute. The crisis significantly reduced firms´ funding ability (Ivashina and Scharfstein (2010)) and caused underinvestiment

(campello et al. (2010)). Focusing on this setting (where an exogenous schock to debt funding adds up to equity funding schocks) limits the conclusions to similar contexts which will limit the conclusions. We extend the research to allow negative schock to stock markets endogenously verified while assuming leverage target ratios and real activity constant. Thus, the reason to focus our conclusions up to the inception of the later global financial crisis.

The conclusion shown in this paper should matter for risk management. Even if it is already accepted that cross correlation between assets rises during negative market events, the results presented show that the degree of losses in stock prices is reinforced by poor earnings quality. Consequently, this characteristic could be introduced in losses risk models. Additionally, this could be of interest to investors who face costly liquidations during market downturns, such as those who meet margin calls, banks that face solvency ratios, and fund managers who risk withdrawals bellow a performance threshold, among others.

The paper is organized as follows. Section 2 reviews extant literature; Section 3 presents the research hypothesis; Section 4 concerns research design and data; Section 5 describes the main results; and Section 6 concludes the paper.

2. Literature review

According to Hakkio and Keton (2009), a financial crisis exhibits some fundamental characteristics. The first one is uncertainty increase among traders relating to the fundamental value of assets. This increase in uncertainty about fundamental values will impact volatility in market prices. Second, a financial crisis will raise uncertainty about the behavior of other investors. In a Keynesian environment, investors have incentives to anticipate average opinions. If uncertainty increases about the behavior of other investors this will lead also to an increase of the volatility of asset prices and, thus, deviating more from fundamental values. Another element of financial crisis is a decline in the willingness to hold risky or illiquid financial assets. Consequently, investors will demand higher risk premium and lower returns on safe assets. This shifting in preferences has come to be known as "flight to quality" and "flight to liquidity". Finally, a financial crisis tends to exhibit an increase in the asymmetry of the information between traders of financial assets. Mishkin (1990) and Gorton (2008) show that information asymmetries increase during financial stress.

Capital market downturns represent events where the overall equity markets drop sharply and, according to Kole (2006), are what investors fear the most, since they associate them both with large price decreases of financial assets and increases on the risks associated with holding and trading those assets.

Regardless of what causes these events, Kyle and Xyong (2001) identify empirical prevalent characteristics: financial intermediaries face losses as prices move; market depth and liquidity decreases in several markets; volatility of prices increases; and correlations of price changes before assumed to be independent increase.

Vayanos (2004) describes this volatility as events that lead investors to become more risk averse, while assets value exhibit larger negative correlation with volatility, as well as liquidity at a premium with an increase on market betas and pair-wise correlation.

The purpose of this investigation is to analyze the impact of earnings quality (as a proxy for accounting quality) on stocks returns during downturn markets. To do that, a link between earnings quality, information asymmetry and equity prices volatility is established. These relations should be particularly salient under overall market drops, as it holds in more stable times[6].

Capital markets can be characterized by information asymmetry between informed and uninformed investors that lead to adverse selection. Extant literature sustains this can be observed both on levels (stock prices) and returns. Economic intuition shows that under asymmetric information, investors with better information trade on their advantage against less informed investors. Thus, the later face an adverse selection caveat when they deal with noise trading. Optimally, they will demand a risk premium

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[6] For a literature review on market crashes refer to Brunnermeier (2001).

to trade against the former. Theoretically, an example can be found on Easley and O'Hara (2004) model where equity stocks exhibit different levels of public and private information. Equilibrium shows that uninformed investors demand a risk premium to hold shares with more private information. Also on the empirical literature this link can be found. Botosan (1997) studies the association between disclosure and cost of capital. Results show that greater disclosure leads to lower cost of equity capital (for firms with low analyst following). Easley, Hvidkjaer and O'Hara (2002) empirically demonstrate that stocks with higher probability of information based trading have higher returns.

The link between information risk and stocks returns has so far been investigated in more stable periods but it should also hold during crisis for many reasons. In fact, risk premium demanded due to adverse selection should increase as traders become more risk averse during market downturns. Intuition is that as investors utility displays constant relative risk aversion, lower wealth justifies that behavior. Vayanos (2004) uses a model that shows that investors risk aversion increases during market negative shocks. Results hold even with constant absolute risk aversion utility functions as the probability of forced liquidation rises and traders are liquidity constrained. This becomes more salient as covariances of returns increase during these events leading to more difficulties to diversify risk. Additionally, information asymmetry risks increase during market downturns. The value of the assets becomes more uncertain during these times, and so increases information asymmetry, since individual stock mispricings are more probable on an overall market negative shock. Reinforcing this

idea, Kyle and Xyong (2001) show that price volatility increases during financial crisis. Consequently, information asymmetry leads to more adverse selection between informed and uninformed traders.

On the other hand, after a market crash, economic conditions could lead to more uncertainty about the value of firms' assets piling up on information asymmetry as Choe, Nanda and Masulis (1993) show. They develop an equity issuance model, complemented on empirical data, showing adverse selection costs decrease in periods where more investment opportunities exist and assets in place show less uncertainty about their value. Intuition comes from the fact that cash flows from firms' assets include two components: publically observable information related to general economic conditions and another concerned with private information to firms' insiders. During good economic conditions, the former is more important and thus reducing adverse selection costs. Conversely, negative shocks should affect both factors. Finally, Mishkin and White (2002), on the vein of Greenwald and Stiglitz (1988) and Kalomiris and Rubbard (1990), show that market downturns increase adverse selection in credit markets as firms' values fall. So cumulatively market crashes should increase adverse selection on a level beyond the initial price drop under the capital markets' event.

Therefore, accounting transparency (proxied by earnings quality) is expected to mitigate uncertainty about companies' fundamental value and ultimately reduce the effect of the negative shock on individual shares' prices and returns.

3. Research hypothesis

Following the literature review, extant research suggests a capital markets crash is initiated by a negative shock (due to directly observable or not sources). This initial shock leads to a sharp drop in stock prices and increasing uncertainty on its value. Consequently, volatility jumps. As so, adverse selection and associated risk premium are expected to increase as well. Overall, this will affect stocks returns.

Initial shock might have a spread effect on all firms on the market regardless of their accounting quality. On one hand, this negative shock creates a dynamic of increased information asymmetry, risk aversion, volatility burst, and liquidity shock. The effects are exacerbated since each component reinforces other. Given that earnings quality mitigates information asymmetry and adverse selection in capital markets, it should decrease the effect of this dynamic. Consequently, earnings quality should have a positive effect stabilizing stock prices and returns (as well as its liquidity).

On the other hand, once investors are able to understand the impact of the news that triggered the negative shock for firms' liquidity and price, shocks should be asymmetric depending on accounting quality. This intuition, consequently, reinforces what has been argued so far.

Following the above arguments, our research hypothesis is:

Stock returns of firms with better earnings quality (as a proxy for accounting quality) are less sensitive to capital markets negative shocks than are stock returns of firms with lower earnings quality.

4. Research design and data

4.1. Research specification and predicted results

To test our research hypothesis the following regression is used:

$$R_{j,t} = \alpha_0 + \alpha_1\, EQ_{j,t} + \alpha_k\, X_{k,j,t} + \varepsilon_{j,t}$$

where $R_{j,t}$ is the return for firm j on day t, $EQ_{i,j}$ is a measure of earnings quality and $X_{k,j,t}$ is a vector of control variables. If the research hypothesis is true, then *EQ* should have a positive effect on *R* and α_1 should be positive.

4.2. Sample

A negative stock market shock is proxied by the ten days with the most severe market index drop in the sampling period, as reported by CRSP database. The sampling period covers the last twenty five years before the inception of the current financial crisis (January 1981 to December 2006). Intuition to exclude data from 2007 onwards

is that we want to avoid data from this crisis since some argue that fair value accounting plays a role in its propagation. This way we avoid endogeneity of financial reporting quality either inducing the crisis (or at least increasing it) and also mitigating its effects.[7] Additionally, the measure we use to proxy for accounting quality reflects earnings persistence which is particularly sensible to a decrease in real activity. The latest crises spillover to the economy as whole affected firms´earnings persistence twofold: real activity decreased on one side and on the other end borrowing access and investment were drastically reduced. Finally, it will impact capital structure target ratios which will also raise issues to our model.[8]

Data to compute returns was obtained from the CRSP database. Market index returns and firm specific stock returns are calculated for the sampling period following prior research practices. Likewise financial firms were excluded from our sample. Information to comput earnings quality measure and control variables was taken from Compustat database.

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[7] As refered, recent literature studies the mitigating effect of accounting quality on firms' stock returns during the latest financial crises. Watts and Zuo (2012) use accounting conservatism as a measure of accounting quality. Their argument is that "accounting conservatism is a long-run equilibrium response to various institutional factors and firms characteristics". Consequently, the 2007 crises provided a schock on that equilibrium allowing studying the benefits of conservatism – more access to funding and thus more investment as well as less negative stock returns.

[8] Extending our analysis to the latest data (after 2007) drives our results to not be statistically signicant. One potential explanation, following the arguments presented is that, as Watts and Zuo (2012) point, the characteristics of the 2007 crises represent a particular setting where the appropriate measure of accounting quality is conservatism, rather than earnings persistence. Futhermore, investors fail to distinguish wether earnings decrease due to discretionary accruals or real activity effects.

4.3. Variables

$R_{j,t}$ is the daily stock return for firm j on day t. Day t is one that records a negative shock on the capital markets as recorded in the CRSP database.

To measure earnings quality (*EQ*), the following model is estimated:

$$TCA_{j,t} = \beta_{0,j} + \beta_{1,j} CFO_{j,t-1} + \beta_{2,j} CFO_{j,t} + \beta_{3,j} CFO_{j,t+1} + \beta_{4,j} \Delta Rev_{j,t} + \beta_{5,j} PPE_{j,t} + \xi_{j,t}$$

where $TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t}$ = firm *j*'s total current accruals in year *t*; $CFO_{j,t} = NIBE_{j,t} - TA_{j,t}$ = firm *j*'s cash flow from operations in year *t*; $NIBE_{j,t}$ = firm *j*'s net income before extraordinary items in year *t*; $TA_{j,t} = (\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t} - DEP_{j,t})$ = firm *j*'s total accruals in year *t*; $\Delta CA_{j,t}$ = firm *j*'s change in current assets between year *t-1* and year *t*; $\Delta CL_{j,t}$ = firm *j*'s change in current liabilities between year *t-1* and year *t*; $\Delta Cash_{j,t}$ = firm *j*'s change in cash between year *t-1* and year *t*; $\Delta STDEBT_{j,t}$ = firm *j*'s change in debt in current liabilities between year *t-1* and year *t*; and $DEP_{j,t}$ = firm *j*'s depreciation and amortization expense (Compustat item 14) in year *t*, $\Delta Rev_{j,t}$ = firm *j*'s change in revenues between year *t-1* and year *t*, $PPE_{j,t}$ = firm *j*'s gross value of plant, property and equipment in year *t*. All variables are scaled by the average total assets over the year.

Following Francis et al. (2004), the results are estimated in time series per firm using the 10 annual observations before the negative shocks to the capital markets.

Earnings quality is measured by the variance of the residuals, and then multiplied by minus one, so that higher values of *EQ* correspond to higher earnings quality.

