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Master of Research

***A Critical Assessment of Economic Crises
resulting in the Design of a
Macroeconomic Framework***

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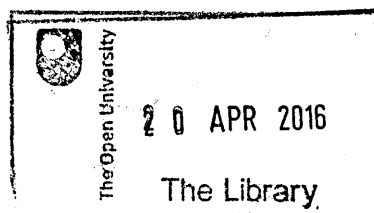
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Abstract

According to Minsky, capitalism has an inherent tendency to financial instability: periods of boom are followed by financial crash. Thus, economic policies have to be proactive. For any economy, it is necessary at each point in time to assess the degree of potential instability, and the particular role played by monetary and fiscal policy. The purpose of this dissertation is to draw on Minsky's theory and examine economic policy's role in the formulation of a real estate bubble. With the help of a historical case study, this research examines how exogenous factors such as economic policies and endogenous factors such as positive expectations contribute to financial fragility. The case study chosen is that of Spain prior to 2007, where rising financial instability culminated in the eventual bursting of a pronounced housing bubble. A quantitative descriptive analysis supported by a qualitative document review are chosen to provide an in-depth picture. It is shown that exogenous policy factors contributed to the crisis trigger and helped to exacerbate the boom. After introduction of the Euro single currency, profit opportunities arose, based on interest rate and growth differentials, leading to capital inflows from the European centre and rising fragility. Pro-cyclical fiscal and monetary policy amplified positive expectations and further fuelled the housing bubble.

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1. Aims and Objectives

This chapter outlines significance and objectives of the research. Furthermore, a short introduction to the economic crisis under consideration, and the composition of the thesis, is given.

1.1 Statement of the Problem

“There is no possibility that we can ever set things right once and for all; Instability, put to rest by one set of reforms, will, after time, emerge in new guise.”
(Minsky, 1986a, p.370)

According to Minsky (1986a), capitalism has an inherent tendency to financial instability: periods of boom are followed by financial crash (called the Minsky moment). In opposition, the prevailing view in mainstream economics¹ has been that unregulated markets lead to a stable economy. Already in 1987, Minsky saw the risk in the deregulation process as that of home-mortgage securitization, which were some of the underlying causes of the Global Financial Crisis originating in the US.

The Global Financial Crisis starting in 2007 is considered to be the most severe crisis since the Great Depression in the 1930s (Wray, 2009). In the run up to it, the US and a number of European countries underwent an unprecedented housing investment boom. In Spain, residential property prices rose by 140% from 2000 up until 2006. The average annual growth rate of property prices nearly doubled, from 7.5% in the five years prior to the boom (1997-2001) to 15% between 2002 and 2006. Even in Ireland which also experienced an exceptional housing boom, property prices rose not as much in the same time period (109%; BIS, 2015). After the bubble burst, Spain’s real GDP growth dropped from 4.2% in 2006 to -3.6% in 2009 (OECD, 2015). In the process of dealing with the crisis, private debt became sovereign debt and taxpayers are bearing the consequences of the crisis (Forster et al., 2011).

¹ Including neoclassical economics and neoclassical synthesis (Munoz, 2011)

Financial deregulation in connection with a monetary policy controlling inflation deepened instability and shifted power towards financial markets (Minsky, 1986a, pp. 182, 280). Even though the political power of finance was weakened in the aftermath of the Global Financial Crisis, it soon gained momentum again, which can be seen in the huge bonuses paid by AIG after having received substantial bail-outs (Epstein et al., 2009). At the same time, Europe experienced a power shift towards capital interests with the European centre arguing for austerity policies (Stockhammer and Sotiropoulos, 2014). The reaction of the US and European governments towards the crisis revealed a focus on the functioning of financial markets instead of on a stable economy with fair wages and high employment.

Minsky (1987) recognized early that the recent development of capitalism leads to rising financial fragility. Pro-growth policies supporting the supply side and promoting investment are misleading policy objectives (Minsky, 1964). In his financial instability hypothesis he emphasizes the tendency of stable economies to move towards instability due to excessive optimism resulting in high debt levels (Minsky, 1985). A proper policy discussion should accept an economic theory which incorporates this inherent instability of capitalism and examine how institutions and policies exacerbate it (Minsky and Whalen, 1997). The particular purpose of this study is to draw on Minsky's theory and examine economic policy's role in the formulation of real estate bubbles.

1.2 Research Objectives

From Minsky's perspective, monetary and financial systems are central to capitalism. Since a capitalist economy consists of profit-seeking individuals, focused on their own interests, the financial system is even unstable when economic agents act rationally. Policies which have been considered appropriate in the past lose their effectiveness due to rising financial innovation. Thus, economic policies have to be proactive and constantly adjust to new

circumstances. It is necessary to detect the current stage of an economy and acknowledge the influence of monetary and fiscal policy² (Tymoigne and Wray, 2014).

In the Global Financial Crisis, a particular concern for economic policy has been the problem of real estate bubbles with unprecedented housing investment levels (Frenkel, 2013). To examine economic policies' impact in this context, it needs to be investigated first if Minsky's ideas apply to open economies since he developed them in a quite closed economy³. Thus, the project aims to answer the following research questions:

- 1) To what extent does Minsky's financial instability hypothesis apply to an open economy experiencing a real estate bubble?
- 2) Looking at the causes of economic crises, in light of Minsky's framework how do monetary and fiscal policies influence financial fragility?

The goal is to explore how exogenous factors such as economic policies and endogenous factors such as credit creation contribute to the transition towards a financially fragile economy. As an outcome, a macroeconomic framework (including fiscal and monetary policy) is presented which describes the causal chain towards fragility. After having conducted a literature review, this research examines the following mechanisms:

Causal mechanism 1:

Due to policy-induced financial integration, cross-national capital inflows rise. The subsequent increase in credit availability stimulates housing investment. Rising house prices validate past decisions and positive expectations develop endogenously. This feeds back into declining risk perceptions and further investment growth resulting in financial fragility.

Causal mechanism 2:

Pro-growth fiscal and expansionary monetary policies reinforce the bubble development.

A historical case study analysis is proposed here as a vehicle for investigating these issues in depth. The thesis explores how policy formation can be informed by applying Minsky's theory in an open economy and by setting the role of policy in a historical perspective.

² It manages taxation and public spending; monetary policy manages money supply and/or interest rates (Trigg, 2013).

³ US exports account for 13% of GDP which is the lowest level of a developed nation (Barone, 2014).

1.3 Introduction to Spain's Economic Crisis

After the Euro introduction in 1999, capital inflows to Southern European countries such as Spain increased considerably resulting in growing credit availability. Due to elimination of currency risks, lower financing costs and rising growth and real interest rate differentials, positive expectations of profits arose (Frenkel, 2013). Spain was seen as an example how 'sound' public finances and economic reforms contribute to sustainable economic growth:

“This **marks a break with the performance pattern** of the Spanish economy in past cycles, when it would outgrow the European average at times of expansion only to sink further in the contraction phase [...]”(Kingdom of Spain, 2002, p.6; emphasis added)

“This reform process, which now has been ongoing for the last three decades, has put Spain's public finances on a sound footing and it represents one of the most identifiable key factors behind the '**Spanish economic miracle**'.” (Martinez-Vazquez, 2007, p.532; emphasis added)

Between 1996 and 2007, Spain's economic growth and employment were growing significantly while running a nearly balanced budget since 2000. From 2000 until 2007, real GDP grew on average by 3.8% per year, being 1 to 1.5 percentage points higher than the Eurozone average, and the unemployment rate fell in just four years by more than 2 percentage points (between 2002 and 2005). The country changed from an emigration country to an immigration country, which can be seen in the net migration rate which shows the difference between persons leaving the country (emigration) and persons entering the country (immigration) per 1,000 inhabitants. The net migration rate stayed on average around 15.7% between 2002 and 2006, signalling significantly higher immigration than emigration (Eurostat, 2015). Furthermore, Spanish inflation rates were quite low compared to before the Euro. Inflation based on consumer prices moved from its highest point of 7.1% in 1992 to 1.8% in 1998, and stayed on average at 3.3% during the boom years (OECD, 2015).

At the same time, however, competitiveness went down, accompanied by an unbalanced growth in the construction sector. According to the OECD (2015), competitiveness, a country's ability to sell products in global markets, can be analysed with the help of unit

labour costs and inflation relative to foreign markets. Although the inflation rate has been falling in Spain, it was on average 1 percentage point higher than the Eurozone average. Furthermore, unit labour costs rose by 15.8% in Spain between 2000 and 2006 compared to 7.6% increase in the Eurozone (OECD, 2015). At the peak of the housing boom in 2006, Spain was developing as many dwellings as the European Union altogether. Construction workers comprised 13% of employment (compared to 10% before the boom) and the construction sector added 10% to GDP (compared to 7% before the boom; Suarez, 2010).

This unbalanced growth was financed with increasing debt, hence, becoming unsustainable in the process. Spain's household debt reached 72% of GDP in 2006, rising from 45% of GDP in 2002 (Eurostat, 2015). Growing financial fragility of households and non-financial corporations was accompanied by an unprecedented rise of asset prices. However, due to increasing economic growth and household wealth, Spain was considered to be an "economic miracle" which "even puzzled economists" (Atkins and Crawford, 2005).

1.4 Composition of Dissertation

The thesis is structured into six chapters. Chapter 1 provides research background and objectives guiding the research. A literature review with focus on Minsky's financial instability hypothesis is presented in Chapter 2. Relevant empirical and theoretical literature is identified and the research significance highlighted. Chapter 3 states the chosen data collection methods and discusses the reasons for selecting them. Subsequently, a case study analysis is conducted based on an open economy experiencing a real estate bubble. It positions the capital inflows and rising indebtedness levels within a broader context of changes in fiscal and monetary policies. Chapter 6 discusses the findings with the help of a macroeconomic framework. This section concludes and reflects on implications for a future study.

2. Literature Review

This literature review seeks to identify economic policies previously analysed in the Minskian literature and identify possible gaps requiring further research. It concentrates on the following topics: economic policies, global context for these policies, property bubbles.

2.1 Minsky-Kindleberger Crisis Model

Before outlining basic aspects of the Minsky-Kindleberger model, mainstream arguments on causes of financial crises are briefly presented. According to mainstream economics, markets stabilize themselves in the long term. Thus, booms and busts are not created by the market but by exogenous factors, e.g. fiscal imbalances or lagged monetary policy. Since policy intervention disrupts the market, it should be limited in its scope and deregulation promoted (Minsky, 1986a, pp.50-51). Money supply and credit availability are considered to be exogenous factors. Debt-financed investment is constrained by savings and changes in the money supply, initiated by the central bank (Minsky, 1986a, pp. 125-126, 252-253).

Minsky (1986a, pp. 125-131) criticized the assumptions of mainstream economics which considers money to be neutral and the economy, as Minsky (1986a, p.114) calls it, to be a “village fair”. Instead he places finance at the centre of his business cycle model, with financial and real markets interrelated. Supplying the economy with credit, banks can generate spending power, thus, aggregate demand. Hence, money supply is endogenously determined by the finance demand of the private sector: described in the Post-Keynesian literature as “loans create deposits” (Lavoie, 2006, p.57).

With the help of his financial instability hypothesis, Minsky (1986a, pp.193, 219, 240) showed how changes in investment and expectations can lead endogenously to financial fragility characterized by rising indebtedness of the private sector. Investment is not only the main driver of aggregate demand but is also dependent on the expectations of future

aggregate demand (Fazzari and Papadimitriou, 1992, p.167). Minsky's insights can be combined with phases of a bubble identified by Kindleberger (Kindleberger and Aliber, 2005).

The Minsky-Kindleberger crisis model starts with a *displacement* such as a change in monetary policy leading to a profit increase in one sector of the economy. The expanding economy increases the optimism of the market resulting in extensive credit availability, thus, in a *boom*. Due to expectations of increasing profits and speculation, investment rises leading to higher asset prices. This results in a significant rise of debt levels (especially short-term debt) and an increase in speculative and Ponzi⁴ units in the *euphoria* phase. Financial innovation and riskier practices are introduced and money is created endogenously. In the next phase, called *profit taking*, some investors reduce their investment positions. Since market fragility is high a surprise event such as a well-known firm default can lead to *panic* followed by crisis (Kindleberger and Aliber, 2005).

Besides having discussed the endogenous fragility of financial markets, Minsky (1986a) also recognized the essential role of institutions in the development of a bubble. Hence, he integrated endogenous and exogenous factors. The business cycle is influenced by the inherent tendency to instability based on the behaviour of economic agents; but institutional settings and economic policies play a central role in the development of expectations and the resulting credit creation. If in the above mentioned displacement financial constraints are loosened, positive expectations develop leading to a rise of credit supply. This rising fragility results in instability in the moment the financial sector problems spread to the real sector (Tymoigne and Wray, 2014). Even though policy changes might be the trigger for the boom

⁴ The firm must borrow to meet current payments and has increasing outstanding debt.

and bust, expectations and pro-cyclical credit creation are inherent factors of the system (Kregel, 1998).

Table 1 Overview of Endogenous and Exogenous Factors

Displacement		
Exogenous	Policy trigger	New profit opportunities
Endogenous	Tranquile, economic period	Stability leads to optimism and financial innovation
Euphoria/Boom		
Exogenous	Deregulation	Increase in credit availability
Endogenous	Rising profits	Movement towards Ponzi finance
Profit Taking		
Exogenous	Restrictive monetary policy	
Endogenous	Unsustainable debt levels	Well-informed investors leave the market
Panic		
Exogenous	Stabilization policies	Prevention of debt deflation process
Endogenous	Reversal of expectations	Insufficiency of profits in relation to debt

Source: Author's presentation based on Minsky (1964, 1985, 1986a, 1995), Kindleberger and Aliber (2005)

As acknowledged by Cruz et al. (2006) and Mulligan (2013), review and further development of Minsky's financial instability hypothesis has increased considerably, but empirical studies are still relatively rare. It is argued, moreover, in the next section that an in-depth research of economic policies' impact in the build-up of financial instability is missing in the Minskian literature.