Earnings quality measure follows Dechow and Ditchev (2002) and Francis et al. (2004, 2005). The purpose is to estimate how well the accounting system captures changes in firms' wealth. In fact, changes in earnings can happen at the same time as changes in cash as in a cash sale but most of the times that is not the case. So, in some cases changes in wealth precede changes in cash (such as in a credit sale) whereas on other times it occurs after changes in cash like in a sale prepayment. In the former the firm is worth more but no cash flow has happened yet. In the latter the firm received a positive cash flow but it is not wealthier since it has an equivalent future obligation. In this sense, good accruals provide additional information about firms' value not reflected in cash flows (Dechow, 1994; Dechow, Kothri and Watts, 1998; Liu, Nissim and Thomas, 2002). Nevertheless, accruals are only valuable if they link to cash flows. Managers tent to make (voluntary and involuntary) errors in reporting changes in wealth so the link between disclosed and real earnings is generally the amount of errors in financial reporting. These vary across firms and can be assessed in earnings quality (EQ). So, a higher level of errors translates to more variance of ξ and lower values of EQ.

As a proxy, EQ measures the underlying construct imperfectly. Accounting quality can be defined and measured in alternative ways. The choice for this measure comes from the fact that it has been used extensively in previous literature (Francis et al., 2004, 2005). Additionally, Francis et al. (2004, 2005) argue that this measure

captures better the relation to cost of equity capital within the set of competing specifications. Or is the most valued attribute of earnings.

Finally, to address the risk of omitted correlated variables a number of controlled variables are included in the multivariate analysis. These control variables are expected to be correlated with EQ. Following Dechow et al. (2010), controls include price (*LPrice*, the log of price); size (LogCap, the log of market capitalization); age (*LogAge*, the log of the difference between the first year when the firm appears in RSP and the current year plus one); market-to-book ratio *(MB)*; whether the firm had negative earnings (*Loss*); return on assets (*ROA*); standard error of cash flow from operations ($\sigma(CFO)$); a measure of bankruptcy risk (*Z-score*); an estimation of bankruptcy cost (*Tangib*); the importance of research and development (*R&D*); leverage (*Lev*); dividend policy captured by a dummy variable that takes the value of one if the firm paid any dividend (*Dividend*); and length of operating cycle (*OpCycle*).

As additional controls other measures of financial slack were included (*CFOsale* and *Slack*). Finally, the analysis included two dummy variables to capture where firms are traded (*AMEX*, *NASD*) along with industry dummies (untabulated) and the daily value weighted market return (*MktRet*). All data was winsorized at top and bottom one percent.

All variables (both dependent and independent) are listed and defined in Table 1.

5. Empirical results

First step included identifying the negative shocks to capital markets in our sample. To do so, we look for the ten days where market returns dumped the most between 1981 and 2006, identified from the CRSP database. These ten days are listed in Table 2. The mean and median of market returns on those days are -7% and -6%. On average these returns occur every two and half years. For comparison Table 2 reports also descriptive measures for the daily market over the time window. Bottom one percent distribution amounts for returns of 2.46%. Average daily returns in the market during the time window is 5% (whereas median was 7%). Standard deviation is 0.96. From these data we can see how rare and catastrophic negative shocks can be.

Table 3 reports univariated correlations between different variables. As expected, EQ is positively associated with equity returns. On the other hand, results on this correlations matrix can be difficult to interpret. In fact, there is also a positive correlation between earnings quality and size. Most correlations between control variables are low but several are greater than 0.40 as those that relate to the same items such as LPrice and LogCap.

Empirical results on the association between earnings quality and stock returns are presented on Tables 4, Panels A to C. Three models are used to estimate this relation. The first model is a cross-sectionally pooled cross-sectional model for the overall market returns (Panel A). The second model is estimated using cross-sectionally pooled

data but includes dummy variables for different days representing the negative shocks instead of the market returns (Panel B). Standard errors of the coefficients were adjusted with the Huber-White correction for heteroskedasticity. On both models industry dummies were included but untabulated. The last model was estimated under the methodology proposed by Fama and McBeth (1973) (Panel C).

All models show evidence consistent with the research hypothesis that better earnings quality associate with higher stock returns during negative shocks to capital markets. In fact, association is statistically significant with t-statistics of 5.67 and 6.07 for the first two models. An increase in earnings quality of one standard deviation increases stock returns by an average of ten percent return. For the control variables the association shows to be a lot weaker than that for the earnings quality. The only control variables that show statistically significant associations with stock returns across the models are the market capitalization of the stock; price; financial slack (CFOsale) and whether the firm paid any dividend. Nevertheless firms with better z-score, not involved in R&D activities, lower market-to-book ratio, that generate more cash flows, pay dividends, and have more stable cash flows from operations decrease less in value during negative shocks to stock markets. Results are intuitive in the sense that they favor firms with stronger balance sheets, more tangible assets, and more stable and increasing cash flows from operations during markets' downturns. This evidence is also consistent with predicted economic intuition. Thus, firms suffering from less adverse selection exhibit better performance during market downturns.

Finally, results are robust to different methodologies. Statistics significance remains unchanged for all variables using Fama and McBeth (1973) methodology (Panel C). Additionally, the coefficients obtained do not change dramatically showing that no particular day drives results.

Since from the ten days identified a significant number of days (30%) relates to October 1987, results might be driven by this particular event. To control for this situation a model is estimated (using the first methodology) with observations regarding that months alone. Results are presented on Panel D of Table 4. The t-statistics are reduced but remain significants, which is not surprising since the sample size is also reduced. Additionally, the EQ coefficient is larger than that for the full sample (0.223 versus 0.149). These results show that the benefit of accounting quality increases during the most extreme events which should suggest that on the current financial crisis we would expect earnings quality to be an important characteristic to account for in risk models.

As a robustness check, the sample of negative shocks was split in two subsamples according to the magnitude of the shock. Using the first methodology, in each subsample, results (untabulated) show that the magnitude and significance of earnings quality increase for the most severe shocks. Indeed, t-statistics for the two subsamples are respectively 5.62 versus 3.41 whereas EQ coefficients are 0.215 and 0.106. The difference between the two coefficients is statistically significant at a 5% level.

To further ensure results are robust, additional tests were performed. The first two models were estimated using median regressions to overcome potential results being driven by outliers. Results remain unchanged with t-statistics of 5.64 and 7.84 respectively. Models excluding variables with correlations greater than 0.4 (tangibility, z-score, market capitalization and losses) were estimated. Results untabulated are qualitatively similar. Even when removing all the control variables, as a robustness check, results remain significant with the magnitude of the EQ coefficient closer to initial specification (0.165) but with lower t-statistic (2.52). These results suggest that conclusions are not affected by multicollinearity.

We also tested a model for excess returns. Fama (1998) suggests that short window methodologies present the advantage of excluding any misspecification for models of market equilibrium. However, results can be driven by greater sensitivity of firms with low earnings quality to market returns (higher betas). In order to account for that, we tested a model for excess returns. Once again results (untabulates) hold for this specification.

Finally, we move to consider the ten days with the highest peaks in stock markets returns. The mean and median of market returns on those days are both 5%. The three different models were applied to estimate coefficients for those days, and results are shown on Table 5, Panels A to C. As intuition predicts, r-squares are less than half of the ones obtained for the ten worst days. In fact, prices should covary more during market downturns. Results for the Fama and McBeth model (Panel C) show that earnings

quality is negatively associated with stock returns during market booms but the EQ coefficient is smaller than the one obtained for market crashes. Furthermore, EQ coefficient becomes statistically insignificant for the two pooled cross-sectional models. This asymmetry in results show evidence that earnings quality is not a proxy for higher market betas. Nevertheless, the negative sign for EQ coefficient when markets rise reinforce the argument related to the mechanisms described for market downturns. In fact, an increase in wealth generated during a market rise should lead down risk aversion exhibited by investors. Forced liquidation probability should also go down. In sum, risk premia for information asymmetry, adverse selection and illiquidity should decrease. Since firms with worst earnings quality are more sensitive to these problems than firms with better earnings quality, the former should benefit more from market rises and thus observe a negative coefficient for earnings quality during this market boom.

In fact, the effect of both types of markets should be asymmetric. Increases in adverse problems caused by information asymmetries should be greater than decreases during good times. An example would be illiquidity and forced liquidation that should asymmetrically vary more during market downturns. Convexity of the utility function should also play a role in reducing positive effects of any increase in stock markets, based on risk aversion. Overall, the association between earnings quality and returns should be lower for market booms than during market downturns as observed in the results presented.

6. Conclusions

This paper analyses stock market downturns on a window of twenty five years. Days with such market drops happen rarely but have huge consequences for the entire market. In fact, information risks and consequent risk premium increases are particularly salient on those days. The increase in information asymmetry also reduces liquidity which will eventually further affects stock prices. Accounting quality proxied by earnings quality should mitigate uncertainty about firms' value and prevent some of the dynamics associated with the negative shocks to the market.

Empirical evidence obtained in this paper is consistent with the aforementioned prediction. Results show that firms with lower earnings quality exhibit stock prices decreases larger than those of firms with better accounting quality during those events. This association is both statistically and economically significant. In fact, an increase of one standard deviation in earnings quality leads to a reduction of ten percent of the average decrease in stocks. When the study is extended to the ten best days for the stock market during the same period, results are not symmetric, suggesting earnings quality do not proxy for market betas.

The conclusion shown in this paper should matter for risk management. Even if it is already accepted that cross correlation between assets rises during negative market events, our results suggest that the degree of losses in stock prices is reinforced by poor earnings quality. Consequently, this characteristic could be introduced in losses risk models. Additionally, this could be of interest to investors who face costly liquidations

during market downturns, such as those who meet margin calls, banks that face solvency ratios, and fund managers who risk withdrawals bellow a performance threshold, among others.

This analysis could be extended to incorporate other measures of Accounting Quality and Transparency such as Conservatism, on the vein of Watts and Zuo (2012) to understand wether several measures could explain above and beyond a single measure model as the one used here. Aditionally, the use of a multiple measure model could enhance understanding of what accounting attributes play the best mitigating effect according to the nature of the crises on hand.