2.2 Analysis of Economic Policies

When looking at the recent Global Financial Crisis (GFC) and its impact on the economy, the role of policy has emerged as a key issue. Central bankers such as Alan Greenspan have admitted that policies (e.g. low interest rates) before the crisis were flawed, promoting an economic bubble (Andrews, 2008). In this context, it becomes important to include fiscal and monetary policy in an examination of financial crises. Minsky (1986a, p.43) discussed two policy approaches which prevent a debt deflation process: *big government* and *big bank*. The government uses counter-cyclical fiscal policies and the central bank acts as a lender of last resort. At the same time, Minsky recognized that those actions validate risky behaviour. Thus, it is necessary to restructure the economy after a crisis occurs such as the breaking up of *too big to fail* institutions (Wray, 2011a).

In recent years, literature on the efficacy of big bank and Minsky's financial reform suggestions has increased (Kregel, 2014). Zalewski (2012) discusses policy tools used by the US government to put a lower ceiling on housing prices. The author concludes that it fails in its task as a lender of last resort because of not recognizing the endogenous character of financial markets. Programmes to restructure loans were not properly transferred from the banking to the household sector. Banks used difficult calculations to restructure only potentially profitable loans. Furthermore, Wray (2011b) argues that monetary policy alone cannot increase aggregate demand in a recession, due to low expectations. This aspect was also acknowledged by Frenkel and Rapetti (2009) who state that conventional and unconventional measures such as quantitative easing cannot boost aggregate demand. Even though diverse studies give valuable insights into how Minsky's big bank policies can be applied, the main focus is on the US.

According to Minsky (1964), fiscal policy is the most important policy tool due to being able to stimulate final demand. He criticized pro-growth strategies (e.g. tax credits for investment) which favour capital incomes and recognized that high investment can have destabilizing forces (Minsky, 1967). Papadimitriou and Wray (1997) provide a theoretical discussion of Minsky's big government proposal and reform agenda. Recently, De Santana Vasconcelos (2014) and Tcherneva (2011) examined the importance of big government and Minsky's call for directing policies towards full employment. Those papers give more insights into Minsky's views on the scope of big government. However, they are mainly theoretical discussions in relation to the US. An analysis of how fiscal policy contributes to the bubble development under the light of Minsky's framework has not been conducted. Even though Kregel (2015) sheds light on the impact of a Maastricht Treaty compliant fiscal policy on the external and/or private sector of the Eurozone, a detailed country analysis is missing.

Minsky (1986a, p.20) recognized the importance of monetary and fiscal policy in relation to instability. If in a fragile economy key interest rates are raised, a reversal of present-value calculations can take place resulting in panic. Taking this argumentation further, low interest rates contribute to decreasing debt servicing costs and rising finance demand. In light of fiscal policy, Minsky (1986a, p. 35) shows that in a closed economy business investment and government spending are determining factors of taxes and profits. A focus on austerity policy while the economy is experiencing falling investment results in decreasing profits. The lack of profits to repay debt leads to increasing indebtedness and financial fragility. Thus, the government in relation to GDP should be at least as large as private investment to sustain aggregate demand (Minsky, 1986a, pp. 330-332).

In sum, literature on Minsky's suggestions on big bank and big government has increased in recent years. However, the discussions seem to centre around measures in crisis situations, whereas analysis of the influence of policies prior to crisis situations is limited. The case can be made that it is essential to not only examine fiscal policy after the burst of a bubble but also in the development of the bubble; since pro-growth policies and an expansionary monetary policy can lead to inflationary pressures and support asset price bubbles. Furthermore, one problem with the Minskian literature is that it has tended to focus on the US, which is also discussed subsequently.

2.3 Minsky in an Open Economy

Already in 2000, Palley recognized the tendency of "financial capital to veto policy decisions" by flowing out of a country and favouring policies contrary to the interest of labour (Palley, 2000, p.33). This could be seen in the financial crisis. Investors fled European periphery countries and interest rates spiked, leading to a call for austerity policies. Thus, it is essential to investigate Minsky's theoretical framework in an open economy.

Wolfson (2002) and Arestis and Glickman (2002) show how Minsky's model can be extended to the Asian Crisis of 1997/1998. The displacement is an opening up of the banking sector to the global market and the ability to use interest rate differentials. By borrowing in low interest rate countries and lending to high interest rate countries, profits are generated. This profit rise leads to optimistic expectations of future asset prices fuelling a boom. Additionally, Kregel (1998) discusses the influence of a stable exchange rate policy, which increases optimism and leads to rising foreign debt making a country vulnerable to external changes. Hence, Minsky's model is extended by adding two exogenous shocks: a change in exchange rates and in the monetary policy of the largest international lenders. These shocks accelerate the endogenous movement from financial fragility to financial instability (Kregel, 1998). However, in a monetary union exchange rate and monetary policy is the same for a diverse set of countries which have different economic stages. Thus, it is necessary to examine Minsky in an open economy which is part of a monetary union.

Furthermore, Kregel (1998) and Dymski (1999) include a brief discussion on the limitations of big bank and big government. Expansionary monetary policy in an open economy might result in capital outflows leading to a devaluation of the exchange rate and worsening the macro-economic situation, especially in a mainly importing country with high external debt (Kregel, 1998). Furthermore, big government depends on political forces. Because of the implementation of counter-cyclical fiscal policies in the 1970s and 1980s and avoiding the cleansing of insolvent institutions, the US experienced increasing inflation leading to less support of big government (Dymski, 1999). Despite those inclusions of policies in the analysis of the Asian Crisis, a thorough policy discussion prior to a crisis is missing. Surprisingly, aspects such as fiscal policy, including quantity and quality of taxes and expenditures, in connection with monetary policy are not discussed.

In addition to the Asian crisis, the Global Financial Crisis has been analysed in light of the financial instability hypothesis. Wray (2011a, 2011b) argues that it fits Minsky's theory, but it should be seen as a result of a long-term transformation of the economy. His analysis concentrates on the historical development of the US. Furthermore, Wray (2012) and Dymski (2010) point out that household debt, in connection with rising financial innovation and further layering of debt, led to the Global Financial Crisis. Thus, the main driver of the crisis was not corporate debt, as in Minsky's analysis, but household debt. In contrast, Kregel (2008) and Davidson (2008) argue that it is not an endogenous development based on underestimation of credit risks of the borrowers, but based on the "originate and distribute" system. Hence, the defined margins of safety by Minsky were insufficient from the beginning. When looking at the US, the case can be made that household debt was caused by a long-term transformation of the system and by an increase during the boom years due to financial innovation. The above shown theoretical discussions are concentrating on the US. The focus lies on financial reforms without taking into consideration economic policies' impact prior to a crisis.

Frenkel and Rapetti (2009) combined an analysis of the recent Global Financial Crisis and developing country's crises such as the Asian Crisis 1997/1998. They claim that the difference between developing and developed countries lies in the trigger of the displacement, being an exogenous one in the developing countries and an endogenous movement in the developed countries. However, in 2013, Frenkel states that peripheral Eurozone countries experienced the same exogenous trigger as emerging countries. Nevertheless, he does not provide empirical evidence for this claim and refers to a paper written by Bagnai (2012). Bagnai (2012) shows with the help of Frenkel and Rapetti's (2009) interpretation of Minsky's framework how the European crisis was caused by private and not public debt. Despite giving an overview of the European crisis and its exogenous trigger, a discussion of fiscal policy is missing.

Even though the studies above provide an empirical and theoretical discussion of the displacement, they are not taking into consideration a combination of fiscal and monetary policy during the bubble development. Their focus lies on monetary policy including interest rates and financial deregulation. However, it would have been interesting to see if favourable taxes on capital gains existed in the analysed countries. As shown above, what is largely absent in the Minskian literature is a joint analysis of the impact of monetary and fiscal policy on the bubble development (see Table 2 and Appendix 1).

Table 2 Overview of Main Fiscal Policy Literature

<i>Literature</i>	<i>Policy</i>	<i>Country</i>	<i>Time</i>	<i>Approach</i>	<i>Missing</i>
<i>Fiscal Policy</i>					
<i>Kregel (2015)</i>	Size of government	EU	-	Theoretical	Focus on sectoral balances; no discussion of fiscal policy scope
<i>Tokucu (2014)</i>		Turkey		Theoretical Empirical	
<i>De Santana Vasconcelos (2014)</i>	Size and scope of government	US	-	Theoretical	No empirical data or crisis perspective
<i>Frenkel (2013)</i>		Europe Argentina	GFC ⁵	Theoretical	Eurozone narrative, no empirical data
<i>Wray (2011a,b)</i>	Focus on crisis response	US	GFC	Mainly theoretical	No connection between monetary and fiscal policy
<i>Open Economy and Fiscal Policy</i>					
<i>Arestis and Glickman (2002)</i> <i>Frenkel and Rapetti (2009)</i> <i>Bagnai (2012)</i>	Brief discussion on fiscal policy responses	Asian and Latin America	-	Theoretical Empirical	No detailed policy discussion prior to crisis
<i>Tymoigne and Wray (2014)</i>	Policy Responses, Financial Reform, Employer of last resort	US	GFC	Theoretical Empirical	No detailed policy discussion prior to crisis
<i>Employer of Last Resort</i>					
<i>Forestater (2013)</i> <i>Kaboub (2007)</i> <i>Tcherneva (2011)</i> <i>Wray (2011b)</i>	Employer of last resort	US	-	Theoretical	No empirical data

⁵ GFC = Global Financial Crisis

2.4 Minsky and Property Bubbles

Minsky's hypothesis has also been analysed in the context of the housing sector. Palley (1994) combines Minsky's view on debt and Kaldor's aggregate demand model, arguing that rising access to finance can create an asset bubble. Rising debt first increases aggregate demand but due to higher debt servicing costs it eventually decreases. This is due to the fact that money is transferred from debtors with a high propensity to consume to creditors with a low propensity to consume. But this model excludes mortgage debt and the possibility of a significant fall in interest rates. This gap is partly filled by a study conducted by Tymoigne (2014) who includes mortgage-debt into the calculation of a financial fragility index for the housing sector. This index shows a substantial increase in financial fragility in the US. Nevertheless, Tymoigne (2014) himself acknowledged that available data is not sufficient to appropriately measure risks and develop policy recommendations; for example, the debt-to-income ratio does not include free tax income but after-tax income. Furthermore, economic policy decisions or institutional settings are not included.

In recent years, numerous studies (Cynamon and Fazzari, 2015; Stockhammer, 2015) have analysed the connection between rising income inequality, financialisation and housing bubbles in advanced economies. They argue that the financial deregulation and stagnating incomes led to compensatory spending by households resulting in a housing bubble. However, when looking at inequality indices in Spain prior to the crisis, income inequality was not significant. Overall net disposable income of households increased by 26.7% and income share including capital gains of the top 10%-5% even slightly decreased from 10.99% to 10.57% (AMECO, 2015; World Top Incomes Database, 2015).

The secondary literature has developed Minsky's views into a more sophisticated hypothesis by adapting it to the household sector and to the global environment. Thus, it provides valuable insights which are helpful in further research. Nevertheless, few systematic

attempts have been made to analyse monetary policy and fiscal policy in an integrated fashion. Moreover, literature on Minsky's policy suggestions seems to be centred around measures to resolve crisis situations without an in-depth analysis of how economic policies influence the development of an asset bubble. Hence, Minsky's suggestion on the size and scope of government in non-crisis situations has not been examined further. Moreover, the discussion on Minsky in a global context has remained mainly theoretical with a strong focus on the US. Therefore, the aim of this dissertation is to analyse fiscal and monetary policy prior to the burst of a housing bubble in light of Minsky's crisis model.

3 Methods of Data Collection

After having identified the research topic and its significance, this chapter presents the research strategy including data collection methods.

3.1 Design of Research Project

Since the research focus lies on explaining economic policies' influence on the underlying causes of property bubbles, retrodution as a research strategy appears to be appropriate. Retroductive research uses hypothetical models to seek answers to 'why' and 'how' questions. The major task of retrodution is explanation and not prediction. The goal is to explain underlying causal mechanisms for an empirical phenomenon (Blaikie, 2009). An overview of the research design is presented below.

Table 3 Elements of Research Design (Adapted from Blaikie, 2009)

Purpose of research	<ul style="list-style-type: none">• Critical assessment of economic policies' role prior to economic crisis situations framed around Minsky's financial instability hypothesis.
Research Strategy	<ul style="list-style-type: none">• Retrodution: use of hypothetical models to seek answers to 'why' and 'how' questions
Research Paradigm	<ul style="list-style-type: none">• Critical realism paradigm: whole or final truth may not be observable, reality consists of different domains
Methodology	<ul style="list-style-type: none">• Historical case study approach: to draw causal inferences on how economic policies affect the occurrence of a bubble

It has been argued by heterodox economists that research in mainstream economics has concentrated on mathematical models which cannot portray open systems with endogenous factors (Downward and Mearman, 2007). Such models are based on unrealistic assumptions such as that the economy is made up of representative agents who have rational expectations. Thus, the real world cannot be depicted which leads to wrong policy decisions (Lawson, 2009). Minsky himself acknowledged that mathematical formulas cannot take account of the complexity of the real world. He believed that an economic theory cannot be independent

from institutional settings and be universally applicable to a diverse set of economies (Minsky, 1986a, pp. 4, 118).

Due to the brief presentation of the criticism of mainstream methodologies and Minsky's take on mathematical, quantitative models, the selected methodology for this study is a case study. A case study approach is chosen in order to draw causal inferences on how economic policies affect the occurrence of a bubble under the purview of Minsky's financial instability hypothesis. This approach is distinctive in systematically highlighting the link between fiscal and monetary policy and increasing fragility in property bubbles. The appropriateness of a case study is further discussed in section 3.3.