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Table 1: Variable Definition

Variable	Definition
R	is the daily return for firm j on day t as reported in CRSP
EQ	is the variance of the residuals of a regression of total current accruals on cash flow from operations in the prior year, the current year and the subsequent year, change in revenues from the prior year and the level of Property, Plant and Equipment. The variance is multiplied by minus one, so that a higher value of EQ corresponds to higher earnings quality
	$TCA_{j,t} = \beta_{0,j} + \beta_{1,j} CFO_{j,t-1} + \beta_{2,j} CFO_{j,t} + \beta_{3,j} CFO_{j,t+1} + \beta_{4,j} \Delta Rev_{j,t} + \beta_{5,j} PPE_{j,t} + \xi_{j,t}$
TCA	is total current accruals calculated as the difference between current annual changes in current assets and changes in current liabilities and cash, plus the current changes in short term debt
	$TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t}$
CFO	is cash flow from operations calculated as the difference between net income before extraordinary items and total accruals
	$CFO_{j,t} = NIBE_{j,t} - TA_{j,t}$
$NIBE$	is net income before extraordinary items (Compustat item IB)
TA	is total accruals calculated as the difference between current annual changes in current assets and changes in curruent liabilities, cash and depreciation, plus the current changes in short term debt
	$TA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t} - DEP_{j,t}$
ΔCA	is firm's change in current assets (Compustat item ACT)
ΔCL	is firm's change in current liabilities (Compustat item LCT)
$\Delta Cash$	is firm's change in cash and short-term investments (Compustat item CHE)

Table 1: Variable Definition

Variable	Definition
ΔSTDEBT	is firm's change in debt in current liabilities (Compustat item DLC)
DEP	is firm's depreciation and amortization expense (Compustat item DP)
ΔRev	is firm's change in revenues (Compustat item SALE)
PPE	is firm's gross value of Plant, Property and Equipment (Compustat item PPEGT)
LPrice	is the log of of price as reported in CRSP
LogCap	is the log of market capitalization
LogAge	is the log of the difference between the first year when the firm appears in CRSP and the current year plus one
MB	equals total assets (Compustat item AT) plus the product of common shares outstanding (Compustat item CSGO) and closing stock price (Compustat item PRCC) minus common equity (Compustat item CEQ) and deferred taxes (Compustat item TXDITC), scaled by total assets (Compustat item AT)
Loss	equals one if earnings are negative, zero otherwise
ROA	equals the ratio of pre-tax income (Compustat item PI) divided by total assets (Compustat item AT)
σ(CFO)	is the standard error of CFO over the last 10 years
Z-score	equals 3.3 times pre-tax income (Compustat item PI) plus net sales (Compustat item SALE) plus one fourth of retained earnings (Compustat item RE) plus one half of the difference between current assets (Compustat item ACT) and current liabilities (Compustat item LCT) scaled by total assets (Compustat item AT)
Tangib	is the ratio of net PP&E (Compustat item PPENT) and total assets (Compustat item AT)

Table 1: Variable Definition

Variable	Definition
LEV	is long term debt (Compustat item DLTT) scaled by long term debt (Compustat item DLTT) plus the product of common shares outstanding (Compustat item CSHO) and stock closing price (Compustat item PRCC)
Dividend	is a dummy variable that takes the value of one if dividends ordinary (Compustat item DVC) or cash dividend (Compustat item DV) is greater than zero, zero otherwise
OpCycle	is the log of receivables (Compustat item RECT) divided by sales (Compustat item SALE) plus inventories (Compustat item INVT) divided by cost og goods sold (Compustat item COGS), both multiplied by 360
CFOsale	is the ratio of CFO divided by sales (Compustat item SALE)
Slack	is the ratio of cash and short term investments (Compustat item CHE) and net PP&E (Compustat item PPENT)
AMEX and NASDAQ	are dummy variables that take the value of one if the firm is traded on the Amex and Nasdaq respectively, zero otherwise

Table 2: Descriptive Statistics

Panel A: Market downturns between 1981 and 2006

Day	Date	Daily market returns
1	September 11, 1986	-0,0435
2	October 16, 1987	-0,0472
3	October 19, 1987	-0,1714
4	October 26, 1987	-0,0826
5	January 8, 1988	-0,0554
6	October 13, 1989	-0,0534
7	October 27, 1997	-0,0653
8	August 31, 1998	-0,0660
9	April 14, 2000	-0,0663
10	September 17, 2001	-0,0507
	Mean	-0,0702
	Median	-0,0603

Panel B: Descriptive statistics for the market returns

	Daily market returns
Bottom 1%	-0,0246
Median	0,0007
Mean	0,0005
Top 1%	0,0246
Standard deviation	0,0096

Table 3: Correlation matrix

	EQ	R	σ(Cfo)	Tang	Z-score	ROA	Lev	R&D	M-to-B	Div	Slack	CFOsale	Opcycl	Loss	Logcap
R	0.08(*)	1.00(*)													
σ(CFO)	-0.59 (*)	-0.05(*)	1.00(*)												
Tangib	0.30(*)	0.00	-0.30(*)	1.00(*)											
Z-score	0.16(*)	0.10(*)	-0.13(*)	-0.19(*)	1.00(*)										
ROA	0.27(*)	0.07(*)	-0.26(*)	-0.04(*)	0.60(*)	1.00(*)									
Lev	0.06(*)	-0,01	-0.04(*)	0.28(*)	-0.23(*)	-0.34(*)	1.00(*)								
R&D	-0.17(*)	-0.08(*)	0.05(*)	-0.21(*)	-0.17(*)	-0.02(*)	-0.20(*)	1.00(*)							
MB	-0.14(*)	-0.11(*)	0.17(*)	-0.15(*)	0.03(*)	0.21(*)	-0.41(*)	0.16(*)	1.00(*)						
Dividend	0.43(*)	0.05(*)	-0.38(*)	0.18(*)	0.15(*)	0.25(*)	-0.01(*)	-0.08(*)	-0.07(*)	1.00(*)					
Slack	-0.22(*)	-0.03(*)	0.27(*)	-0.41(*)	-0.04(*)	0,02	-0.25(*)	0.06(*)	0.24(*)	-0.16(*)	1.00(*)				
CFOsale	0.09(*)	0,11	-0.17(*)	0.06(*)	0.24(*)	0.38(*)	-0.02(*)	-0.06(*)	-0.22(*)	0.05(*)	-0.03(*)	1.00(*)			
OpCycle	-0.21(*)	-0.06(*)	0.15(*)	-0.40(*)	-0.32(*)	-0.15(*)	-0.11(*)	0.34(*)	0.04(*)	-0.15(*)	0.08(*)	-0.09(*)	1.00(*)		
Loss	-0.26(*)	-0.06(*)	0.23(*)	0.00	-0.42(*)	-0.69(*)	0.21(*)	0.02(*)	-0.05(*)	-0.23(*)	0.03(*)	-0.21(*)	0.12(*)	1.00(*)	
LogCap	0.30(*)	-0.17(*)	-0.32(*)	0.17(*)	-0.05(*)	0.26(*)	-0.15(*)	0.11(*)	0.35(*)	0.33(*)	-0.10(*)	0.10(*)	-0.14(*)	-0.21(*)	1.00(*)
LPrice	0.39(*)	0.00	-0.38(*)	0.12(*)	0.09(*)	0.35(*)	-0.20(*)	0.06(*)	0.19(*)	0.42(*)	-0.09(*)	0.00(*)	-0.12(*)	0.31(*)	0.73(*)

[*] correlations are statistically significant at 5% level

Table 4: Association between stock returns and earnings quality on days with negative shocks to stock markets

$$R_{j,t} = \alpha_0 + \alpha_1 \ EQ_{j,t} + \alpha_k \ X_{k,j,t} + \varepsilon_{j,t}$$

Panel A: cross-sectionally pooled cross-sectional model with market returns control

Variables	Coefficient (t-statistics)
EQ	0.149 (5.67)(*)
$LPrice$	0.014 (3.06)(*)
$\sigma(CFO)$	-0.028 (-2.56)(*)
$Tangib$	-0.007 (-1.08)
$Z\text{-}score$	0.001 (0.64)
ROA	0.007 (0.51)
LEV	-0.006 (-1.33)
$R\&D$	-0.003 (-1.99)(*)
MB	-0.000 (-0.30)
$Dividend$	0.007 (3.74)(*)
$Slack$	-0.001 (-1.88)
$CFOsale$	0.594 (3.68)(*)
$OpCycle$	-0.000 (-0.66)
$Loss$	-0.000 (-0.23)
$LogAge$	0.000 (0.19)
$AMEX$	0.004 (2.17)(*)
$NASD$	0.011 (2.15)
$LogCap$	-0.010 (-5.57)(*)
$MktRet$	0.763 (24.41)(*)
R-square	34,39
Nobs	11,784

(*)statistically significant at 5% level

Variables defined in Table 1

Table 4: Association between stock returns and earnings quality on days with negative shocks to stock markets

$$R_{j,t} = \alpha_0 + \alpha_1 \ EQ_{j,t} + \alpha_k \ X_{k,j,t} + \varepsilon_{j,t}$$

Panel B: cross-sectionally pooled cross-sectional model with dummy variables for each day with negative shock

Variables	Coefficient (t-statistics)
EQ	0.183 (6.07)(*)
LPrice	0.016 (3.87)(*)
σ*(CFO)*	-0.021 (-2.21)(*)
Tangib	0.003 (0.53)
Z-score	0.002 (2.03)(*)
ROA	0.003 (0.25)
LEV	-0.007 (-1.40)
R&D	-0.001 (-1.15)
MB	-0.001 (-0.53)
Dividend	0.010 (5.37)(*)
Slack	-0.001 (-1.76)
CFOsale	0.617 (3.91)(*)
OpCycle	0.000 (1.08)
Loss	0.002 (1.04)
LogAge	-0.002 (-0.84)
AMEX	0.003 (1.47)
NASD	0.007 (1.43)
LogCap	-0.011 (-7.20)(*)
R-square	36,73
Nobs	11,784

(*)statistically significant at 5% level

Variables defined in Table 1

Table 4: Association between stock returns and earnings quality on days with negative shocks to stock markets

$$R_{j,t} = \alpha_0 + \alpha_1\ EQ_{j,t} + \alpha_k\ X_{k,j,t} + \varepsilon_{j,t}$$

Panel C: Fama-McBeth estimation model

Variables	Coefficient (t-statistics)
EQ	0.223 (3.01)(*)
LPrice	0.017 (5.06)(*)
σ*(CFO)*	0.003 (0.24)
Tangib	0.009 (2.09)(*)
Z-score	0.002 (1.76)
ROA	0.002 (0.31)
LEV	-0.010 (-2.63)(*)
R&D	-0.002 (-1.23)
MB	-0.002 (-2.99)(*)
Dividend	0.010 (6.40)(*)
Slack	-0.001 (-1.11)
CFOsale	0.411 (2.20)(*)
OpCycle	0.000 (0.92)
Loss	0.002 (1.36)
LogAge	-0.000 (-0.26)
AMEX	0.004 (1.66)
NASD	0.009 (1.71)
LogCap	-0.011 (-8.14)(*)
R-square	21,96
Nobs	10

(*)statistically significant at 5% level

Variables defined in Table 1

Table 4: Association between stock returns and earnings quality on days with negative shocks to stock markets

$$R_{j,t} = \alpha_0 + \alpha_1 \, EQ_{j,t} + \alpha_k \, X_{k,j,t} + \varepsilon_{j,t}$$

Panel D: cross-sectionally pooled cross-sectional model with market returns control estimated with 1987 data

Variables	Coefficient (t-statistics)
EQ	0.223 (3.31)(*)
LPrice	0.032 (14.32)(*)
σ*(CFO)*	0.026 (-0.80)
Tangib	0.010 (0.99)
Z-score	0.008 (3.71)(*)
ROA	-0.015 (-0.73)
LEV	-0.011 (-1.42)
R&D	-0.001 (-0.46)
MB	-0.002 (-1.01)
Dividend	0.005 (1.57)
Slack	0.001 (1.16)
CFOsale	-0.470 (1.11)
OpCycle	0.000 (0.36)
Loss	0.008 (1.87)
LogAge	-0.009 (-3.32)(*)
AMEX	0.005 (1.45)
NASD	0.022 (7.51)(*)
LogCap	-0.014 (-12.87)(*)
MktRet	0.646 (36.74)(*)
R-square	44,84
Nobs	3,608

(*)statistically significant at 5% level

Variables defined in Table 1

Table 5: Association between stock returns and earnings quality on days with extremely positive stock market returns

$$R_{j,t} = \alpha_0 + \alpha_1\ EQ_{j,t} + \alpha_k\ X_{k,j,t} + \varepsilon_{j,t}$$

Panel A: cross-sectionally pooled cross-sectional model with market returns control

Variables	Coefficient (t-statistics)
EQ	-0.078 (-1.30)
LPrice	-0.006 (-1.13)
σ(CFO)	0.002 (0.12)
Tangib	0.005 (0.53)
Z-score	-0.000 (-0.29)
ROA	0.009 (0.55)
LEV	0.012 (5.17)(*)
R&D	0.002 (1.04)
MB	0.002 (2.36)(*)
Dividend	-0.005 (-2.02)(*)
Slack	0.001 (2.25)(*)
CFOsale	-0.002 (-0.02)
OpCycle	-0.000 (-0.80)
Loss	0.003 (1.01)
LogAge	-0.004 (-2.57)(*)
AMEX	-0.002 (-0.58)
NASD	-0.004 (-0.77)
LogCap	0.008 (5.65)(*)
MktRet	1.11 (7.21)(*)
R-square	15,27
Nobs	11,040

(*)statistically significant at 5% level

Variables defined in Table 1

Table 5: Association between stock returns and earnings quality on days with extremely positive stock market returns

$$R_{j,t} = \alpha_0 + \alpha_1\ EQ_{j,t} + \alpha_k\ X_{k,j,t} + \varepsilon_{j,t}$$

Panel B: cross-sectionally pooled cross-sectional model with dummy variables for each day with positive shock

Variables	Coefficient (t-statistics)
EQ	-0.096 (-1.56)
LPrice	-0.007 (-1.50)
σ(CFO)	-0.003 (-0.21)
Tangib	-0.002 (-0.46)
Z-score	-0.002 (-1.39)
ROA	0.012 (0.73)
LEV	0.013 (6.46)(*)
R&D	0.001 (0.77)
MB	0.002 (2.60)(*)
Dividend	-0.008 (-2.40)(*)
Slack	0.001 (2.21)(*)
CFOsale	-0.018 (-0.21)
OpCycle	-0.000 (-2.14)(*)
Loss	0.001 (0.55)
LogAge	-0.002 (-1.74)
AMEX	-0.001 (-0.45)
NASD	-0.002 (-0.35)
LogCap	0.009 (6.77)(*)
R-square	17,07
Nobs	11,040

(*)statistically significant at 5% level

Variables defined in Table 1

Table 5: Association between stock returns and earnings quality on days with extremely positive stock market returns

$$R_{j,t} = \alpha_0 + \alpha_1\ EQ_{j,t} + \alpha_k\ X_{k,j,t} + \varepsilon_{j,t}$$

Panel C: Fama-McBeth estimation model

Variables	Coefficient (t-statistics)
EQ	-0.133 (-2.45)(*)
$LPrice$	-0.007 (-1.67)
$\sigma(CFO)$	-0.014 (-1.56)
$Tangib$	-0.010 (-1.31)
$Z\text{-}score$	-0.001 (-1.10)
ROA	-0.002 (-0.15)
LEV	0.009 (3.22)(*)
$R\&D$	0.004 (2.10)(*)
MB	0.002 (1.79)
$Dividend$	-0.009 (-2.93)(*)
$Slack$	0.000 (1.00)
$CFOsale$	0.077 (0.62)
$OpCycle$	-0.000 (-1.86)
$Loss$	-0.000 (-0.17)
$LogAge$	-0.004 (-3.85)(*)
$AMEX$	-0.002 (-0.97)
$NASD$	0.000 (0.05)
$LogCap$	0.009 (7.35)(*)
R-square	16,5
Nobs	10

(*)statistically significant at 5% level

Variables defined in Table 1

The Impact of Measurement Criteria on Investors' Judgement and

Decisions.

The Impact of Measurement Criteria on Investors´ Judgement and Decisions

Abstract: This study investigates the effect on nonprofessional investors´ judgements and decisions of different measurement concepts. Using a paper-and-pencil experience, we collect and analyze information regarding investement amounts as well as past and future financial performance judgements of firms´earnings by manipulating fair value (mark-to-market and mark-to-model) criteria and benchmarking it with historical cost based financial statements. We proxy nonprofessional investors with graduate students from a top business school in Lisbon (ISEG). Our results show evidence that nonprofessional investors view fair value changes as permanent. We argue for a cashflow volatility factor. Contrary to previous research, we don't find evidence of any effect on investors' willingness to invest (average budget amounts invested) or performance judgments (past and future). We corroborate Gassen and Schwedler (2010)'s evidence that investors rank measurement concepts' relevance differently for different classes, although, on average, mark-to-market fair values and historical cost are rated more relevant and reliable than mark-to-model fair values.

1. Introduction

When market prices reflect all value relevant information, significant advantages of fair value accounting emerge as market prices (fair value) equal value in use, but only under perfect and complete markets assumption. Accordingly, if we recognize all assets and liabilities on the balance sheet and measure them at market price (fair value), the book value of net assets reports the market value of equity. So under perfect and complete markets, investors do not need to estimate equity value because the balance sheet reports the equity value through fair value accounting. When the market is imperfect, on the other hand, it is necessary to determine a value with a method whose reliability must be proven.

In fact, the discussion about the measurement of fair value makes relevant the distinction between price and value. Question is whether accounts should reflect prices or values.

Recently, the financial crisis initiated in 2007 led to a considerable debate on the pros and cons of using a full mark-to-market accounting system. Contemporaneously, the US Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) took steps in this direction in an attempt to globalize accounting standards. The recent accounting standards SFAS 157 and IAS 39 adapt the fair value approach and attempt to use only market prices where appropriate. For example, SFAS 157 distinguishes between different levels of input to the valuation process. Level 1 input are quoted prices in active markets for identical assets or liabilities. In cases where market prices are not appropriate, level

2 inputs should be used if possible. Examples include quoted prices for similar assets and interest rate and yield curves or other market corroborated inputs. Finally, if this kind of information is also unavailable, then level 3 inputs can be used, consisting in unobservable prices that reflect firms´ own assumptions and information about the asset (mark-to-model). IAS 39 has similar provisions.

Measurement theory is key for financial reporting. In fact, identifying the measurement criteria most adequate is of interest to practitioners, standard setters and academics as well. Standard setters face the (mostly political) problem of identifying accounting measurement concepts that provide the needs of information for a group of heterogeneous users and settings (Watts (1977)).

This study investigates the effect on nonprofessional investors´ judgements and decisions of different measurement concepts. Using a paper-and-pencil experience, we collect and analyze information regarding investement amounts as well as past and future financial performance judgements of firms´earnings by manipulating aforementioned fair value (multiple level) criteria and benchmarking it with historical cost based financial statements. We proxy nonprofessional investors with graduate students from a top business school in Lisbon (ISEG).

We find evidence that nonprofessional investors' investment decision is affected vis-à-vis a cashflow estimation factor but not in their willingness to invest. Investment amounts of the total budget remain statistically unchanged when we manipulate measurement of assets by using multi level fair values where descrition is allowed. Contrarily, participants view fair value changes as permanent.

Consequently, we argue that fair value changes recognition will induce volatility on future cashflows forecasted to evaluate investment's fundamental value.

We don't find evidence that past or future performance judgements are affected by our manipulation of measurement criteria. Contrary to prediction, nonprofessional investors remain unaffected by any fair value recognition when assessing past performance. They also do not feel less confident in predicting future earnings when presented with fair value based financial statements. Potential explantion may be that, as argued in extant literature, familiarity and expertise may mitigate the predicted effects.

Finally, we find that nonprofessional investors view measurement criteria differently in terms of reliability and relevance. We find that regardless of between group differences, participants view historical cost as most relevant. Additionally, there seems to be different relevance assesments for different classes of assets, across the same measurement criteria. As Gassen and Schwedler (2010) argue, decision usefulness of a specific measurement criterium is also influenced by the class of assets to be measured. Regarding reliability, our results show no effect for different measurement concepts. Finally, we find that participants rate lower and similarly mark-to-model reliability and relevance, but they distinguish those two attributes when assessing historical cost and mark-to-market measurements.

Our paper relates the most with two other investigations. Similar to Warne (2008) we analyze the impact of fair value measurement on nonprofessional investors´ judgement and decisions. Our paper extends this research twofold: we

research that impact under a completely different financial reporting environment. IFRS extensively allows for fair value recognition not only on the same non-current assets but other assets and liabilities. In Warne (2008), US GAAP didn´t allow fair value (directly)[9] for those items. This can have competing effects of (lack of) familiarity on participants´ answers, that we are able to rule out by using graduate students already familiar with IFRS. Additionally, we are able to conduct our experiment on a setting where multiple levels of fair values (mark-to market or model) are already in place and can be fine-tuned to test differences for those levels on nonprofessional investors´ perceptions and decisions.

Finally, a paper by Gassen and Schwedler (2010) surveys professional investors to identify decision usefulness of different accounting measurement concepts. They find that respondents distinguish between mark-to-market and mark-to-model fair values. Furthermore, professional investors rank mark-to-market fair values as most decision usefull. They also show evidence that respondents rank as least decision-usefull mark-to-model fair values. We extend their analyzis by researching the effect of measurement criteria on relatively less sophisticated investors, which have been declared by supervisors and regulators as the main concern when looking for improvement on regulation.

Results are important for a broad group of individuals. Financial statements´ preparers (and users) learn that several competing consequences underly their measurement concepts choices and that those discretionary choices bear additional

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[9] Due to IFRS and US GAAP convergence, cross listed firms were allowed to report under IFRS.

unattended (and probably unwanted) results on valuation volatility and investors´ confidence. Standard setters and regulators may find that our results present effects on judgement and decisions of nonprofessional investors that are statistically and economically relevant and, thus, should be balanced in their work. Finally, academics face additional layers of research that deem the debate about fair value measurement adavantages yet not fully explored.

The paper is organized as follows. Section 2 reviews extant literature; Section 3 presents the research hypothesis; Section 4 concerns research design and data; Section 5 describes the main results; and Section 6 concludes the paper.

2. Literature Review

The financial crisis initiated in 2007 had prevailing effects on US and global economies. On the Financial Reporting realm, this led to a considerable debate on the pros and cons of using a full mark-to-market accounting system for banks and insurance companies. Contemporaneously, the US FASB and the IASB took steps in this direction in an attempt to globalize accounting standards. The recent accounting standards SFAS 157 and IAS 39 adapt the fair value approach and attempt to use only market prices where appropriate. For example, SFAS 157 distinguishes between different levels of input to the valuation process. Level 1 input are quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. In this context, an active market is one with sufficient frequency and volume to provide pricing information on an ongoing basis. In cases where market prices are not appropriate, level 2 inputs should be used if possible. Examples include quoted prices for similar assets and interest rate and yield curves or other market corroborated inputs. Finally, if this kind of information is also unavailable, then level 3 inputs can be used, consisting in unobservable prices that reflect firms own assumptions and information about the asset. IFRS have similar provisions.