3.2 Research Strategy and Paradigm

As shown above, the underlying research strategy is retrodution. Minsky's financial instability hypothesis guides data collection and analysis process. Relevant data in form of secondary data is gathered, analysed and non-conforming cases identified. By going back to the data and hypothesis, causal mechanisms are identified which provide the best explanations for the observed phenomenon (Blaikie, 2009). According to Blaikie (2009), a retroductive research strategy feeds into a critical realism paradigm. Hence, the whole or final truth may not be observable since reality consists of different domains such as empirical, actual and real domain. The empirical domain consists of events which are observed by the researcher whereas the actual domain is the reality which exists without necessarily observing it. Since the real domain is comprised of underlying causal mechanisms which are not accessible, it is necessary to develop hypotheses (Downward and Mearman, 2007). Therefore, Minsky's financial instability hypothesis is not tested in the positive sense but by studying a particular case in order to understand extent and nature of the selected country and to gain causal insights into the mechanisms (Lee, 2012).

3.3 Data Collection Methods

A case study focuses on a single unit of analysis, studies it in-depth and uses multiple methods. According to Yin (2003) this approach is applicable to descriptive and explanatory research since it includes description and interpretation of events and is suitable when any conclusions drawn are dependent on the context. Moreover, Olsen (2012) argues that case study approach is appropriate when the focus lies not on mathematical determined cause and effect relationships but on portraying how diverse factors such as class background, or in this case macro-economic policies, lead to a complex development such as workers' resistance, or financial fragility respectively. Hence, it is necessary to examine how outcomes depend on historical and macro specific developments, since events might be contingent and have diverse possible outcomes (Lee, 2012). A case study approach allows for such an in-depth examination.

Furthermore, case study research can combine qualitative and quantitative approaches and overcome the disadvantages of each (Yin, 2003). As pointed out above, quantitative research might leave out essential causal mechanisms because of not being able to model them or building too many prior assumptions into the research design; thus limit the study in itself and loose flexibility. In contrast, qualitative research might be too subjective. Even though causal inferences can be drawn, qualitative research cannot be generalized to a wider context (Bryman and Bell, 2003). Hence, consistent with the research design and underlying philosophy the following data collection methods are employed:

- Quantitative: data collection of economic indicators
- Qualitative: review of secondary sources such as policy documents and newspapers

By combining qualitative and quantitative methods, the studied phenomena can be looked at from different angles in order to provide a more holistic view and detect underlying causal mechanisms.

As shown in the literature review, previous studies have been concentrating on the US experience which is a relatively closed country and a peculiar case since it provides the global key currency. To test Minsky's financial instability hypothesis in a wider context, it is helpful to conduct an analysis based on an open economy. As shown in section 1.3, Spain has been chosen for this project. Kohn (1989) argues for diverse cases if a hypothesis is to be tested and a phenomenon's universality is examined. At the same time, the cases have to be comparable. Therefore, in this research, Spain was chosen based on the similarity with the US of experiencing a housing bubble. However, Spain differs significantly from the US in its institutional settings and exchange rate system. Spain is an open economy and part of a monetary union (Frenkel and Rapetti, 2009).

3.4 Methodological Challenges

In the following, methodological challenges are briefly discussed. The use of secondary data might lead to complications. Since the researcher does not have control over how the data is collected and presented, the data needs to be analysed cautiously. If economic indicators from diverse databases are used, it is essential to ensure their reliability and validity. Thus, the researcher needs to verify that it is an official, reliable source such as the IMF database. Furthermore, official statistics can be misleading, especially aspects concerning financial data. Different countries/sources might use different calculations for the same indicators. The researcher needs to be aware of this and examine the underlying calculations used. Besides general methodological challenges, ethical issues have to be considered. It is the responsibility of the researcher not to manipulate data in order to receive the desired results. Since the researcher can choose which data to use and what kind of analyses to do, the subjectivity might be high. The researcher needs to be aware of such aspects (Bryman and Bell, 2003).

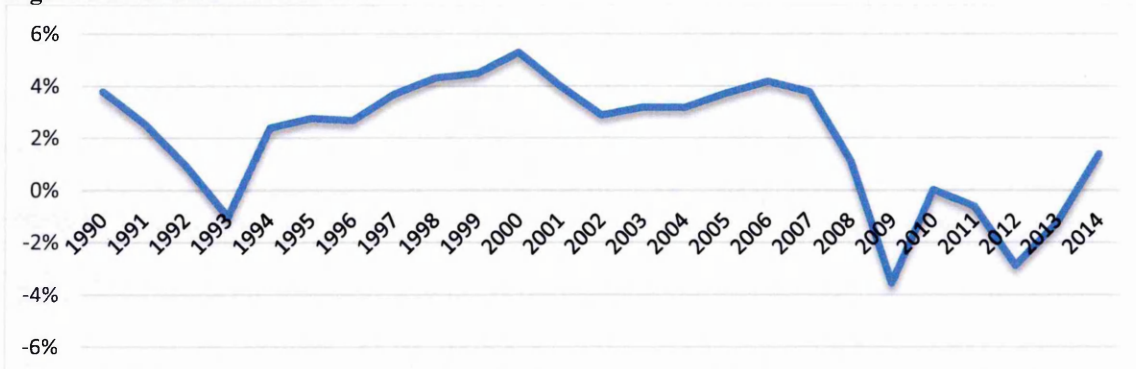
4 Collecting and Analysing the Data

In the following, the analytical research framework in connection with the quantitative and qualitative analysis' strategy is presented.

4.1 Strategy for Data Analysis

Based on Minsky's financial instability hypothesis, a quantitative analysis with the help of economic indicators and a qualitative description of the policy background is provided. The broad timeframe is between 2000 up until 2006, with focus on the development of the bubble after the hard currency introduction of the Euro in 2002. The period until 2006 is chosen due to reaching the peak of the housing bubble in 2006 (EC, 2012). The longer-term business cycle can be argued to have started in 1994 because of rising house prices and GDP growth (see Figure 1). Since Minsky (1985) defined the business cycle under the light of increasing fragility and private and external deficits as well as house prices behaved quite moderately with a clear change taking place in 2002, the defined time period seems appropriate.

Figure 1 Real GDP Growth in %



Source: OECD (2015)

4.2 Analytical Research Framework

Minsky based his theoretical framework on a closed economy model excluding the external sector in his main discussion (Minsky, 1986a, p.169). Hence, it is essential to analyse economic policies' impact on financial fragility in an open economy. This can be done with the help of the sectoral balances approach developed by Godley and Lavoie (2007) in connection with Kalecki's profit equation (Minsky, 1986a, p.163). The sectoral balances

approach is a balance of payments identity which is shown below with S as private savings, I as private investment, G as government spending, T as taxes, X as exports and M as imports:

$$(S - I) = (G - T) + (X - M)$$

This means if in the case of a current account deficit, the government focuses on austerity policy, the private sector has to run a deficit which increases financial fragility (Godley and Lavoie, 2007). However, it is an ex-post relationship and does not include any causal relationships.

Since fragility can increase due to not achieving targeted profits, Minsky (1985) uses Kalecki's profit equation to critically assess the impact of economic policy on private sector's profits. Kalecki reformulates the above shown identity and assumes that the economy consists of two classes, workers and capitalists (Kalecki, 1971).⁶ Profit (π) is influenced by public deficit (Df), balance of trade deficit defined as current account deficit (BDf), savings by workers (Sw) and consumption out of profits ($C\pi$) (Kalecki, 1971, p.82):

$$\pi = I + Df - BDf - Sw + C\pi$$

According to Kalecki (1971), the causality runs from demand factors on the right side to profits. Thus, profits depend, amongst others, on changes in investment, government and current account deficit. Falling profits can be offset with an increase of government spending. Furthermore, higher profits are negatively correlated with rising current account deficits, but positively related to capital account surpluses, thus, financial inflows.

Despite Kalecki's assumed causality, it can be argued that the current account does not determine profits, but rather higher profits attract capital leading to growing capital inflows (Arestis and Glickman, 2002). Thus, profits are negatively related to current account deficits, but capital flows determine the causality. Those higher profit opportunities could be due to

⁶ Identity reformulation is shown in Appendix 2.

financial aspects such as being possible to make on the carry because of interest rate differentials (Kregel, 1998). Borio (2014) also emphasizes that the main aspect in the recent financial crisis was not the current account development and the concomitant net capital flows, but increasing gross financial flows leading to unsustainable credit booms. Since net capital flows indicate the level of “saving-investment balances” but not the underlying financing, they reflect an ex post, not an ex ante view. Dependent on financial growth prospects trade in financial assets, hence, portfolio transactions, can be significantly higher than the resulting net capital flows (Borio and Disyatat, 2011, p.1). Due to this contradictory point of view, the profit equation is applied as an identity without implying a Kaleckian causality.

The fiscal policy stance is followed up by an integration of monetary policy into the policy analysis. As already shown in the literature review, monetary policy plays an essential role. Due to the focus on price stability of most central banks, monetary policy tends to increase interest rates during the euphoria phase, thus, worsening private sector’s balance sheets. Furthermore, non-monetarily sovereign countries such as Spain have a budget constraint. If investors lose trust in the country’s ability to service its debt, they can invest in different European countries without incurring exchange rate risk (Tymoigne and Wray, 2014).

However, before being able to conduct an analysis of economic policies, trends and sources of financial fragility have to be examined. Additionally, the peculiarities of the household sector have to be taken into consideration. Households’ cash flows differ from companies’ cash flows since households do not generate cash inflows in the form of profits. Thus, the validation process takes place through a wealth effect due to rising house prices and increased equity withdrawals. Furthermore, if household spending is speculative it may increase corporate profits by entering into a negative growth rate of household savings (Tymoigne and Wray, 2014).

4.3 Quantitative Analysis of Data

The data analysis approach is discussed subsequently. Since the focus is not on generalization, descriptive statistics are used to provide a description of the phenomenon but not to generalize to a wider sample based on inferential statistics. The descriptive quantitative part mainly consists of a distribution and central tendency analysis (Bryman and Bell, 2003).

To assess the fragility of the Spanish economy, fragility proxies are defined. According to the European Commission, the debt-to-income ratio is an appropriate indicator for households' leverage (Cuerpo et al, 2013). Hence, households' leverage is analysed with the help of the debt-to-income ratio whereas debt-to-GDP ratio is used for non-financial corporations. However, as pointed out by Sotiropoulos et al. (2013), leverage ratios in the corporate sector commonly put debt levels in relation to assets, thus, a stock in relation to a stock whereas the debt-to-income ratio puts a stock in relation to a flow. Therefore, it is necessary to examine the debt-to-asset ratio. This is followed by a discussion of providers of household debt, thus, the financial and external sector. The breakdown of bank loans and financial market regulations are discussed. Subsequently, an analysis of the size and composition of capital flows is provided in connection with tiers of capital flows defined by Minsky (1986b). Lastly, sectoral balances and the above mentioned profit equation are examined to detect economic policy's impact on financial fragility. This is followed by an integrated discussion of monetary and fiscal policy.

4.4 Qualitative Analysis of Data

Since each country's fiscal and monetary policy reflect a country's institutional settings, it is essential to detect the reasoning behind policy decisions. Thus, the second part of the analysis consists of a qualitative document analysis.

Before collecting documents, inclusion requirements need to be identified (Corbin and Strauss, 2008). The main inclusion criteria for policy documents was being the main policy document. To assess fiscal policy, *Stability Programmes* provided by the Spanish government were examined since they present the fiscal policy strategy for the following years. Monetary policy decisions are included with the help of press releases by the European Central Bank (ECB). The years were chosen based on changes in the monetary policy (especially key interest rate changes). Furthermore, *Nexis* newspaper database was searched according to predefined terms such as Spanish economic growth to show how policy decisions and the economic development were reported in the media. Since this is an indicative study, the main focus lies on giving an overview. After having reviewed diverse documents, they were narrowed down towards a smaller amount of articles which were analysed (30 out of 74). The selection took place based on giving explicit reasons for policy decisions and mentioning of expectations. The overall presentation of documents reviewed can be found in Appendix 3.

As can be seen in Table 4, the focus of policy documents lies on financial market flexibility and supply-side reforms to promote economic growth. The Eurozone entry is related to positive aspects. Newspaper coverage also hints towards a positive picture of the Spanish economy up until mid-2004 and then slowly drifts towards a critical view of the Spanish 'economic miracle'. A recurring theme starting in 2004 is the risk of a real estate bubble in connection with rising interest rates. However, Bank of Spain Governor Caruana did not consider the Spanish property boom a bubble due to predicting a moderate decline of property prices (The Main Wire, 2005). Besides this overview, the results are given as illustrative quotes in the following discussion.

<i>Selected Documents</i>	<i>Amount</i>	<i>Years</i>	<i>Key Themes Detected</i>
<i>Policy Reasoning</i>			
<i>Stability Programmes of Spain</i>	4	2001 2002 2004	Focus on economic growth and balanced budget Avoidance of discretionary fiscal policy and promoting supply-side growth; structural reforms (market openness and rising competition)
<i>ECB documents published online</i>	4	2005 05/12/2002 08/05/2003 19/11/2003 27/04/2004 07/10/2005	Construction negatively related to interest rates Focus on price stability and flexibility of financial markets Benefits of large cross-border provision of financial services Excess liquidity in Eurozone – possibility of inflation Banks do not purely mediate but transfer risks to other sectors
<i>News reports focused on Bank of Spain Governor</i>			
<i>The Main Wire</i>	5	13/06/2003 29/06/2004 13/05/2005 15/11/2005	Call for wage moderation Call for structural reforms Monetary policy should not target asset prices Spain's housing boom not a bubble, low probability of unorderly adjustment
<i>The Banker</i>	1	05/01/2006 01/06/2006	Monetary policy should target asset prices Support of financial market flexibility and advantages of being part of the monetary union Mortgage growth and household spending negatively related to interest rates
<i>Newspapers</i>			
<i>Years</i>	<i>Newspaper</i>	<i>Dates</i>	<i>Key Themes Detected</i>
2000	United Press Int.	13/06/2000	Public Approval of the Euro
	New York Times	22/06/2000	Spanish consumers confident
	Newsweek	02/10/2000	Euro a blessing
2002	Agence France Presse	19/04/2002	European economy stronger than US
	Financial Times	25/09/2002	Peculiarity of Spanish housing market
2003	Financial Times	17/04/2003	Mergers and acquisitions of property developers
	Agence France Presse	27/05/2003	Spanish economy one of the strongest of EU
	Agence France Presse	11/11/2003	Prime minister targets full employment by 2010
2004	The Banker	01/01/2004	Dismissal of property bubble
	Financial Times	07/07/2004	Unsustainable property bubble
	Sunday Tribune	11/07/2004	Market is slowing down - real estate market is negatively related to interest rates
2005	Daily Mail	18/03/2005	Sudden stop of Spain's investment boom
	New York Times	20/05/2005	Spanish housing boom connected to monetary policy – beneficial for Spain to be in the Eurozone
2006	Financial Times	26/05/2005	Spanish economic miracle gives riddles
	Sunday Times	09/10/2005	Spanish property investment by non-residents falling
	Financial Times	11/11/2006	Economic culture of having to grow; mergers and acquisitions rise
	Financial Times The Scotsman	25/10/2006 29/11/2006	New profit opportunities: immigrants Spain's economy turned vulnerable

Table 4 Report on Documents' Analysis

5 Interpretation of Data

In the following, the collected data is presented. Trends and sources of financial fragility are discussed followed by a sectoral balances' analysis. In the end, an integrated analysis of fiscal and monetary policy is conducted.

5.1 Trends of Financial Fragility

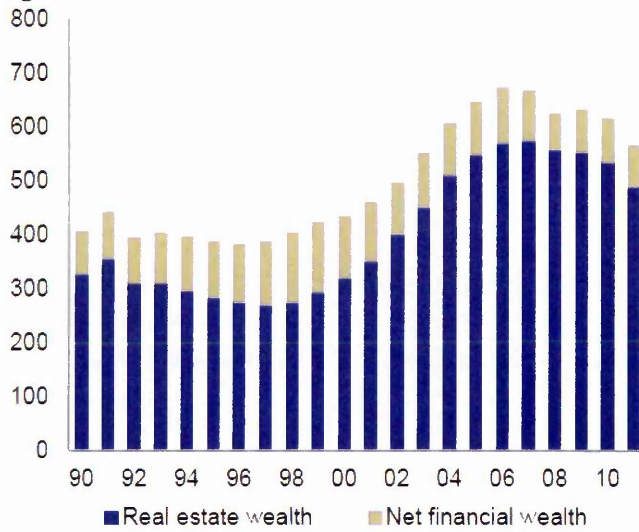
Even though real income per capita grew between 2002 and 2005, Spain experienced a significant rise of household debt, hence, financial fragility. In only five years, debt in relation to gross disposable income (GDI) grew by 46 percentage points, even reaching 124% of GDI in 2006 (see Appendix 4). In 2005, 19.1% of Spanish indebted households had three times as much debt as GDI (BdE, 2008). This constitutes the third highest rise in household debt in the Eurozone and was recognized as unsustainable by the European Commission:

“The build-up of pressures is easily identified between 2002 and 2007, when the gap between the actual debt and its balanced or sustainable path increased rapidly.” (Cuerpo et al., 2013, p.4)

A major part of Spanish household debt is the main residence (56.8% of household debt) which is followed by other real estate properties (23.9%) whose median outstanding debt value has risen by 44.9% between 2002 and 2005 (BdE, 2008).

If not only debt levels are rising but also asset values, the economy can move into a fragile state without detecting it. The perceived wealth effects validate past decisions and increase optimism while lowering risk perceptions. Spanish households' net wealth increased significantly between 2002 and 2005 which can be seen in the rise of median household net wealth by 68% (BdE, 2008). However, not only real wealth is essential for the validation process but also financial wealth has to be taken into consideration. Even though financial liabilities increased considerably, the level of net financial wealth did not change. This can be seen in the households' financial leverage ratio which stayed relatively stable at 92% between 2002 and 2006 (see Figure 2 and Appendix 5).

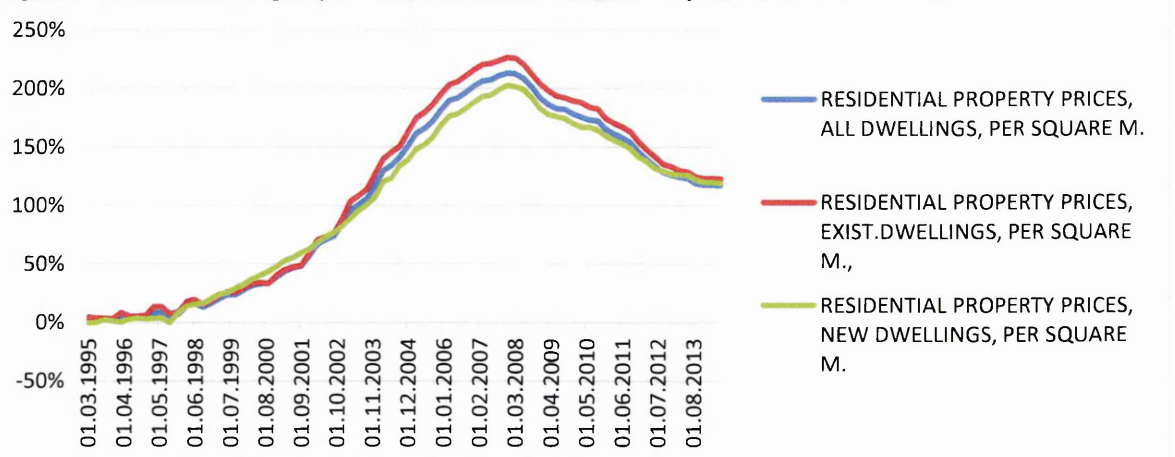
Figure 2 Household Wealth in % of GDP



Source: EC (2012), p.22

To find out the underlying development of households' leverage, house and stock price changes are presented. While the debt-to-GDI ratio increased by 46 percentage points between 2002 and 2006, house prices increased by 100 percentage points. As shown below, the house prices per square meter, rose slowly since 1995 turning into a rapid increase since the beginning of 2000.

Figure 3 Residential Property Prices, Growth in %, Quarterly Data, Base Year 1995



Source: Author's calculation based on BIS (2016)

Besides the nominal increase in house prices, the deflated house price index showed a similar development. According to Eurostat (2015), this is an early warning indicator for unsustainable development of house prices with a threshold of 6% annual growth rate. During the boom years this indicator was constantly above this threshold (see Appendix 6).

The real estate bubble coincided with a significant rise in the stock market prices; the Madrid Stock Exchange General Index rose by 82% between 2003 and 2005 (BdE, 2008).

Hence, not only households' liabilities, but also assets rose considerably, showing an overall rise in households' balance sheets. The rising debt-to-income and median debt levels for other real estate properties in connection with rising house prices are indicators for greater reliance on collateral-based debt and speculative behaviour of the household sector. Even though the debt-to-asset ratio does not show a significant increase, there is a risk of deteriorating remarkably as soon as the house prices fall. Thus, households' economic risks increased due to being susceptible to financial market and house price changes (Sotiropoulos et al., 2013).

In the following, characteristics of the rising house demand are briefly presented. A high proportion of households own their main residence (82%) and 87% of household wealth is related to real estate which is significantly higher than the Eurozone average (60%; IMF, 2012). Furthermore, around 21% of households own a second home. The number of households increased due to high birth rates, growing divorces and positive net migration (BdE, 2008). Another factor is the "cultural attachment to property" which can be seen in the fact that the first residence when moving out from the parents' home is in the majority of the cases an own home (Ball, 2009; Levitt, 2002). As a Financial Times article puts it:

"[...] the Spanish see a house as both an investment and a right" (Levitt, 2002)

Besides high domestic housing demand, purchase of secondary homes by other European citizens also played a role. Annual net foreign investment in housing moved between 0.5 and 1% of GDP between 1999 and 2007 (De Lis and Herrero, 2008). Moreover, consumer confidence was high after the Euro introduction. According to a European Commission survey at the beginning of the 2000s, consumer confidence was the highest since 1990s:

"[...] decline in joblessness had impressed both consumers and executives with the result that consumers are more upbeat than the economists, who had warned of inflation and the weakened currency." (United Press, 2000)

Even though first warning signals of a property bubble were evident and published since 2004, optimism spread due to sustained high economic growth and rising income:

“The idea [housing bubble] has been raised in Spain, but most people in the financial sector and the government do not believe it really exists. Unlike the rest of Europe, Spain's economy has continued to grow by around 2%-3% per year, so the housing market has fairly solid foundations.” (Head of Capital Markets, Caja Madrid, The Banker, 2004).

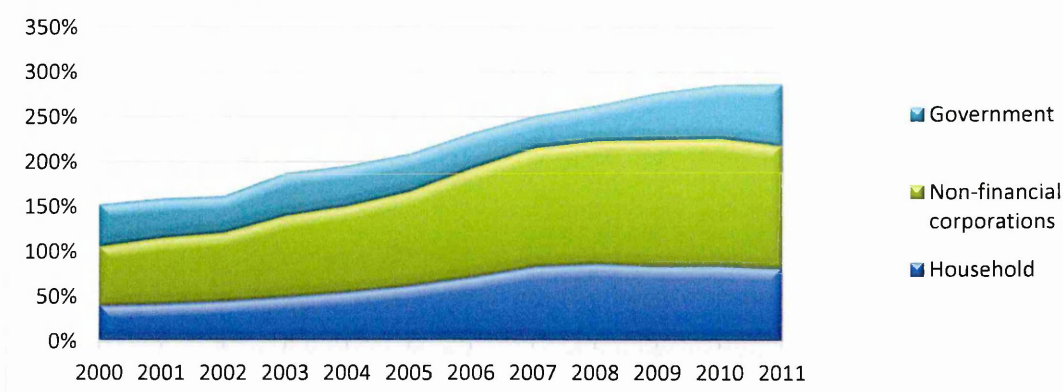
In sum, due to rising optimism after the Euro introduction, rising house demand contributed considerably to household debt. Rising house prices further fuelled the bubble and led to a feedback mechanism between house prices and debt.

After having seen the demand side of the housing bubble, the supply side is presented. Between 2002 and 2006 business investment in relation to GDP overall rose by 2.6 percentage points with dwellings' investment clearly sticking out (Eurostat, 2015). Investment in dwellings rose on average by 12% between 2002 and 2006 compared to 5.9% between 1996 and 2001 which was also acknowledged by the Spanish government (OECD, 2015):

“Construction, the other major component of gross fixed-capital formation, has been growing at a very rapid rate, due mainly to strong demand for housing.” (Kingdom of Spain, 2004, p.6)

Not only households went into high debt but also non-financial corporations had rising debt levels in connection with declining financial net worth (see Appendix 7). The share of debt by non-financial corporations even reached 132% of GDP in 2007 (see Figure 4). The debt-to-gross operating profit ratio of the real estate industry even rose by 650 percentage points between 2000 and 2007 (BdE, 2010).

Figure 4 Sectoral Debt to GDP ratios in %



Source: Eurostat (2015)

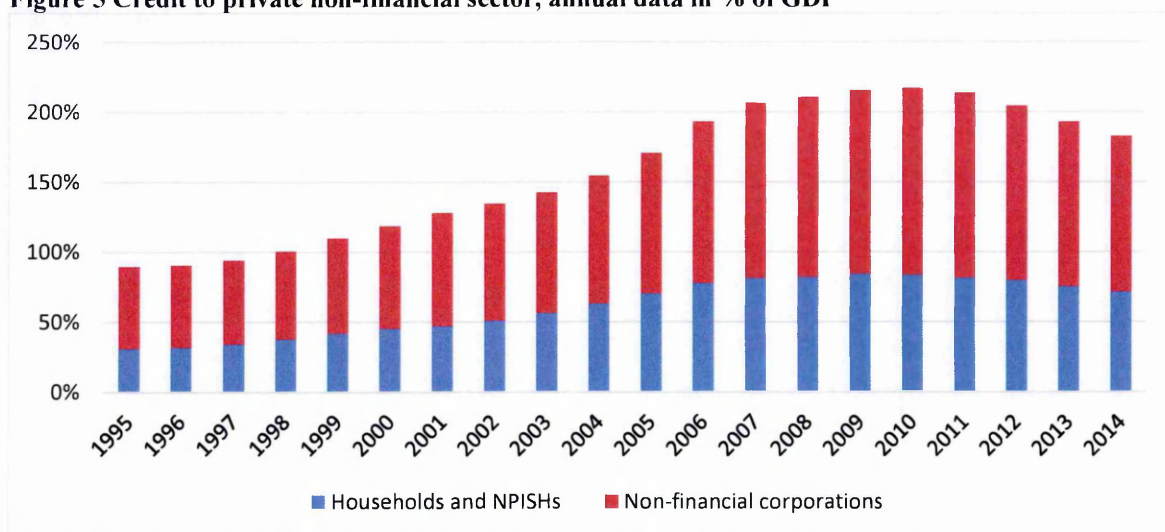
5.2 Sources of Financial Fragility

In the following, sources of financial fragility are discussed since financial fragility not only depends on the willingness but also on the ability to borrow.

“In Spain, where **economic growth is healthy, particularly compared with France and Germany**, banks are expected by many to be among the best performing in the second quarter.” (Davies, 2005; emphasis added)

Despite rising debt levels, the Spanish economy including banks was considered to be healthy. Thus, the structure of the financial market is discussed. According to Goldsmith (1969), financial deepening takes place when outstanding credits grow faster than GDP which was the case in Spain indicating an expansionary credit cycle (BIS, OECD, 2015).