Thus, fair value accounting is one that updates measurement of balance sheet items to the most recent data, as opposed to historical cost measurement criterium. Fair value measurement can be applied at three different levels – the full mark-to-market model where assets are valued at liquid market prices; the mixed model

where market prices are used to assess fair values of items not traded on liquid markets; and, finally, level 3 mark-to-model criterium where companies use their best estimates to update item's value.[10]

Measurement theory is key for accounting research and standards setting. In fact, most theoretical foundations used by accounting researchers come from the fields of economics; psychology and other social sciences. One exception is the former. Previous literature and regulators associate historical cost measurement with greater reliability and fair value based measurement with increasing relevance.[11] None the less, some call for external verifiability of measurement models (i.e. Penman (2006)). Adding to that, different settings (in terms of both the users and the context) deem measurement concepts ranked differently. Gassen and Schwedler (2010) provide evidence of this phenomenon by surveying professional investors and their advisors, about their opinions on the decision usefulness of different accounting measurement concepts. They find that respondents clearly distinguish between mark-to-market and mark-to-model fair values. While they consistently rank mark-to-market fair values as most decision-useful, they generally rank mark-to-model fair values as least decision-useful. In addition, the ranking differs across asset classes.

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[10] We will refer to fair value accounting bearing in mind that those three levels are ranked and companies are only allowed to relax pure market prices where there is no liquid markets' information available, but lead to different perceptions (in terms of judgements and confidence) when information users are faced with financial reporting data.

[11] Relevance requires that the financial accounting information should be such that the users need it and it is expected to affect their decisions. Reliability requires that the information should be accurate and true and fair.

Measurement theory is also key for financial reporting. In fact, identifying the measurement criteria most adequate is of interest to practitioners, standard setters and academics as well. Standard setters face the (mostly political) problem of identifying accounting measurement concepts that provide the needs of information for an ex ante unknown group of heterogeneous users and settings (Watts (1977)).

The debate on fair value accounting raises issues that tend to improperly consider the role of accounting lumped together with the suitability of fair value and its measurement. In fact, the discussion about the measurement of fair value makes relevant the distinction between price and value. Question is whether accounts should reflect prices or values.

Keynes (1936) defines the value of an asset as resulting from the discounting of its cash flows generated by ownership (intrinsic value). Price, contrarily, is the outcome of the law of supply and demand. Although based on the value of the company, price also reflects subjective elements such as the negotiating power of buyers and sellers, their relationship, the desire to complete the transaction, and their interest in doing so, among other elements.

In light of this, only when markets are perfect and complete, market value is fair value. Barth and Landsman (1995) argue that under that condition, the balance sheet includes all the information useful to a valuation of a company. In this scenario, management and market are capable of ascertaining the necessary elements of assets to come up with a fair value, and thus making the observation of an income is not necessary to the valuation of a company. When the market is imperfect, on the

other hand, it is necessary to determine a value with a method whose reliability must be proven.

In conclusion, the reliability and relevance of the attribute measured are key points of measuring assets especially during increased uncertainty environments such as the recent financial and subsequent economic crisis.

Nobes (2001) provides the first major analysis of fair value accounting. Plantin et al. (2008) and Penman (2006) argue pros and cons of contemporary fair value accounting more deeply. Conceptually, fair value accounting should provide information with a higher degree of decision usefulness and relevance of accounting data that would mitigate information asymmetries that investors face in the market. Additionally, fair value also decreases incentives to increase gains on trading and assets securitization, providing more credibility to financial reporting. Conversely, if fair value cannot be determined unambiguously it loses objectivity. As Ryan (2008) argues, when active markets are missing, fair value can only be measured according to subjective assumptions and thus become a black box tool for discretionary earning management.

Existing literature focus attention on the role of fair value disclosure on market wide consequences (i.e. Barth (1994)) but lack analysis in terms of individual investors' decision usefulness. An additional stream of literature study the impact of unrealized gains and losses on judgements and decisions. Both Hirst and Hopkins (1998) and Maines and McDaniel (2000) find evidence that unrealized gains and losses included in a statement of comprehensive income affect judgment about

firms' performance by analysts and nonprofessionals, respectively. Bloomfield et al (2006) concluded that unrealized gains and losses increase price (and returns) volatility when correlation between those unrealized gains and losses and firms' performance is high.

The aforementioned studies focus on investors´ reactions to unrecognized gains and losses regarding changes in the value of financial assets and liabilities for which liquid markets already provide mark-to-market fair values and under a financial reporting that requires mandatory recognition of those changes in its values. We extend those studies by providing evidence for additional items where fair value changes are optional and under a financial reporting environment where firms are able to use level 3 (mark-to-model) fair values.

Our study relates also to another recent stream of literature that evaluates investors´ judgement and perceptions regarding financial reporting disclosed by firms of pro-forma earnings. Elliott (2006) shows that nonprofessional investors are influenced by the emphasis placed on pro-forma profit relative to GAAP loss. The presentation of a reconciliation between those two figures doesn´t seem to mitigate that evidence unless a side-by-side format is adopted. Contrarily, professional investors´[12] judgements are not influenced by the pro forma disclosure unless there is such a side-by-side reconciliation of both numbers. Frederickson and Miller (2004) find similar results.

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[12] Similar to Gassen and Schwedler (2010), we define professional investor: financial analysts, stock brockers, stock mutual fund managers and/ or any professional that has a similar job.

Finally, our paper relates the most with two other investigations. Similar to Warne (2008) we analyze the impact of fair value measurement on nonprofessional investors´ judgement and decisions. Warne (2008), using an experiment from which we adapt part of our research instrument, shows that fair value recognition of non-current assets has an impact on those investors. The author finds evidence that investors are less willing to invest and are less confident about their performance judgement of the firms that report fair value recognitions of non-current assets, as opposed to historical cost disclosures. Our paper extends this research twofold: we research that impact under a completely different financial reporting environment. IFRS extensively allows for fair value recognition not only on the same non-current assets but other assets and liabilities. In Warne (2008), GAAP didn´t allow fair value (directly)[13] for those items. This can have competing effects of (lack of) familiarity on participants´ answers, that we are able to rule out by using graduate students already familiar with IFRS. Additionally, we are able to conduct our experiment on a setting where multiple levels of Fair values (mark-to market or model) are already in place and can be fine tuned to test differences for those levels on nonprofessional investors´ perceptions and decisions.

Finally, a paper by Gassen and Schwedler (2010) surveys professional investors to identify decision usefulness of different accounting measurement concepts. They find that respondents distinguish between mark-to-market and mark-to-model fair values. Furthermore, professional investors rank mark-to-market fair values as

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[13] Due to IFRS and US GAAP convergence, cross listed firms were allowed to report under IFRS.

most decision usefull. They also show evidence that respondents rank as least decision-usefull mark-to-model fair values. Results differed across asset classes. We design this study to make some bridging to their conclusions by assessing relevance and reliability of different classes of assets and by surveying familiarity with mark-to-market and mark-to-model fair values. We extend their analyzis by researching the effect of measurement criteria on relatively less sophisticated investors, which have been declared by supervisors and regulators as the main concern when looking for improvement on regulation. We also differ from the aforementioned study by employing an experiment methodology as opposed to their survey.

3. Research hypothesis

According to Maines and McDaniel (2000), nonprofessional investors engage in sequential information search strategies while using financial reporting data. Additionally, this group looks for cues from management to determine the relative importance of information. Research on Judgment and decision making has also shown that the mere order of information, regardless of its relevance to the current task, may have effects on information processing. Tversky and Kahneman (1974) show evidence that individuals correlate importance with serial position. When uncertain about the estimate they want to report, the first piece of evidence serves as anchor for the judgement task. Finally, research that analyzed both professional and nonprofessional investors consistently find that nonprofessional investors are more susceptible to irrelevant information and, thus, engage in non-normative judgement and decisions (Elliott (2006)). Consequently, the effects of different measurement choices should likely be more pronounced in nonprofessional investors.

Extant literature also shows that accouting choices can have impact on stock prices volatility. Previous research on unrealized gains and losses (UGL) shows evidence that nonprofessional investors are affected by UGL, especially when the later are correlated with prior returns (Bloomfield et al (2006)). Barth, Landsman and Wahlen (1995) also argue that recognizing assets at fair values increases more volatility than historical cost based measurement. Finally, as this volatility is a key component of non-systematic risk, the discreationary adoption of fair value based measurement should affect the equity risk (Hong and Sakar (2007)). Warne (2008)

further argues that if investors are not awarded additional risk premium for increased volatility then investment in more volatile equity will decrease.

As part of this decision investment, investors are faced with the task of predicting future cash flows that will justify fair value for the stock traded. To do that, they need to evaluate accounting income. At our setting, bottom line income will include two components: transitory and persistent income. According to Ou and Penman (1989), transitory income will have no predictive value of future income. Only persistent income can be predictive of futre wealth growth, unless a liquidation view is adopted.

None the less, psychological theory of causal stability (e.g. Weiner (2000)) predicts that individuals, when faced with changes, will look for and evaluate the sources of those changes to determine its recorrency into the future. Consequently, if nonprofessional investors depart from rational economic analyzes, they will allow spillover effects of transitory income when predicting future earnings.

Similar to Elliott (2006) and Warne (2008), we hypothesize the following:

Hypothesis 1 (H1): *Nonprofessional investors analyzing financial statements produced under fair value based measurement criteria will be willing to invest less than investors receiving historical cost based financial statements.*

Hypothesis 2 (H2): *Nonprofessional investors analyzing financial statements produced under fair value based measurement criteria will view changes from fair values as persistent/ non-transitory income.*

Contemporaneous to this process of decision, we can identify moderating[14] factors that will affect nonprofessional investors´ decision to invest on a stock. In fact, investors´ decision will be based not only on predicted future financial performance per se but also on judgements including confidence both on their past performance assessments and on their future performance predictions. Given that, as mentioned before, extant research shows that nonprofessional investors use simple models when making decisions, they will likely see increases to income due to fair values as positive (and conversely, decreases as negative). On top of that, due to "spillover effects" documented by psychology research, their assessment of future performance will probably suffer influence from past fair value adjustements.

Research in accounting shows also that confidence decreases when complexity of a judgment increases (Chung and Monroe (2009)). By that token, judging future performance of a firm would probably be a more complex task for a nonprofessional investor. Adding to that, additional volatility introduced by fair value changes will likely cause additional complexity if individuals see those changes as non-transitory.

Hypothesis 3 (H3): *Nonprofessional investors analyzing financial statements produced under fair value based measurement criteria will judge less (more) favorable past performance, if fair value changes decrease (increase) income, than investors receiving historical cost based financial statements.*

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[14] A moderator factor is one that influences the strength of a relationship between two other variables, and a mediator factor is one that explains the relationship between the two other variables (Baron and Kenny (1986)).

Hypothesis 4 (H4): *Nonprofessional investors analyzing financial statements produced under fair value based measurement criteria will be less (more) confident about future performance, if fair value changes decrease (increase) income, than investors receiving historical cost based financial statements.*

In this paper, we decided to test also nonprofessional investors´ perception of different measurement concepts in terms of reliability and relevance. Similar to Gassen and Schwedler (2010), we survey participants about reliability and relevance of different classes of assets, on which measurement choices are manipulated. We similarly extend previous literature by explicitly introducing distinction between mark-to-market and mark-to-model fair values. Gassen and Schwedler (2010) find that respondents distinguish between mark-to-market and mark-to-model fair values. Furthermore, professional investors rank mark-to-market fair values as most decision usefull. They also show evidence that respondents rank as least decision-usefull mark-to-model fair values.