Figure 5 Credit to private non-financial sector, annual data in % of GDP



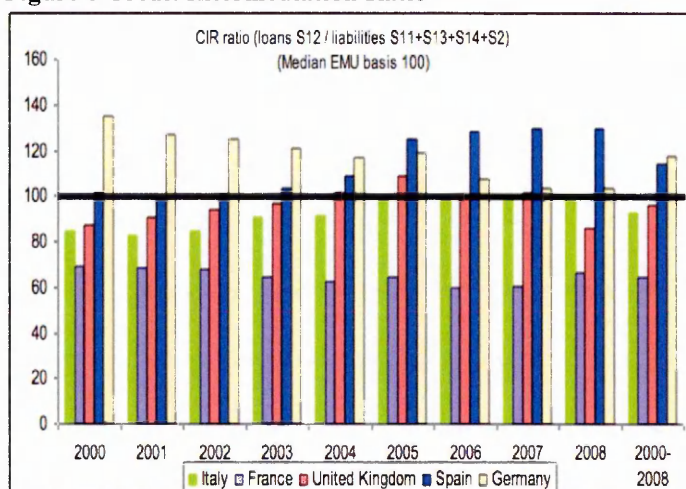
Source: BIS (2015)

Over half of the increasing credit went into construction and real estate industry, including real estate acquisition (mortgages 33%), 22% real estate development and 8% construction (IMF, 2012). Minsky argued that short-term debt increases during a bubble (Minsky, 1986a, pp.237-244). However, short-term debt as portion of overall household loans was low and moved between 4.55% and 5.24% while non-financial corporations' short-term loan share also stayed constant (OECD, 2015).

Besides financial deepening, Cinquegrana (2010) defined indicators which point to an increasing importance of the financial sector, e.g. the credit intermediation ratio. This ratio

puts loans by financial corporations in relation to liabilities issued by other sectors. Up until 2002, it has been close to 1 and then constantly increased indicating that the financial corporations gained in importance.

Figure 6 Credit Intermediation Ratio



Source: Cinquegrana (2010), p.17

This rise in credit was, amongst others, possible because of declining borrowing rates. The reference interest rate for mortgages fell from 9.75 in 1995 to 2.25 in 2004. Real interest rates fell by 40% after the Euro introduction (see Appendix 8). Those decreasing interest rates led to only a moderate rise of debt service ratios, hence, they counterbalanced the rising debt levels of Spanish households. In 2005, the median indebted household used 17.1% of its income to cover debt, compared to 14.5% in 2002. However, 11.7% of the indebted households were financially distressed and used more than 40% of the gross income to pay debts which is an increase of 5% compared to 2002 (BdE, 2008). Furthermore, the debt service burden of non-financial corporations rose significantly after the Euro introduction and lay constantly above the Euro area average (ECB, 2012).

The described development was possible due to a deregulation process starting in the end of the 1970s. Spain's savings banks were liberalized and allowed to engage in commercial banking activities. In 2002, they were further liberalized and encouraged to give credits to households and small and medium sized enterprises (IMF, 2006). As a result of this

deregulation process, the market share of savings banks grew rapidly and Spain had “more bank branches per capita than any in the world” (Burnett, 2006).

With the help of the Mortgage Market Regulation in 1981, a loan to value ratio of up to 80% (previously 50%) was allowed for mortgages, leading to middle and low income families to enter the market. In 1994, the Spanish government attempted to liberalize the housing finance market by making it easier to refinance. Thus, notary and registration fees were reduced and refinancing costs could be exempted from tax (Belsky and Retsina, 2004). The deregulation led to longer loan maturities and commercial banks entering the mortgage market. Furthermore, Spanish mortgages consist of variable rates or rate fixation of less than a year, accounting for 98% of the total amount of mortgages (IMF, 2012). Hence, a monetary policy change is quickly transmitted to the mortgage sector, transferring the risk from the financial to the household sector.

Despite rising competition, the level of financial innovation was quite low. The main provider of debt is still the banking sector. In 2000, a counter-cyclical measure of dynamic provisioning was constructed with the goal to smooth pro-cyclical credit behaviour. It forced the originator of, e.g. mortgage debt, to put capital aside as a provisioning (De Lis and Herrero, 2008). Even though a restriction of credit growth was not achieved due to the endogenous character of money creation, dynamic provisioning provided banks with a relatively good capital buffer (Suarez, 2010). Moreover, off-balance sheet items accounted only for 6-7% of all securities in 2008 and the main securitization device till date is mortgage backed securities. Thus, securitisation is less used for transferring risk but rather to provide funding. Furthermore, home equity withdrawals play only a minor role (De Lis and Herrero, 2008).

After the housing market slowed down, banks were seeking for new profit opportunities to offset this market change. New aspects included immigrants (supported by a legalisation of 600,000 immigrants in 2006). BBVA, one of the two biggest banks in Spain, tapped the immigrant market by offering loans with numerous co-signatories:

“They are an incredibly powerful market [...] Nobody wants to miss a slice of the cake.”
(Professor of Finance, Burnett, 2006)

Not only banks but also construction companies found new profit opportunities such as merger and acquisitions supported by credit money:

“There is more money than ever before to invest – and it needs to go somewhere [...]. There is now a culture of ‘We have to grow’.” (Elkin, 2006)

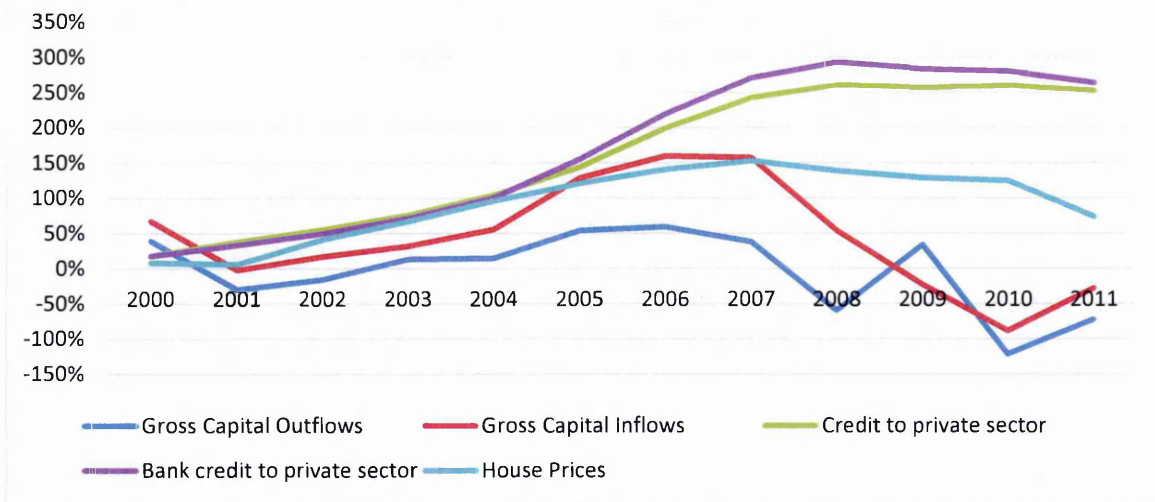
This development shows remarkably the profit-seeking behaviour of financial institutions and their endogenous money creation.

Summing up, after the Euro adoption, interest rates declined significantly leading to low costs for mortgages. The easing of financial constraint and rise in consumer confidence led to an excessive credit demand in combination with rising house prices. A more diverse set of households including low income households had access to financial services and entered the housing market. Growing indebtedness of households not only made the households more vulnerable to shocks but also the economy dependent on households' expectations about future income.

In addition to financial deregulation, financial markets became highly integrated. Gross capital inflows show a strong upward trend after the Euro introduction: an increase by 64.4% between 1999 and 2006 (see Figure 7). While gross capital inflows and outflows reached a relatively high level in 2000 (both over 20% of GDP), capital inflows clearly dominated thereafter (see Appendix 9). The rising external deficits per year caused the international investment position to increase by more than 30 percentage points of GDP from 2000 to

2006; thus, Spain became vulnerable to changes in international financial markets (Appendix 10; EC, 2009).

Figure 7 Growth Rates of Capital Flows, Credit Flows, House Prices

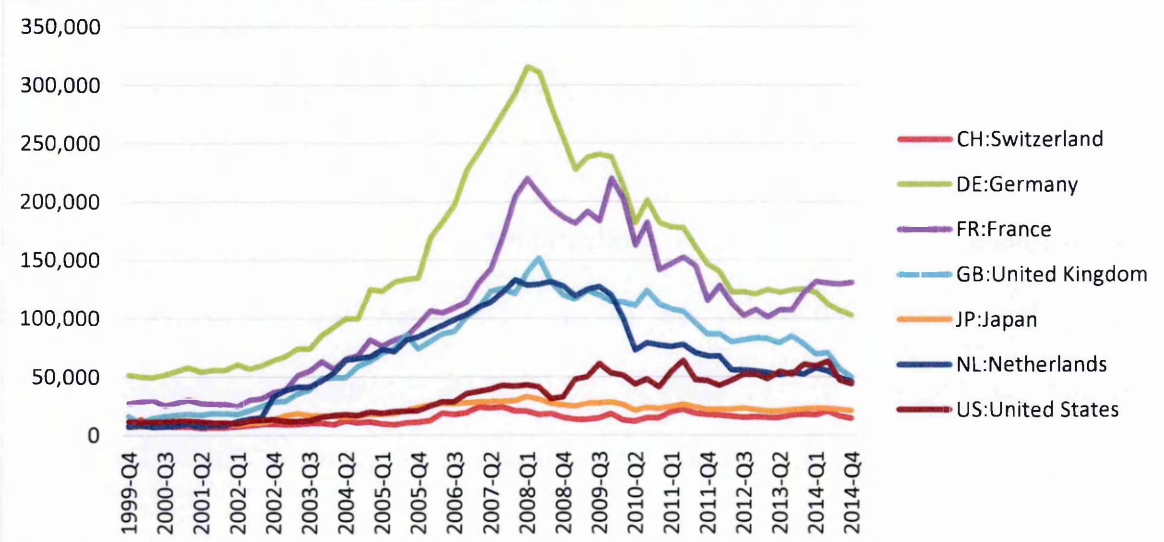


Source: OECD (2015), BIS (2015); Base year: 1999

Figure 7 also shows that rising house prices moved in line with gross capital inflows, whose steepest rise was before the steepest rise in credit flows. Thus, capital inflows preceded investment and were used to finance private sector deficits (EC, 2012). These are clear signs of an endogenous credit creation process fuelling a housing bubble.

The inflows mainly came from Germany and France whose banks went through a period of international expansion, leading to German and French banks increasing their claims on Spain from 15% up to 20% - 25% of total external claims (Forster et al., 2011).

Figure 8 Consolidated foreign claims, by bank nationality, in millions of \$



Source: BIS (2015)

In the beginning of the 2000s, Germany experienced a relatively sluggish economic growth, while Spain's economic growth was significantly higher than the Eurozone average. Furthermore, huge differences in average bank profitability could be seen between Spain and Germany. German banks' return on equity fell down to -2.7% in 2003 whereas Spain's banking profitability lay on average at 12% between 2000 and 2006 (Goddard et al, 2010). At the same time, Germany had the second highest real short-term interest rates in the Eurozone (between 2000 and 2006 on average 1% higher; OECD, 2015). As soon as the gross capital inflows to Spain started to increase in 2003 (see Figure 8), Germany's banking profitability recovered in the following three years, even reaching 11% in 2006 (Goddard et al., 2010). As shown below, capital inflows were mainly comprised of short-term finance. Thus, the case can be made that due to real short-term interest rate and economic growth differentials as well as elimination of currency risks after the Euro introduction, profit opportunities arose and attracted capital from Germany. The resulting growing financial flows were not directly provided for the companies and households but channelled through the banking sector.

Capital inflows were mainly comprised of portfolio investments followed by other investment (see Appendix 9). Thus, as Minsky (1990) states portfolio movements not multinational corporations and trade are the determining factors in modern capitalism. Minsky (1986b) also analysed the balance of payments statistics with the help of separating it into four different cash flows:

Tier 1: Trade (Goods and Services)

Tier 2: Income from foreign lending (factor service balance)

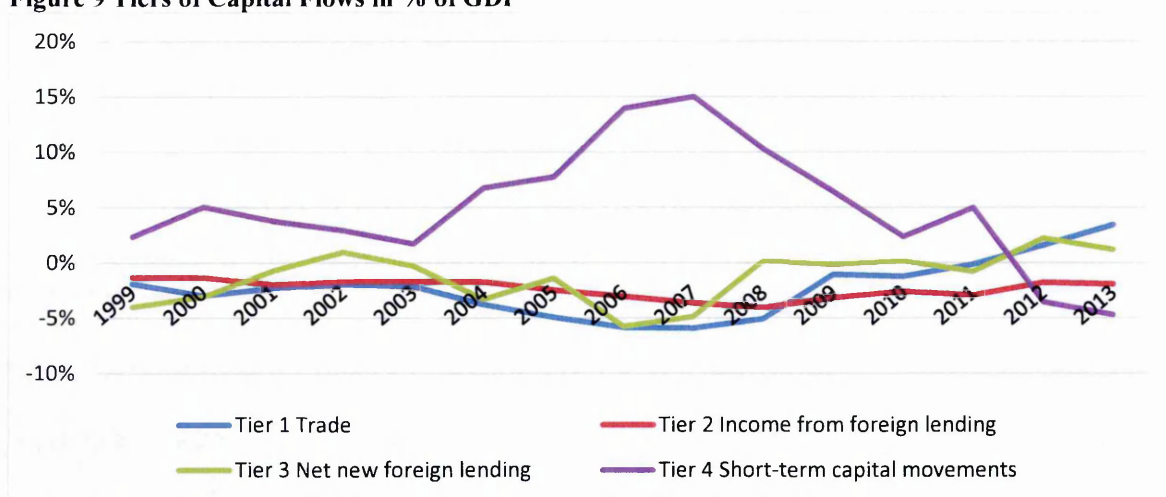
Tier 3: Net new foreign lending (long-term capital account)

Tier 4: Short-term capital movements

In order to apply Minsky's classification to Spain, Tier 3 is defined as foreign direct investment and Tier 4 includes portfolio investment, financial derivatives and other

investment. Even though portfolio includes long-term and short-term investment, it is usually done with respect to financial yields and is easier to dispose of. Other investment mostly includes loans, currency and deposits (Cabrero et al., 2007). When looking at Spain, the first three tiers were financed with the help of short-term capital movements (see Figure 9). Short-term financing in form of international currencies and deposits, a highly volatile source of finance, has accounted for a large part (42%) in this rise of short-term finance (OECD, 2015). Even though short-term financing includes repurchase agreements used by banks to draw liquidity from the ECB, those have been staying relatively stable between 2000 and 2007 (Credite Suisse, 2012). Banks used inter-bank markets and long-term debt instruments to transmit short-term capital inflows to non-financial corporations and households (Suarez, 2010). According to Minsky (1986b, 1990), those developments are indicators for financial fragility and highly speculative behaviour.