Hypothesis 5 (H5): *Nonprofessional investors will judge mark-to-market fair value based measurement as most relevant and mark-to-model fair values as least relevant.*

Hypothesis 6 (H6): *Nonprofessional investors will judge historical cost based measurement more reliable than fair value measurements.*

4. Research design and data

Experimental methods are particularly interesting to manipulate variable of interest, while controlling for other irrelevant variables. We choose to manipulate measurement criteria used to report different classes of assets and liabilities in order to evaluate the effects of these choices on nonprofessional investors´ judgements and decisions. This research design allows us to rule out alternative explanations and overcome previous research caveats about the effects of fair value reporting on financial decisions. In fact, extant literature on this topic, presents conflicting or unconlusive results due to low power or measurement error (Barth (1994)). Thomas (1999) also notes that results reflect, at best, influential equity investors. As so, it is of interest to focus our attention on nonprofessional investors, since they remain largely unknown to academics, standard setters and business community.

Previous research uses MBAs as surrogates for nonprofessional investors. Examples include Maines and McDaniel (2000); Hodge (2001); Hirst et al (1999). Additionally, Elliott et al (2007) provide evidence that graduate students are a reasonable proxy for nonprofessional investors.

One hundred and fifteen graduate students from a master of science in finance and accounting and executive education on accounting and finance from a top business school in Lisbon (ISEG) participated in this experiment as proxies for nonprofessional investors. All participants already completed successfully one or more intermediate and advanced course in financial accounting. In fact, when asked

to classify their knowledge of financial reporting and accounting on a 5 point scale with endpoints labeled 1 - "unfamiliar" to 5 – "very familiar", average grading was 3,08. As control questions, they were asked to rate their familiarity with several measurement criteria (including historical cost and mark-to-market and mark-to-model fair values) on the same 5 point scale. Average answers ranged from 3,93 for historical cost to 2,54 for mark-to-model fair values. Two thirds of the participants were women. Average age was 24,9 years old, which might account for the fact that 12% declared that already invested on equity instruments. Additionally, average work experience is 2,2 years and almost 30% of the participants stated that they have used financial statements in the context of job tasks.

Participants were randomly assigned to one of the groups designed to test the use of financial statements prepared with or without fair value measurement criteria where discretion is allowed, (some classes of financial assets and liabilities are mandatorily measured at fair value). Results show that groups do not present any statistically significant differences in what concerns any of the demographics collected.

All participants viewed a set of financial statements (balance sheet and income statement along with additional notes regarding assets and liabilities measurement to avoid unintended demand effects). The financial statements were preceded by an introduction where participants were informed that they were about to analyze data from an hypothetical firm modeled after the data found for those financial

statements on all non-financial firms traded on Lisbon Euronext Stock Exchange Index - PSI. Please refer to appendix A where the research instrument is presented.

We use a two group between-subject design. The manipulated variable for each group is the measurement criteria used to evaluate some assets and liabilities for which IFRS allows a choice to use fair value with the corresponding effects on comprehensive income. The historical cost (HC) condition serves as benchmark to examine the effect of fair value multiple levels criterium disclosure on investors´ decision to invest and performance and confidence judgment when analyzing financial statements.

Similar to Elliott (2006) and Warne (2008), we collected data on two earnings performance dependent variables – current earnings performance and future earning potential judgements. Additionally, we collected information regarding investment decision as dependent variable – investment amount each participant would place on the hypothetical firm. Regarding past performance judgement, participants were asked to rank their opinion on an 11-point scale with endpoints labeled 0 (very weak) - 100 (very strong). For their assessment of future performance potential, an estimated amount of operating income and another for comprehensive income were requested. Additionally, they were asked to rate their confidence on producing those estimates on the same 11-point scale. Participants made an investment decision based on the following instructions: "Assume you have 10.000€ to invest in this stock. Assume also that each stock is currently traded at 2€

per share, immediately after the disclosure of the attached financial statements. How much of your initial budget would you invest on the stocks of this firm?"

To make our conclusions comparable to Gassen and Schwedler (2010), we also asked participants to evaluate both reliability and relevance of the different measurement criteria manipulated in this experiment. To prevent drawing attention to the distinction between different criteria, participants were provided with the definition of relevance and reliability as defined on Portuguese accounting standards (based on IFRS) and then asked to rank those attributes for a class of assets produced according to different measurement criteria. In an 11-point scale for which endpoints are labeled 0 (not at all) -100 (very), participants ranked both reliability and relevance for Cash and Marketable Securities and Investment Buildings (Fair value – mark-to-market); for Production Equipment (Fair value – mark-to-model) and Accounts Receivables (Historical Cost).

5. Empirical results

Descriptive statistics and test results for the dependent variables defined in the several research hypothesis are presented in the tables at the end of this paper.

H1 predicts that when participants are presented with financial statements prepared with fair value based measurements, investment amounts they are willing to invest will be lower than when given historical cost based financial statements. Table 1 corroborates this assertion. Panel A shows that average amount invested by a participant in fair value (FV) based statements group is 4108,33 € of the initial 10000€ budget, whereas for historical cost (HC) based financial statements group participants' average amount is 4527,27€. In panel B of Table 1 we show the results of a planned comparisions test according to H1 (HC > FV). Test statistic t=1,036 is not significant at a 5% level (p-value = 0,152 (1T)). Contrary to previous research, we don't find a statistically significant difference between the budget spend by nonprofessional investors in firms with fair values reported versus firms with historical cost based financial reports. Our results show that FV group shows a decrease in average amount but an increase in standard deviation of those amounts when compared with HC group (2297,92 vs 2014,80, respectively). These results might decrease the power of our test. An alternative explanation is that familiarity and expertise reduces the use of irrelevante information. Smith and Kida (1990) find less evidence of anchoring as familiarity and expertise increases. As already mentioned, our participants are graduate students that already completed

successfully at leat one intermediate or advanced course in financial accounting and financial reporting, where they were exposed to measurement theory.

H2 required participants to present earnings forecast. In this research hypothesis we predict that nonprofessional investors will assess fair value earnings to be permanent, contrary to economic theory. To test H2, participants predicted next year's operating earnings and comprehensive income. Similar to Warne (2008), to avoid demand effects and conceal the objectives of this study, we did not ask directly an estimation of next year´s fair value changes. Instead, we infer that from decomposing comprehensive income in three components: operating earnings, non-operating earnings and fair value changes. Given that we only manipulate fair value changes, we can infer a forecast for those fair value changes by holding fix the other components.

Table 2 presents the descriptive statistics and test results for H2. Panel A presents average forecasted operating earnings (OP) for both groups and for the total sample. FV group forecasted a smaller amount of OP compared to HC group (54109,39 versus 59140,56, respectively). Panel C shows planned comparisons test results for that forecast. A t-stat of 1,285 with a p-value of 0,101 (1T) doesn't allow us to infer (at a 5% level) that those two amounts are significantly different.

Panel B reports descriptive statistics for the second forecasted earnings number – comprehensive income. FV group clearly forecasts a lower comprehensive income (17978,31) than HC group (40092,00). Panel D shows that this difference is statistically significant. Planned comparision t-test presented a stat. of 7,794 with a

significance of 0,000. Since we manipulated only fair value changes between groups, we find significant evidence that confirms H2. Nonprofessional investors assess fair value changes as permanent.

We compute fair value changes in two ways. First, we hold fix an amount of non-operating earnings, and since we required forecasts for OP and comprehensive income, we can infer predicted fair value changes. Using implicit forecasted non-operating earnings (-19048,56) from HC group, we obtain fair value changes estimated at -17082,52. Alternatively, we hold fix a percentage of OP (67,29%) that nets out into comprehensive income in the HC group forecast. We estimate a forecasted fair value change of -18702,45.[15] Both values are statistically significant at a t-test with a zero hypothecized value. We can conclude that, as predicted by H2, nonprofessional investiors view fair value changes as permanent and predictive of future cash flows.

Taking together H1 and H2, we can conclude that the adoption of fair value measurement concepts affects nonprofessional investors' decisions in what concerns investment. Allthough we did not confirm a statistically significant difference in investment amounts (H1), we did find a forecasted cashflow (and estimated fundamental equity value) factor (H2). We can not infer that nonprofessional investors are less willing to invest when firms report under fair

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[15] We test, as a robustness check, alternative strategies to estimate forecasted fair value changes. We computed changes holding back a fixed amount and a percentage as non-operating earnings based on provided financial statements (which only differ between groups in fair value changes recognized). Results remained significant.

value measurement concepts. But we find a statistically significant believe from nonprofessional investors that fair value changes are permanent and can predict firm´s future income, thus affecting investments' cash flows. In conlusion, measurement concepts choice can induce increased volatility vis-à-vis forecasted cash flows.

H3 predicts that fair value changes will influence past performance judgements in the direction of its sign. Participants were asked to rate past performance based on the financial statements handed to them on a scale of 0 (very weak) to 100 (very strong). Table 3 presents the descriptive statistics and test resultas for H3. Panel B shows that planned comparisons test stat t of -0,566 is not significant at 5% (p-value= 0,287(1T)). We cannot conclude that fair value changes recognition affect nonprofessional investors' judjement of firm's performance.

In table 4 we take further performance judgement analysis by testing H4. We predict that participants in group FV will be less confident about future performance predictions than the ones from HC group. We asked participants to rate the confidence they have on their earnings forecast on an 11-point scale with endpoints labeled 0 – (not at all confident) to 100- (very confident). Panel A shows very similar average confidence ratings for both groups with FV slightly bellow HC (39,83 vs 42,59, respectively). Panel B presents the results of a planned comparisons test. Average rating doesn´t significantly change regarding nonprofessional investors' perception of firm´s performance for different measurement concepts (t-stat = 0,786 with a sig. of 0,22). We can't confirm H4.

Taking together H3 and H4, we didn't find evidence of any effect on investors' judgement of past and future performance derived from fair value changes recognition.

Finally, we asked participants to identify realibility and relevance of values of four different classes of assets - Cash and Marketable Securities; Buildings; Operating Equipment; and Accounts Receivales. We manipulate measurement policies for two of them (Buildings – mark-to-market fair value vs historical cost-, and Equipment – mark-to-model vs historical cost) between groups. Hold the other two equal for both groups (Cash and Marketable Securities– mandatory mark-to-market fair values-, and Accounts Receivables – historical cost) in order to make the experience closer to real data and avoid demand effects. We provide participants with Portuguese standards (IFRS based) official definition of relevance and reliability. We then request them to rate each class of assets on an 11-point scale from 0 – (not at all) to 100-(very) both for reliability and relevance.

Table 5 presents average ratings and test statistics for relevance assessments of the different classes of assets. Panel A shows that both groups rate Accounts Receivable (Historical cost) as the most relevant whereas the other classes are ranked least relevant. We conducted a repeated measures analysis of variance with group interactions. Panel B presents test results. We find that there is a significant difference between the relevance assessments of Receivables' historical cost versus the remaining classes of assets (Z-stat = 34,805 with sig. = 0,000). Puzzingly, we

don't find any group interaction (RELEV*GROUP Z-stat= 0,012 with sig. = 0,455 (1T)).