Figure 9 Tiers of Capital Flows in % of GDP



Source: OECD (2015)

In sum, it was shown that large capital inflows, mainly from Germany, led to increasing credit availability, facilitated by the Spanish banking sector. Even though Spain could have borrowed cheaper domestically, it used expensive foreign short-term debt whose real interest rate was on average 2 percentage points higher than the domestic ones (see Appendix 11).

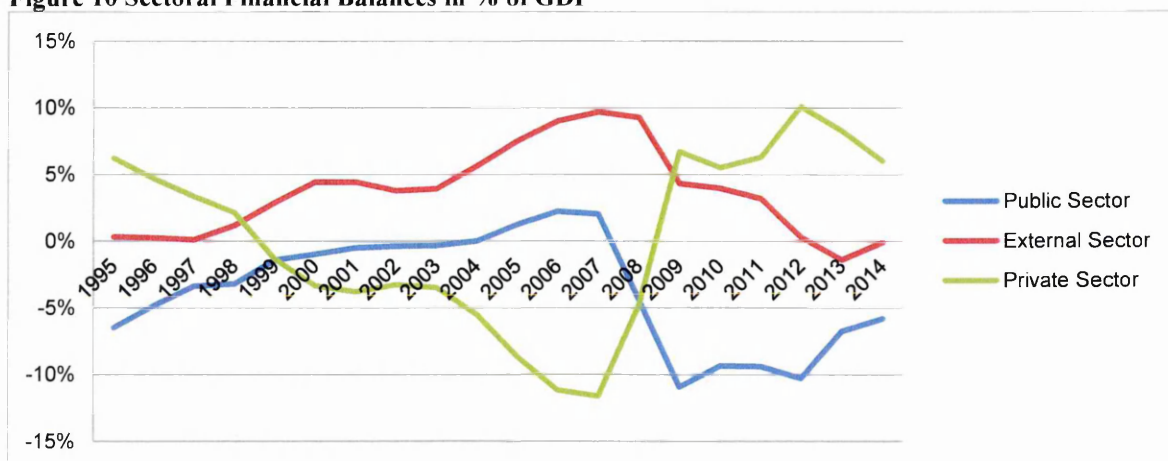
On the one hand, gross financial flows from the European centre were one of the driving forces in lifting the external financial constraint and leading to rising financial fragility. Due

to the high returns offered by Spain, German banks increased their profitability considerably. On the other hand, positive expectations based on an expanding economy and a growing housing market, led Spanish banks to take on expensive foreign debt which can be seen as an irrational behaviour by the private sector. However, as Wray (2008) argues, agents develop their mental decision-making models based on current policies and expectations of future income and asset prices. Since during the boom those expectations are based on the current economic surroundings, agents can be considered to behave rationally when taking “on a Ponzi structure if **they anticipate** capital gains larger in scale than net cash-flow losses” (Dymski, 1997, p.504; emphasis added). Given that nominal interest rates not only converged in the Eurozone but also declined considerably after the introduction of the Euro, Spanish banks took on foreign debt which was significantly cheaper than in previous periods but still more expensive in real terms. The declining domestic real interest rates further fuelled the Spanish demand. Only after the boom it becomes clear that those decision-making models are based on wrong assumptions (Wray, 2008). Furthermore, assumptions can be reinforced by economic policies which will be discussed in the subsequent chapters.

5.3 Sectoral Financial Balances

Subsequently, the impact of economic policies is discussed. Up to 2002, Spain’s surplus and deficit behaviour was quite moderate (see Figure 10).

Figure 10 Sectoral Financial Balances in % of GDP



Source: Author’s calculations based on OECD (2015)

In 2002, Spain started to run huge private sector deficits, even rising up to 11.9% of GDP in 2007. In contrast, the public sector reduced its fiscal deficits from -6.50% of GDP in 1995 to -0.03% of GDP in 2004 (IMF, 2015; OECD, 2015). Running a budget surplus in the case of a capital account surplus added to the rising fragility of the private sector.

For a more detailed analysis, the profit equation is analysed. Since the European System of National Accounts does not present corporate profits, gross operating surplus is taken as a proxy. It is the cost of intermediate goods and services and compensation of employees subtracted from gross output, hence, it does not take into consideration depreciation. Since Minsky's (1986a) analysis is conducted out of a cash flow point of view and depreciation reflects no cash outflows, gross operating surplus seems to be an appropriate proxy. Furthermore, due to missing data concerning savings out of wages and consumption out of profits, Kalecki's profit equation is simplified. Toporowski (1993) shows that it is suitable to replace savings out of wages and consumption out of profits with household's net savings (*SDf* equals household sector deficit). Corporate profits can rise due to rising investment, increasing budget deficit, rising household sector deficits and increasing current account deficits:

$$\pi = I + Df - BDf + SDf$$

In an empirical test of this assumption, it was shown that in 99% of the calculated cases, it led to the official data results (Toporowski, 1993). Thus, this profit equation is applied.

During an expansionary period, corporate profits are generally expected to rise. However, as shown below, gross operating surplus in relation to GDP stayed stable and belonged to the lowest levels in the Eurozone (see Table 5). In contrast, Germany's corporations' profits rose up to 27% in 2006 (AMECO, 2015). Furthermore, the calculated corporate profit even shows a slight decline during the boom period. The difference to the gross operating surplus

could be due to subsidies which are still included in the calculation of gross operating surplus (Toporowski, 1993).

Table 5 Profit Equation Illustrated in % of GDP

	Gross Capital Formation	Household Saving	Public Sector Deficit	Current Account Deficit	Calculated Corporate Profits	Gross Operating Surplus
1999	24.9%	3.8%	-1.5%	-3.3%	19.3%	19.8%
2000	26.1%	4.1%	-1.0%	-4.4%	18.7%	19.9%
2001	26.2%	3.9%	-0.6%	-4.4%	18.5%	19.9%
2002	26.6%	3.7%	-0.4%	-3.7%	19.6%	19.9%
2003	27.7%	4.6%	-0.4%	-3.9%	19.5%	19.5%
2004	28.5%	3.5%	0.0%	-5.6%	19.4%	19.5%
2005	29.9%	2.4%	1.2%	-7.5%	18.8%	19.5%
2006	31.1%	1.3%	2.2%	-9.0%	18.5%	19.7%
2007	31.1%	0.0%	2.0%	-9.7%	19.3%	21.3%
2008	29.2%	1.5%	-4.4%	-9.3%	22.9%	23.2%
2009	24.3%	5.9%	-11.0%	-4.3%	25.1%	23.4%
2010	23.0%	2.8%	-9.4%	-3.9%	25.7%	23.0%
2011	21.4%	3.7%	-9.4%	-3.2%	24.0%	22.2%
2012	19.8%	2.1%	-10.3%	-0.3%	27.7%	23.1%
2013	18.5%	3.0%	-6.8%	1.4%	23.8%	23.1%

Source: Author's calculation based on AMECO (2015) and OECD (2015)

The downward pressure of improving government sector balance and rising current account deficit slightly outweighed the upward pressure by investment and household savings (by around 1 percentage points) leading to a decline of profits, thus, internal funds. As mentioned above, Spain offered relatively high financial yields which attracted capital inflows. Those rising capital inflows were channelled through the banking sector to households and companies; and in connection with high domestic demand led to rising investment based on debt and decreasing household savings, thus, financial fragility. As discussed above, in case of the private sector running a deficit, the external and/or the public sector have to finance it. However, since the public sector ran a balanced budget, the private sector deficit was financed with the help of further capital inflows, thus, rising current account deficits resulting in a downward pressure on corporate profits. Hence, it can be argued that lower financial yields would have prevented this process and the consequent housing bubble to develop. Therefore, it is essential to analyse qualitative changes in the fiscal balance in order to examine its influence on the attractiveness of capital.

5.4 Role of Fiscal Policy

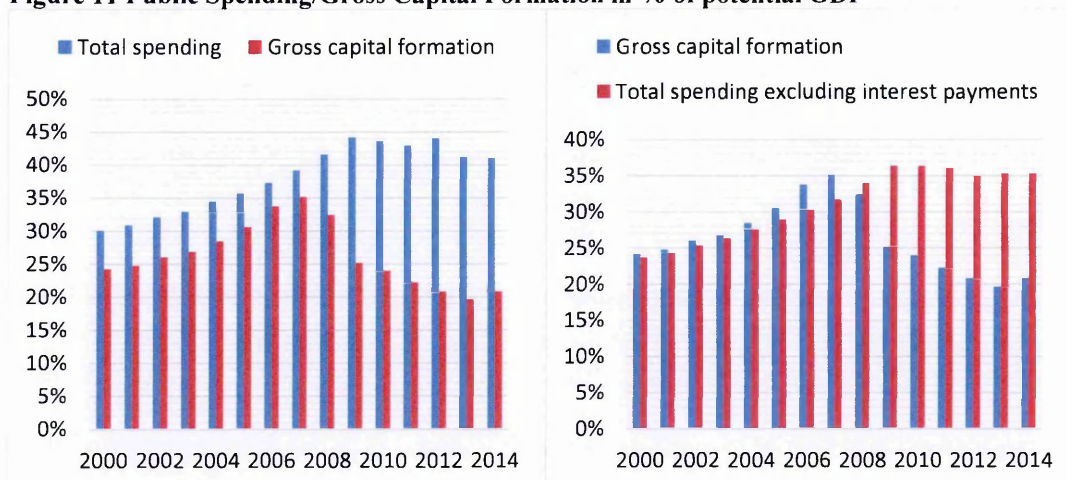
“[...] fiscal policy cannot serve as a fine-tuning instrument of demand-side adjustment when used by the authorities in a discretionary manner, divorced from the perceptions and expectations of economic agents. Not only is it inefficient in such cases, it can actually disturb economic activity [...] unpredictable measures sows confusion among economic agents, and engenders distrust of market signs and signals.” (Kingdom of Spain, 2001, pp.19-20)

As can be seen above, Spain adopted a neoliberal approach with the belief that discretionary fiscal policy can only do harm. However, since it has no control over its monetary policy, it has to coordinate fiscal policy in such a way that the pro-cyclicality of financial markets is counterbalanced. Hence, the size and scope of fiscal policy is discussed subsequently.

Size of Government

Minsky (1986a, pp.330-333) argues that government size in relation to GDP should be at least as large as private investment and be counter-cyclical to counterbalance financial fragility. This goal can be achieved either with the help of discretionary and/or automatic stabilisers. Government size, thus expenditures in relation to GDP, can work as an automatic stabilizer (Ferreiro et al., 2013). As seen in Figure 11, government spending has been continuously above gross capital formation. When comparing total expenditures excluding interest payments, the level of government spending seems to be in line with Minsky’s suggestions.

Figure 11 Public Spending/Gross Capital Formation in % of potential GDP



Source: Author’s own calculations based on AMECO (2015)

However, public expenditures have been relatively low in comparison to the Eurozone (8% lower in 2005-2007), thus, it can be considered as too weak to work as an automatic stabilizer (Ferreiro et al, 2013). Furthermore, the budget was nearly balanced during the boom period. Those aspects fit to the fiscal policy stance announced. The goal of the Spanish government was to:

“[...] have a balanced budgetary position throughout the cycle, compatible with a sustained and dynamic reduction in the public sector’s weight within the economy.” (Kingdom of Spain, 2001, p.21)

This balanced budget was praised in the European press and by public officials:

“Budgetary stability has shown itself to be a key driver of a stable and credible macro-economic environment conducive to the general welfare, in which economic agents can make decisions with greater confidence of success [...] A change which has equipped the Spanish economy with greater resilience to external disturbances [...]” (Kingdom of Spain, 2003, pp. 5,7)

"It's the best result among the big European Union countries [...] which shows the success and efficiency of an economic policy at the service of growth and job creation." (Spanish Finance Minister, Agence Presse France, 2004)

However, it is questionable if it was due to a restrictive fiscal policy stance. There were no expenditure cuts and both revenues and expenditures rose (AMECO, 2015). Furthermore, a deficit appears as soon as housing boom related aspects are subtracted from the deficit. Suarez (2010) discounts fiscal deficits by taking out tax revenues related to construction and real estate. In his estimation, those sectors have driven up public revenues at the peak of the boom by 2.9% of GDP in 2006. The European Commission (2012) also points out that 75% of tax increases between 1995 and 2006 was due to the housing boom, thus, transitory. Hence, contrary to the public opinion, a balanced budget was not achieved due to following a restrictive stance but due to rising construction and real estate sector income.

By using the output gap and real GDP growth as indicators for pro-cyclical or counter-cyclical fiscal policy, different phases can be identified (Ferreiro et al., 2013). To assess discretionary policy and adjust for automatic stabilizers, the structural public balance is examined. Spain followed an expansionary, pro-cyclical stance up until 2004 (see Table 6).

Table 6 Overview of Fiscal Policy Stance

Year	Real Economic Growth in %	Output Gap in %	Public Balance in % of GDP	Structural Public Balance in % of GDP	Fiscal Policy Stance	Cyclicality of Fiscal Policy Stance
1999	4.48	1.3	-1.46	-	Restrictive	Counter-cyclical
2000	5.29	3.2	-1.02	-0.94	Expansionary	Pro-cyclical
2001	4.00	3.5	-0.55	-0.77	Expansionary	Pro-cyclical
2002	2.88	2.9	-0.42	-0.37	Expansionary	Pro-cyclical
2003	3.19	2.5	-0.37	-0.21	Expansionary	Pro-cyclical
2004	3.17	2.2	-0.03	0.04	Expansionary	Pro-cyclical
2005	3.72	2.4	1.21	0.97	Restrictive	Counter-cyclical
2006	4.17	3.1	2.19	1.23	Restrictive	Counter-cyclical
2007	3.77	3.2	2.00	0.46	Restrictive	Counter-cyclical
2008	1.12	1.3	-4.42	-5.60	Expansionary	Pro-cyclical

Source: Author's calculation based on OECD (2015), AMECO (2015), IMF (2015)

Before house prices started to decline and investors were leaving the market, the Spanish government adopted a restrictive, counter-cyclical policy stance in 2005. This can be seen in the fact that the structural budget was positive while at the same time having a positive output gap in those years. Qualitative aspects of the expansionary policy are examined subsequently.

Scope of Government

The Spanish government focused on a pro-growth strategy incorporating pro-market policies. The goal was to catch up with other European economies:

“The strategy employed seeks, firstly, to boost the growth potential of the Spanish economy and, secondly, to continue laying the groundwork for the upkeep of a positive growth differential with respect to the EU's most developed countries. The aim, in essence, is for the Spanish economy to grow faster than its main European partners through both expansion and contraction phases.” (Kingdom of Spain, 2002, p.8)

In the following housing policies in connection with fiscal policy scope are briefly outlined.

Housing Policies

Before lifting the restrictions on the rental sector in 1985, owner occupation was promoted by freezing rents and allowing to transfer rental agreements to family members (Belsky and Retsinas, 2004). Housing development was further promoted by introducing taxes in land sales from regional and local governments leading to a rise in land sales to the private sector.

The government supported low-cost homeownership with the help of subsidies for suppliers rather than increasing spending on social housing. Due to rising house prices and speculation, houses became unaffordable underlined by a non-functioning social housing and renting system. In 2002, the Spanish government introduced a new housing programme. It subsidized firms if they bought houses for letting and households to recover repair and insurance costs for 10 years if they let apartments (Ball, 2009). Despite these policy changes, the rental market stayed underdeveloped in comparison to other European countries (15% compared to 36% EU average, EC, 2012).

Government Revenues

In 2000, a corporate tax reform was introduced which was to benefit businesses in general and to support small and medium sized enterprises. The definition for small and medium sized enterprises was widened to include more companies (small enterprises tax regime for up to 5 million euros turnover). Tax changes included, amongst others, tax deductible goodwill and tax rate reduction for reinvested capital gains (Kingdom of Spain, 2001). In 2002, a personal income tax reform was introduced with the goal to:

“[...] lower the tax burden weighing on citizens, as a means to favour economic activity, [...] to mitigate the future pressure of pension liabilities on public finances, and to encourage more people into the labour market.” (Kingdom of Spain, 2002, p.20)

The tax reform reduced the lower income group taxes by around 38% and the highest income tax rate from 48% to 45%. The average tax cut lay at 11% (Kingdom of Spain, 2002).

Additionally, taxes on economic activities were revised. Even though wealth tax on housing and inheritance tax exists in Spain, capital gains and imputed rent are exempted from taxation, 15% of the overall mortgage payments are deductible (Debelle, 2004; EC, 2012). Furthermore, large families are allowed to reduce the property tax burden by 90% (Kingdom of Spain, 2002). Such favourable credit terms affect the attractiveness of owning a house which is comparable to the effect of favourable treatment of interest payments for

corporations (Debelle, 2004). Additionally, withholding tax was reduced to the lowest tax rate and excise taxes were frozen for two years leading to a reduction in real terms (Kingdom of Spain, 2002).

Government Expenditure

On the expenditure side, the focus also lay on pro-growth economic policies:

“[...] adjustment measures must ring-fence investment [...] the government will continue the strategy which has yielded such good results in the past few years, namely, the prioritisation of those spending items conducive to supply-side growth.” (Kingdom of Spain, 2001, pp. 9, 20)

The goal was to develop a knowledge-based society and supporting small and medium sized enterprises since this area was considered ‘deficitary’. Expenditures were undertaken in the fields of job creation, infrastructure, research and development. The goal was to double research and development spending in order to converge with the European average (Kingdom of Spain, 2004). The economic policy changes were seen as great accomplishment which can lead Spain into full employment:

“We know we are not condemned to live with a high unemployment rate,” [...] Today, we know from experience what policies help to create jobs and those which do not.” (Spanish Prime Minister, Agence France Presse, 2003)

Furthermore, as mentioned above, a housing deficit was recognized and housing expenditures were increased by 32.5% in 2005. The budget for 2006 saw a further increase in housing expenditures of 20.6% (Kingdom of Spain, 2005).

In sum, it can be seen that Spain did use discretionary policy such as adjusting tax laws, thus, weakening automatic stabilizers. However, due to the strong economic growth, this did not lead to a decline in the government balance.

5.5 Role of Monetary Policy

The Euro introduction and financial market liberalization were seen as beneficial for Spain.

“For the Spanish economy, the advantages of being in a monetary union clearly outweigh the disadvantages” (Director for research at Bank of Spain, Landler, 2005)

“We have always supported the elimination of European barriers and all measures that contribute to financial markets becoming more liquid and more efficient.” (Caruana, Governor of Bank of Spain, *The Banker*, 2006)

However, as a Eurozone member, Spain lost its monetary sovereignty and real interest and exchange rates depend on a common monetary policy as well as price and wage differentials. The ECB determines the short-term interest rate on main refinancing operations which is the key interest rate in the euro area. Its monetary policy focuses on price stability and has been considered to be working well in the beginning of the 2000's:

“[...] the Governing Council agreed that in the pursuit of price stability it will aim to maintain inflation rates close to 2% over the medium term.” (ECB, 2003a) “More than four years of implementation have worked satisfactorily.” (ECB, 2003b)

While Spain has no direct influence on the key short-term interest rates, the long-term interest rates are dependent on the individual country (ECB, 2015). Nevertheless, even the long-term interest rates converged prior to 2007.

The Euro introduction in connection with low long-term interest rates and diverging real interest rates resulted in strong credit growth and increasing demand in some European countries such as Spain. As shown in section 5.2, Spain experienced low or even negative real interest rates during its boom years. However, since other European countries grew only moderately at the same time, the ECB did not have a clear direction as would have been the case when looking at only one country and adopted a stance fitting to core economies' needs.

In 2003, the ECB's key interest rate fell down to its so far lowest point of 2%. The reasoning for a continuous decline to this level and for keeping it there until the end of 2005 was:

“EU banks were confronted with a challenging operating environment in 2002, largely owing to the global economic slowdown, which also affected the EU, as well as to further downward correction in turbulent global stock markets[...] (ECB, 2003a)

In 2004, Trichet stated that excess liquidity was prevalent in the Eurozone which bears the risk of inflationary pressures (based on consumer index):

“[...] there is currently more liquidity than is needed to finance non-inflationary growth [...] should excess liquidity persist, it could lead to inflationary pressures over the medium term.” (ECB, 2004)

Hence, the key interest rate was raised at the end of 2005 (see Figure 12).

Figure 12 ECB Monthly Key Interest Rates

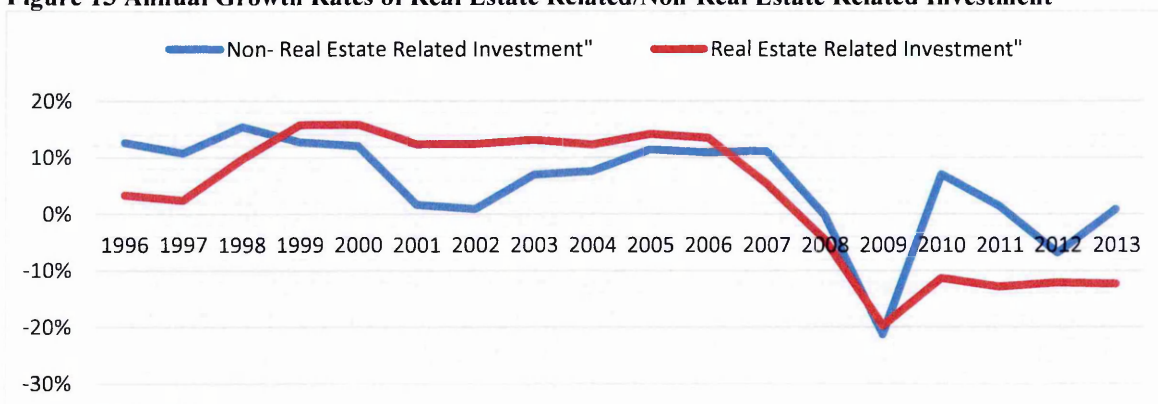


Source: ECB (2015)

With the increases in interest rates, Spanish investment first stagnated before it started to decline in 2008. When looking at investment separated into non-real estate related and real estate related investment (including construction, dwellings and other buildings and structures), a closer connection between interest rate change and investment becomes clear (see Figure 13). As soon as the ECB raised the key interest rate, real-estate related investment declined. This influence of the interest rates was also recognized by the Spanish government in 2005:

“Conversely, investment in construction will gradually decelerate due to [...], the gradual increase in interest rates” (Kingdom of Spain, 2005, p.11)

Figure 13 Annual Growth Rates of Real Estate Related/Non-Real Estate Related Investment



Source: OECD (2015)

Furthermore, it led to an increase of the debt service burden of households and non-financial corporations. Due to having variable rate mortgages, households’ debt service burden rose

significantly after 2005, reaching its highest level since 1993 in 2006 (Jamieson, 2006). At the same time, real estate firms' financial costs in relation to gross operating profit nearly doubled in just one year from 2006 to 2007 (BdE, 2010). While households' financial leverage increased by 8.2%, non-financial corporations leverage even rose by 23.6% between 2006 and 2008 (see Appendix 5).

In the following, monetary policy in connection with fiscal policy are critically assessed since the effect of fiscal policy can either be dampened or amplified by monetary policy. If a government pursues an expansionary fiscal policy while applying a restrictive monetary policy, the increased spending or reduced taxes might be offset by the increasing borrowing costs (Ferreiro et al., 2013). Hence, the mix between fiscal and monetary policy has to be appropriate.

During the period of expansionary monetary policy, the Spanish government ran an expansionary fiscal policy, hence, both behaving pro-cyclical as shown in Table 7. In 2005, monetary and fiscal policy adopted a restrictive stance leading to the profit taking phase and in connection with the Global Financial Crisis to the burst of the bubble.

Table 7 Fiscal and Monetary Policy Stance

Year	Fiscal Policy Stance	Cyclicality of Fiscal Policy	Change in the average ECB interest rate (%)	Monetary Policy Stance	Cyclicality of Monetary Policy
1999	Restrictive	Counter-cyclical	0	Restrictive	Counter-cyclical
2000	Expansionary	Pro-cyclical	1.14	Restrictive	Counter-cyclical
2001	Expansionary	Pro-cyclical	-0.1	Expansionary	Pro-cyclical
2002	Expansionary	Pro-cyclical	-1.19	Expansionary	Pro-cyclical
2003	Expansionary	Pro-cyclical	-0.5	Expansionary	Pro-cyclical
2004	Expansionary	Pro-cyclical	-0.25	Expansionary	Pro-cyclical
2005	Restrictive	Counter-cyclical	0.25	Restrictive	Counter-cyclical
2006	Restrictive	Counter-cyclical	0.75	Restrictive	Counter-cyclical
2007	Restrictive	Counter-cyclical	0.88	Restrictive	Counter-cyclical
2008	Expansionary	Pro-cyclical	-0.44	Expansionary	Pro-cyclical

Source: Author's calculation based on ECB (2015) and Eurostat (2015)

Even though the fiscal policy deficit was quite moderate during the expansionary period, taxes in favour of mortgages and capital gains in connection with an expansionary monetary policy amplified positive expectations. Due to overheating, Spain should have focused on a counter-cyclical approach to offset the expansionary monetary policy and avoid internal and external imbalances (De Lis and Herrero, 2008). This aspect was also recognized by the Bank of Spain Governor Caruana:

"If in future -- in a framework in which European monetary conditions continue to be relatively loose for the needs of the Spanish economy -- demand pressures contribute to an inflation differential which is not justified by the process of real convergence, it may be advisable to move towards a budget surplus" (Jones, 2003)

With the help of the afore mentioned tax reforms, not only the automatic stabilizers were weakened but tax revenues rose, leading to a reduction of the Spanish gross government debt during the boom years (Eurostat, 2015). With the repayment of public debt and the Euro introduction, long-term interest rates decreased significantly which might have led to rising investment in other assets such as mortgage-backed securities. This can be seen in the issuance of securitization bonds twenty times as much in 2007 as in 2000, out of which 71% were mortgage-backed securities, mainly acquired by foreign institutions (Millan, 2014; De Lis and Herrero, 2008). Thus, it is essential to not only focus on a counter-cyclical approach but to ensure that the scope of fiscal policy aligns with the goal to reduce speculative finance demand resulting in less capital inflows, e.g. with the help of a capital gains tax.

Borio and Lowe (2002) warned of endogenous responses to monetary policy. If monetary policy is considered credible, it might change the behaviour of the financial markets leading to financial imbalances. As can be seen in the development above and in the appraisal of the Euro in the press, not only monetary but also fiscal policy were considered to be credible leading to positive expectations. However, mid-2004, press reports started to change and the relationship between house prices and low interest rates was discussed more extensively.