Since we manipulate two classes of assets between groups, we find intriguing that no effect is detected between groups for those classes of assets. One potential explanation links our results with those of Gassen and Schwedler (2010). They provide evidence of professional investors ranking measurement criteria differently across classes. They show that despite, a general classification of fair value mark-to-market as most decision usefull and mark-to-model fair values as least usefull, investors perceive assets measurement desirable attributes different across classes.

Finally, in Table 6 we show the descriptive analysis and test results for H6 regarding reliability of different classes of assets. In Panel A we can identify that participants, on average, rank as more reliable historical cost measured assets and fair value mark-to-market. They also rank, on average, as least reliable, mark-to-model fair value measured assets. Panel B presents the repeated measures analysis of variance test results. We don't find significant effects both at assets classes' level and on the interaction with the groups. A Z-stat of 0,270 with a sig. of 0,303 doen't allows us to corroborate predicted results. Nonprofessional investors, proxied by graduate students in this experience, rate measurement concepts similar reliability. Futhermore, participants allocated to different groups rate similarly reliable those classes of assets that were manipulated to test the effect of fair value (multi-level) measurement concepts (Z-stat = 0,887 with sig. = 0,174 (1T)).

We conducted additional robustness checks of H5 and H6 together. In untabulated results, we find evidence that participants distinguish between reliability and relevance of pure mark-to-market fair value and historical cost from those of mark-to-model fair value. Consistent with previous research (Gassen and Schwedler (2010)), participants rate, on average, similarly lower reliability and relevance to mark-to-model, while they clearly distinguish reliability and relevance of historical cost and mark-to-market fair values.

6. Conclusions

We use a paper-and-pencil experience to analyze the effects of different measurement concepts on nonprofessional investors' investment decisions and judgements. In this experience we proxy nonprofessional investors by graduate students from a master of science in accounting and finance and executive education program students of the same area who were already exposed to intermediate and advanced courses in financial reporting. Previous research argues that the later group is a valid surrogate for the former (Elliott et al (2007)).

We find evidence of interesting effects: firstly, nonprofessional investors' investment decision is affected vis-à-vis a cashflow estimation factor but not in their willingness to invest. In fact, investments' amounts of the total budget remain statistically unchanged when we manipulate measurement of assets by using multi level fair values where description is allowed. Contrarily, participants view fair value changes as permanent. Consequently, we argue that, consistent with previous research on unrealized gains and losses (e.g. Bloomfield et al (2006)), fair value changes recognition will induce volatility on future cashflows forecasted to evaluate investments fundamental value.

Secondly, we don't find evidence that past or future performance judgements are affected by our manipulation of measurement criteria. Contrary to prediction, nonprofessional investors remain unaffected by any fair value recognition when assessing past performance. They also do not feel less confident in predicting future earnings when presented with fair value based financial statements. Potential

explantion may be that, as argued in extant literature, familiarity and expertise may mitigate the predicted effects (Smith and Kida (1991)).

Finally, consistent with recent research (Gassen and Schwedler (2010)), we find that nonprofessional investors view measurement criteria differently in terms of reliability and relevance. We find that regardless of between group differences, participants view historical cost as most relevant. Additionally, there seems to be different relevance assesments for different classes of assets, across the same measurement criteria. As Gassen and Schwedler (2010) argue, decision usefulness is also influenced by the class of assets to be measured. Regarding reliability, our results don't show evidence that investors view reliability differences across measurement concepts. Nor are found effects in group assignment. But we do find evidence that participants distinguish reliability and relevance of mark-to-market and historical cost measurement, but not for mark-to-model measurement which they rate consistently lower for both attributes.

Results are important for a broad group of individuals. Financial statements´ preparers (and users) learn that several competing consequences underly their measurement concepts choices and that those discretionary choices bear additional unattended (and probably unwanted) results on valuation volatility and investors´ judgements. Standard setters and regulators may find that our results present effects on judgement and decisions of nonprofessional investors that are statistically and economically relevant and, thus, should be balanced in their work. Finally,

Academics face additional layers of research that deem the debate about fair value measurement adavantages yet not fully explored.

This research presents several limitations. First, we limited the amount of information participants received to a set of financial statements reporting last year´s performance so that they could complete the experience in a reasonable amount of time. Regular activities demand investors to evaluate financial performance of a firm based on a more complex set of information. Never-the-less, as pointed in Elliott (2006), reducing the complexity of the information environment allows for stronger inferences about the factors that influence nonprofessional investors´ judgement and decisions.

Secondly, although previous literature shows evidence of graduate students as good surrogates for nonprofessional investors in terms of performance on these type of tasks (Elliott (2007)), it is likely that the demographics of the participants do not fully reflect those of nonprofessional investors. Most likely, investment experience differs and that might affect the accuracy in assessing the opinions and decisions of nonprofessional investors.

To conclude, the aforementioned limitations can present directions for future research venues, since the debate about measurement criteria seems to be far from fully explored.

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Table 1 – Descriptive Statistics and Analysis of Investment Decisions

Panel A – Descriptive Statistics

Group	Nobsv	Mean Investment Amount	Std Deviation
HC	55	4527,27	2014,80
FV	60	4108,33	2297,92
Total	115	4308,70	2167,93

Panel B – Planned Comparisons Test Results

Test	df	t-statistics	Sig.
HC >FV	113	1,036	0,152 (1T)

Participants made an investment decision based on the following instructions (similar to Elliott (2006)): "Assume you have 10.000€ to invest in this stock. Assume also that each stock is currently traded at 2€ per share, immediately after the disclosure of the attached financial statements. How much of your initial budget would you invest in the stocks of this firm?" Panel A presents Investment amounts. Panel B presents results of a planned comparisons test as defined by research hypothesis 1. Dependent variable is mean investment amount by group. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement.

Table 2 – Descriptive Statistics and Analysis of Earnings Forecast

Panel A – Descriptive Statistics (Operating Earnings)

Group	Nobsv	Mean Earnings Forecast	Std Deviation
HC	54	59140,56	19142,417
FV	59	54109,39	22175,885
Total	113	56513,66	20843,215

Panel B – Descriptive Statistics (Comprehensive Income)

Group	Nobsv	Mean Earnings Forecast	Std Deviation
HC	53	40092,00	11334,393
FV	59	17978,31	17638,856
Total	112	28442,82	18594,534

Panel C – Planned Comparisons Test Results (Operating Earnings)

Test	df	t-statistics	Sig.
HC >FV	113	1,285	0,101 (1T)

Panel D – Planned Comparisons Test Results (Comprehensive Income)

Test	df	t-statistics	Sig.
HC >FV	113	7,971[*]	0,000[a] (1T)

[*] variances unequal

[a] Statistically significant at 5% level

Participants were asked to make two earnings forecast for the following year: operating earnings and bottom line comprehensive income. Forecasted Fair value changes is implicitly estimated by differences between the two groups' comprehensive income forecast, to avoid drawing attention to research topic. (Assuming benchmark group HC average estimated non-operating earnings of

(19048,56), then average fair value changes predicted by FV group are (17082,52); assuming an average fixed percentage (32,21%) of operating earnings is predicted to be non-operating earnings by benchmark group HC, then average fair value changes predicted by FV group are (18702,45)). Panels A and B present Operating Earnings and Comprehensive Income forecasted amounts, respectively. Panels C and D present results of a planned comparisons tests as defined by research hypothesis 2. Dependent variables are mean forecasted amounts by group. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement.

Table 3 – Descriptive Statistics and Analysis of Past Performance

Panel A – Descriptive Statistics

Group	Nobsv	Mean Performance Rate	Std Deviation
HC	54	51,76	18,69
FV	60	53,75	18,81
Total	114	52,81	18,70

Panel B – Planned Comparisons Test Results

Test	df	t-statistics	Sig.
HC >FV	112	-0,566	0,287 (1T)

Participants were asked to rank past financial performance judgement on an 11-point scale with endpoints labeled 0 (very weak) - 100 (very strong). Panel A presents average responses (scale 0-100). Panel B presents results of a planned comparisons test as defined by research hypothesis 3. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement.

Table 4 – Descriptive Statistics and Analysis of Confidence about Future Performance

Panel A – Descriptive Statistics

Group	Nobsv	Mean Confidence Rate	Std Deviation
HC	54	42,59	19,32
FV	59	39,83	18,05
Total	113	41,15	18,64

Panel B – Planned Comparisons Test Results

Test	df	t-statistics	Sig.
HC >FV	111	0,786	0,220 (1T)

Participants were asked to rate their confidence on future financial performance judgements on an 11-point scale with endpoints labeled 0 (not confident) - 100 (very confident). Panel A presents average responses (scale 0-100). Panel B presents results of a planned comparisons test as defined by research hypothesis 4. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement.

Table 5 – Descriptive Statistics and Analysis of Relevance of Measurement Concepts

Panel A – Descriptive Statistics (variable = average relevance rating (std dev))

Group	Cash&Securit	Buildings*	Equipment*	Accts. Receiv.
HC	61,09 (22,02)	63,09 (20,15)	60,36 (20,07)	74,09 (18,81)
FV	60,17 (22,61)	64,50 (18,29)	61,67 (18,54)	73,67 (17,97)
Total	60,61 (22,23)	63,83 (19,13)	61,04 (19,21)	73,87 (18,29)

(*) manipulated in the experiment

Panel B – Repeated Measures ANOVA Test Results (with group interactions)

Variable	df	Z-statistics	Sig.
RELVC	1	34,805	0,000 [a] (1T)
RELVC*GROUP	1	0,012	0,455 (1T)

[a] Statistically significant at 5% level

We provide participants with Portuguese standards' official definition of Relevance (based on IFRS) and asked them to rate relevance of four different classes of assets: cash and marketable securities (mandatory fair value – mark-to-market); Buildings (manipulated between groups- historical cost vs mark-to-market fair values); Production Equipment (manipulated between groups- historical cost vs mark-to-model fair values); and Accounts Receivables (historical cost). Answers are presented in an 11-point scale with endpoints labeled 0 (not at all) - 100 (very). Panel A presents average responses (scale 0-100). Panel B presents results of a repeated measures ANOVA test with group interactions as defined by research hypothesis 5. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement. RELVC = average relevance rating. GROUP = dummy variable that takes value 1 if participant is from group FV.

Table 6 – Descriptive Statistics and Analysis of Reliability of Measurement Concepts

Panel A – Descriptive Statistics (variable = average reliability rating (std dev))

Group	Cash&Securit	Buildings*	Equipment*	Accts. Receiv.
HC	67,71 (22,24)	64,45 (20,25)	64,64 (20,16)	68,64 (19,30)
FV	64,00 (23,95)	61,58 (19,86)	61,33 (18,22)	60,67 (17,59)
Total	65,77 (23,12)	62,96 (20,01)	62,91 (19,16)	64,48 (18,78)

(*) manipulated in the experiment

Panel B – Repeated Measures ANOVA Test Results (with group interactions)

Variable	df	Z-statistics	Sig.
RELIAB	1	0,270	0,303 (1T)
RELIAB*GROUP	1	0,887	0,174 (1T)

We provide participants with Portuguese standards' official definition of Reliability (based on IFRS) and asked them to rate reliability of four different classes of assets: cash and marketable securities (mandatory fair value – mark-to-market); Buildings (manipulated between groups-historical cost vs mark-to-market fair values); Production Equipment (manipulated between groups-historical cost vs mark-to-model fair values); and Accounts Receivables (historical cost). Answers are presented in an 11-point scale with endpoints labeled 0 (not at all) - 100 (very). Panel A presents average responses (scale 0-100). Panel B presents results of a repeated measures ANOVA test with group interactions as defined by research hypothesis 6. HC = participants presented with financial statements produced under historical cost based measurement. FV = participants presented with financial statements produced under fair value based measurement. RELIAB = average reliability rating. GROUP = dummy variable that takes value 1 if participant is from group FV.

Appendix A – Research Instrument

Participants in this paper-and-pencil experiment received the following instructions and set of financial statements (Group A – Historical Cost based; Group B – Fair Value Based):

O presente questionário pretende aferir a sua posição relativamente às Demonstrações Financeiras (Balanço e Demonstração de Resultado Integral) de uma sociedade hipotética enquanto utilizador dessa informação financeira.

As Demonstrações Financeiras foram preparadas com base nas Normas Internacionais de Relato Financeiro (IFRS) e incluem o Balanço relativo ao último exercício disponível bem como uma Demonstração de Resultados complementada com a informação conducente ao Resultado Integral que inclui outras variações em capitais próprios excluindo as resultantes de operações com detentores de capitais próprios. São exemplo dessas variações os ganhos (e sua reversão) resultantes da mensuração ao justo valor que não são reconhecidos como resultados líquidos do período bem como variações relativas a alterações de políticas contabilísticas ou de conversão monetária.

Entende-se por utilizador da informação financeira o individuo que se socorre da informação relatada para tomar decisões relativas à empresa. Exemplos dessas decisões incluem investir nos capitais da empresa, prever a sua performance financeira e económica, avaliar os seus elementos patrimoniais, etc.

Embora hipotética, as demonstrações financeiras da empresa em análise foram construídas tendo por base os dados reais disponíveis relativos às demonstrações financeiras das empresas cotadas em Portugal. Consequentemente, o Balanço e Demonstração de Resultados Integral reflecte a estrutura média das empresas negociadas em bolsa com excepção das relativas ao sector financeiro (dado que estas possuem demonstrações financeiras não comparáveis).

Group A (Historical Cost Based) – Financial Statements:

Demonstrações Financeiras da Empresa "Portuguesa, SA" (em milhares de euros)

IFRS					Obs.
	Activos Não Correntes				
		Activos intangíveis		46157	
		Activos fixos tangíveis - Edificios e Terrenos		346490	
		Activos fixos tangíveis - Equipamentos		75438	
		Investimentos		105704	1
		Outros activos não correntes		126289	
			Total de activos não correntes	**700078**	
	Activos Correntes				
		Existências		79846	
		Clientes		82542	
		Caixa e equivalentes		40847	1
		Outros activos correntes		55440	
			Total de activos correntes	**258675**	
		Total do Activo		**958753**	
	Capital Próprio				
		Capital		219726	
		Reservas e resultados transitados		7640	
		Reservas de Excedente de Revalorização			
		Resultado líquido		39222	
			Total de capital próprio	**266588**	
	Passivos não correntes				
		Empréstimos		308586	
		Provisões		6749	
		Outros passivos não correntes		49766	
		Passivos por impostos diferidos		29321	
			Total de passivos não correntes	**394422**	
	Passivo corrente				
		Fornecedores		115998	
		Empréstimos		102119	
		Outros credores		41251	
		Outros passivos correntes		38375	
			Total de passivos correntes	**297743**	
		Total do Passivo		**692165**	
			Total do passivo e Capital Próprio	**958753**	

Nota: As Demonstrações apresentadas foram apresentadas pelo método do custo histórico, liquido de depreciaçoes e imparidades (excepto nas rubricas onde a aplição do justo valor é obrigatoria)

obs. 1 Nas rubricas de activos financeiros transaccionáveis reflecte os valores de mercado observados

Proveitos Operacionais			
	Vendas e outros proveitos operacionais		680960
	Total de Proveitos operacionais		**680960**
Custos Operacionais			
	Custo das vendas		354248
	Restantes custos operacionais		264358
	Total de Custos Operacionais		**618606**
Resultados Operacionais			**62354**
Resultados Financeiros			-18748
Resultados extraordinários			3222
Resultados antes de Impostos			**46828**
Imposto sobre o rendimento			7606
Resultado líquido do periodo			**39222**
Excedentes de revalorização de activos fixos tangiveis e intangiveis			
Resultado Integral			**39222**

Group B (Fair Value Based) – Financial Statements:

IFRS					Obs.	CH
	Activos Não Correntes					
		Activos intangíveis		49234	3	46157
		Activos fixos tangíveis - Edifícios e Terrenos		369589	2	346490
		Activos fixos tangíveis - Equipamentos		85496	3	75438
		Investimentos		105704	1	
		Outros activos não correntes		126289		
			Total de activos não correntes	**736312**		
	Activos Correntes					
		Existências		79846		
		Clientes		82542		
		Caixa e equivalentes		40847	1	
		Outros activos correntes		55440		
			Total de activos correntes	**258675**		
		Total do Activo		**994987**		
	Capital Próprio					
		Capital		219726		
		Reservas e resultados transitados		7640		
		Reservas de Excedente de Revalorização		40349		
		Resultado líquido		39222		
			Total de capital próprio	**306937**		
	Passivos não correntes					
		Empréstimos		304471	2	308586
		Provisões		6749		
		Outros passivos não correntes		49766		
		Passivos por impostos diferidos		29321		
			Total de passivos não correntes	**390307**		
	Passivo corrente					
		Fornecedores		115998		
		Empréstimos		102119		
		Outros credores		41251		
		Outros passivos correntes		38375		
			Total de passivos correntes	**297743**		
		Total do Passivo		**688050**		
		Total do passivo e Capital Próprio		**994987**		

Nota: As Demonstrações apresentadas foram apresentadas pelo método do justo valor

A coluna CH representa o custo historico das rubricas mensuradas ao justo valor

obs. 1 Nas rubricas de activos financeiros transaccionáveis reflecte os valores de mercado observados

obs. 2 O justo valor resulta de valores observados no mercado

obs. 3 O justo valor foi estimado por uma consultora externa por modelos de avaliação ajustados a inputs de mercado

Proveitos Operacionais			
	Vendas e outros proveitos operacionais		680960
	Total de Proveitos operacionais		**680960**
Custos Operacionais			
	Custo das vendas		354248
	Restantes custos operacionais		264358
	Total de Custos Operacionais		**618606**
Resultados Operacionais			**62354**
Resultados Financeiros			-18748
Resultados extraordinários			3222
Resultados antes de Impostos			**46828**
Imposto sobre o rendimento			7606
Resultado líquido do periodo			**39222**
Excedentes de revalorização de activos fixos tangiveis e intangiveis			-9545
	Activos intangiveis	-1538	
	Edificios e terrenos	-11549	
	Equipamentos	2514	
	Emprestimos	1028	
Resultado Integral			**29677**

I. Assuma que possui 10.000 euros para investir em acções. Admita que o preço de cada acção da empresa apresentada é de 2 euros imediatamente após a divulgação da informação financeira. Indique na escala abaixo quanto do orçamento inicial de 10.000 euros investiria na empresa

0___1.000___2.000___3.000___4.000___5.000___6.000___7.000___8.000___9.000___10.00

II. Como Avalia a performance financeira e económica da empresa. Indique na escala abaixo o seu julgamento onde (0) corresponde a "muito fraca" e (100) a "muito forte"

0____10____20____30____40____50____60____70____80____90____100

III. Os utilizadores das demonstrações financeiras tomam decisões relativas à saúde financeira de uma empresa com base na informação relatada. Frequentemente os indivíduos constroem o seu julgamento relativo aos valores dos activos e passivos e da performance futura da empresa.
Qual a sua estimativa (julgamento) para o próximo exercício do valor das seguintes rubricas?

    i.   Resultado operacional _____

    ii.   Resultado Liquido _____

IV. Como Avalia a confiança no seu julgamento da performance financeira e económica futura da empresa feita na questão anterior. Indique na escala abaixo o seu julgamento onde (0) corresponde a "nada confiante" e (100) a "totalmente confiante"

0____10____20____30____40____50____60____70____80____90____100

V. A estrutura conceptual das normas internacionais de relato financeiro (IFRS) definem Relevância como: "Para ser útil, a informação tem de ser relevante para as necessidades de tomada de decisões dos utentes. A informação tem a qualidade de relevância quando influencia as decisões económicas dos utentes ao ajudá-los a avaliar os acontecimentos passados, presentes ou futuros ou confirmar, ou corrigir, as suas avaliações passadas".

Como Avalia a relevância dos valores apresentados nas seguintes rubricas. Indique na escala abaixo o seu julgamento onde (0) corresponde a "nada relevante" e (100) a "muito relevante"

Caixa e equivalentes: 0___1___20___30___40___50___60___70___80___90___100

Activos fixos tangíveis-edificios: 0___1___20___30___40___50___60___70___80___90___100

Activos fixos tangíveis-equipam.: 0___1___20___30___40___50___60___70___80___90___100

Clientes: 0___1___20___30___40___50___60___70___80___90___100

VI.   A estrutura conceptual das normas internacionais de relato financeiro (IFRS) definem Fiabilidade como: "Para que seja útil, a informação também deve ser fiável. A informação tem a qualidade da fiabilidade quando estiver isenta de erros materiais e de preconceitos, e os utentes dela possam depender ao representar fidedignamente o que ela ou pretende representar ou pode razoavelmente esperar-se que represente.".
Como Avalia a fiabilidade dos valores apresentados nas seguintes rubricas. Indique na escala abaixo o seu julgamento onde (0) corresponde a "nada fiável" e (100) a "muito fiável"

Caixa e equivalentes: 0___1___20___30___40___50___60___70___80___90___100

Activos fixos tangíveis-edificios: 0___1___20___30___40___50___60___70___80___90___100

Activos fixos tangíveis-equipam.: 0___1___20___30___40___50___60___70___80___90___100

Clientes: 0___1___20___30___40___50___60___70___80___90___100

Por favor, indique:

1. A sua Idade _____

2. É? Homem _____ Mulher _____

3. A sua situação profissional: empregado_____ não empregado____

4. Quantos anos de experiencia profissional tem? _____

5. Como avalia os seus conhecimentos de contabilidade financeira, numa escala de (1) (muito fracos) a (5) (muito fortes)? _____

6. No âmbito da sua experiencia profissional já preparou ou utilizou informação financeira das empresas? Sim _____ Não_____

7. Possui ou alguma vez possuiu investimentos em acções de empresas? Sim _____ Não ____

Por favor, responde qual a sua percepção em relação às seguintes questões:

1. Quão familiarizado está com os seguintes conceitos de mensuração dos elementos patrimoniais das demonstrações financeiras? Indique a sua resposta numa escala de (1) "nada familiarizado" a (5) "muito familiarizado":

    a. Custo Histórico: 1____2____3____4____5____

    b. O mais baixo do custo ou valor realizável liquido: 1____2____3____4____5____

    c. Valor de uso: 1____2____3____4____5____

    d. Justo Valor (valor de mercado- "mark-to-market"): 1____2____3____4____5____

    e. Justo Valor (avaliação baseada em modelos com inputs de Mercado - "mark-to-model":

                                                     1____2____3____4____5____

Alcino Tiago Cruz Gonçalves, 2015