"When you have had a long period of low interest rates and long maturities, it is important that people take into account the possibility of higher interest rate levels." (Member of ECB governing council, Atkins and Crawford, 2005)

"[...] housing price cannot be sustained indefinitely [...] "The Spanish economy and particularly its households are now undeniably more vulnerable to adverse developments, especially to a potentially greater-than-expected hike in interest rates."(Bank of Spain Governor, Atkins and Crawford, 2005)

Nevertheless, it was made clear by Trichet in mid-2005 that monetary policy would not adjust its strategy:

"Not all boom or bubble episodes threaten financial stability. Policy-makers should not fall into the trap of attempting to eliminate all risk from the financial system." (ECB, 2005)

By switching the policy stance in 2005 in a financially fragile environment, the financial distress was exacerbated.

6. Findings

In this concluding chapter, main characteristics of applying Minsky's financial instability hypothesis in an open economy are provided, followed by a macroeconomic framework including economic policies.

6.1 Minsky in an Open Economy

Spain experienced an impressive housing bubble with soaring household and non-financial corporate sector debt which can be partly explained by changes in exogenous factors such as rising number of households. However, those factors are not sufficient to explain the huge capital inflows and extreme rise in property prices. Thus, exogenous factors are combined with Minsky's endogenous factors.

In extending Minsky's model, Arestis and Glickman (2002) argue that a displacement in form of financial deregulation and a fixed exchange rate lead to profit opportunities due to interest rate differentials. Economic agents take on cheap short-term foreign debt to finance domestic long-term investment. Bagnai (2012) states that this is based on nominal interest rates. However, in the case of Spain, this hypothesis cannot be confirmed since the Eurozone has one nominal key interest rate and nominal long-term interest rates converged. Furthermore, when looking at the nominal interest rate spreads provided by Bagnai (2012), spreads between Spain and Germany on households' and corporations' debt are negative. Solely, the spread on house purchase loans was positive. Nevertheless, it is questionable how Germany's house loan interest rate might have influenced capital flows into Spain.

In contrast, it was demonstrated that due to arising profit opportunities, financial flows from the European core were the driving force in the rising fragility. Spanish real short-term interest rates were significantly lower compared to Germany. Even though Spanish banks could have made on the carry domestically due to the spread between real short-term and

long-term interest rates, they borrowed expensive short-term debt. With low economic growth and high real short-term interest rates, German investors were looking for profit opportunities. After the Euro introduction, exchange rate and currency risks were removed and the spread between core and periphery countries set off the mechanism attracting foreign capital. Thus, Spanish capital flows are caused by interest rate differentials but the causality is reversed.

Table 8 Overview of Displacement Stage

Features	Closed Economy	Open Economy	Spanish Economy
Displacement (1999-2001)			
Profit increase in one sector	Private sector (main focus on corporations)	Private or external sector (corporations and households) Interest rate differentials: low foreign interest rates, high domestic interest rates	Huge capital inflows Rising gross capital formation in household/construction sector Interest rate differentials: high foreign interest rates, low domestic interest rates

During the subsequent boom and euphoria phase, credit availability increased and profit expectations were rising. In a closed economy, this would entail domestic banks creating money to fulfil an economy's liquidity needs. However, since Spain is an open economy and a member of a monetary union, capital inflows were used to finance rising private sector deficits. The rising capital inflows and growing liquidity further reduced interest rates, hence, borrowing costs. Therefore, the external sector not only played an essential role in the displacement but also in the rising credit availability in Spain.

The rise in credit was followed by real estate related investment. Households' wealth and gross disposable income rose resulting in a positive feedback mechanism. As seen in the qualitative analysis, positive expectations played a major role in rising liquidity demand. Rising debt-to-income and house price levels were indicators for greater reliance on collateral, thus, Ponzi finance which was possible due to a prior deregulation process. Even

though this was taking place in a relatively seen conservative way with a low degree of financial innovation, it led to endogenous money creation enabling more households to take on debt. Mortgages with variable interest rates in connection with rising external short-term debt added to the vulnerability of the Spanish economy.

Table 9 Overview of Boom and Euphoria Stage

Features	Closed Economy	Open Economy	Spanish Economy
Boom Phase (2000-2007) and Euphoria Phase (2002-2006)			
Extensive credit availability	Credit creation by domestic banks	Credit creation by domestic banks and foreign banks	Credit creation with the help of foreign capital inflows
Investment and asset price	Asset prices and investment go up (focus on corporations)	Investment and asset prices supported by gross capital inflows	Huge gross capital inflows used in non-tradable sector Rising house prices
Low short-term interest rates	Low domestic short-term interest rates	Domestic interest rates fall relative to foreign interest rates	Domestic and foreign interest rates fall
Financial innovation	Domestic financial institutions invent new financial products	Financial products are extended to external sector with the help of securitisation	Main focus on banking sector (hardly no off-balance sheet items)
Margins of Safety go down			
Debt levels go up	Domestic debt rises	Domestic and foreign debt rises	Domestic and foreign debt levels rise focus on real estate
Short-term rises	Short-term domestic debt	Short-term domestic and external debt	Short-term external debt

With the housing market slowing down in 2006, property developers searched for new profit opportunities which were found in mergers and acquisition.

Table 10 Overview of Profit Taking Stage

Features	Closed Economy	Open Economy	Spanish Economy
Profit Taking (2004-2006)			
Well informed investors leave the market	Investment in different domestic sector	Investment in different domestic sector/external sector	Mergers and acquisitions

After having discussed Minsky's financial instability hypothesis in an open economy, the question remains what role exogenous factors such as fiscal and monetary policy play in the development of the property bubble.

6.2 Macroeconomic Framework

“Unless we understand what it is that leads to economic and financial instability, we cannot prescribe-make policy-to modify or eliminate it.”

(Minsky, 1986a, p. 111)

Before being able to make policies, it is essential to understand the mechanisms leading to financial fragility. The above discussed causal chain can be summarized as followed:

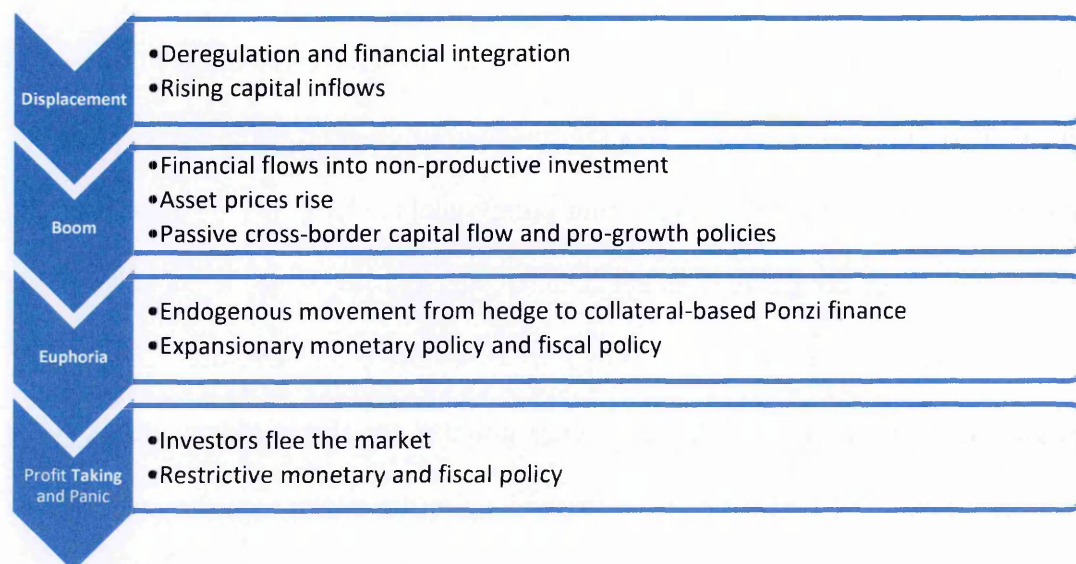


Capital inflows, thus, the financial sector should be regarded as the root cause of the Spanish crisis. Huge gross capital inflows led to rising credit flows resulting in exceptional housing investment levels. By a Minskian validation process more investment was generated, asset prices rose and financial fragility grew. However, in the case of Spain, this was not due to financial innovation or nominal interest rate differentials, but due to the search of profit opportunities by the European core. The housing boom was based on positive expectations which are, amongst others, dependent on factors such as interest rate levels or preferential tax laws. Hence, it is important to examine fiscal and monetary policy.

In 2005, Bernanke argued that the main cause of macroeconomic imbalances can be attributed to the excess savings of developing countries which export those to advanced economies (called the ‘savings glut’). This argumentation has been taken up to exculpate policymakers in the US from following wrong policy goals (Mees, 2011). However, the ‘savings glut’ view does not distinguish between savings and financing. It is the financing provided ex ante which lead to higher savings ex post (Borio and Disyatat, 2011). Shin (2011) argued as well that the ‘savings glut’ does not apply to the European case since it rather was the outcome of extensive cross-border lending by banks than the provision of German deposits. As shown above, cross-border lending by German banks increased considerably after the Euro introduction. Thus, fiscal policy and its influence on credit demand and the resulting housing bubble is essential.

In the boom years, Spain's government adopted a pro-cyclical fiscal policy stance. The focus lay on pro-growth strategies with beneficial tax laws for capital gains and home ownership. This took place while the Eurozone adopted an expansionary monetary policy. Short-term interest rates decreased leading to rising credit availability and declining long-term interest rates. Hence, the boom was reinforced with the help of low debt service costs and an easy access to finance, thus lifting financial constraints and leading to an underestimation of risk. Pro-cyclical monetary and fiscal policy amplified positive expectations and supported the credit creation mechanism. It became clear that fiscal policy should have adopted a restrictive, counter-cyclical stance to dampen optimistic expectations. Minsky (1986a, pp. 336-337, 341) also argues in favour of surpluses during expansion times and a socially sustainable scope of fiscal policy. Such a restrictive counter-cyclical stance would need to be supported by an appropriate monetary policy. However, since Spain belongs to a monetary union, monetary policy cannot be adjusted to each economically different member country. Thus, the focus should be less on favourable tax laws for capital gains and more on beneficial taxes for social and sustainable projects on improving infrastructure, education and health care (Minsky, 1986a).

Figure 14 Adjusted Crisis Model



Source: Adapted from Kindleberger & Aliber (2005)

In 2005, fiscal and monetary policy changed to a restrictive stance. As soon as the ECB changed the monetary policy, real-estate related investment went down resulting in the profit

taking phase. The special case in Spain is that changes in key interest rates are immediately transmitted into mortgage rates. Hence, debt service burdens rose, leading to a deepening of financial fragility. Furthermore, a restrictive fiscal policy increased the pressure on profits. As shown with the help of sectoral balances, it became clear that decreasing budget deficits drove the private sector further into financial fragility because of having to run a deficit in the case of a current account deficit. Thus, not only could a balanced budget not be used to counter-balance but it reinforced the rising fragility in the private sector.

Even though the government was aware of the increasing private and external sector deficit, the boom was supported prior to 2005, instead of reducing attractiveness of capital inflows with less favourable tax laws. As its policy changed to a restrictive stance, financial distress increased by switching policy direction in an environment with high financial fragility. Hence, economic policy plays an essential role in the development of increasing fragility and has to be added to the framework.

6.3 Implications of Findings

This research has investigated the role of economic policies in the formulation of real estate bubbles. The descriptive analysis was useful in offering insights into the application of Minsky's financial instability hypothesis in an open economy. This was supported by a qualitative review of documents in order to explore reasons of policies and development of expectations. Hence, it contributes to the existing literature by embedding qualitative into quantitative methods in describing the influence of economic policies on financial fragility development.

As shown in the literature review, the discussion of the trigger of an asset bubble has increased in recent years. However, it is surprisingly difficult to find a systematic discussion of fiscal and monetary policy in the bubble development. It was shown that Spain

experienced an exogenous trigger in form of the Euro introduction which through endogenous factors including positive expectations and capital inflows led to financial fragility. The case was made that due to a search for profits by the European core, financial profit opportunities determined endogenously capital flows' direction. Pro-growth fiscal policy and expansionary monetary policy were amplifying positive expectations.

Further research on the causes and consequences of wider economic crises and the influence of macro-economic policies needs to be conducted. The causality between external and private sector deficit needs to be explored further to define in a detailed way the underlying mechanism. It would be interesting to see how the financial instability hypothesis applies in different institutional settings since events might be contingent. Thus, a comparative case study approach could be helpful.

In this context, motivational factors influencing risk perceptions need to be investigated. One major contribution of Minsky (1986a) is the endogenous movement of an economy towards fragility based on positive expectations of future profits. Due to this endogeneity of economic expectations, it is essential to explore how risk-taking increases depending on changing perceptions of economic uncertainty and positive attitudes towards government policies. As Minsky (1986a) states real world problems cannot be depicted with the help of quantitative models. Therefore, a qualitative analysis is essential to explore underlying factors influencing risk perceptions and expectations of economic agents and to describe the dynamics in the transition towards financial fragility.

A questionnaire with open-ended and closed questions could be useful to provide an analysis of motivational factors and connect them to Minsky's cycles. The general perception of risk, uncertainty as well as extensive optimism and factors influencing them could be examined (see Appendix 12). Since Spain did not use equity withdrawals, it also needs to be

investigated how changing wealth perceptions contributed to the property bubble. Furthermore, the role of mortgage terms on households' risk perception need to be explored, especially the difference between variable and fixed interest rates. The main emphasis would be on how financial instability may build up during a non-crisis situation.

Lastly, the financialisation and income inequality argument put forward by an extensive literature needs to be critically assessed. In Spain, the degree of financialisation in the form of ever evolving financial innovation did not take place. A property bubble developed despite a relatively conservative dynamic provisioning system, low density of other asset backed securitisation besides mortgages, and nearly no off-balance sheet items. Furthermore, inequality prior to the crisis did not play a role in Spain. In sum, this research helped to identify the first implications of applying Minsky's financial instability hypothesis to an open economy with taking into consideration economic policies' impact and identified aspects which need further investigation.

6.4 Limitations

This research was conducted as an indicative study. Due to limitations of size, it was not possible to examine further underlying factors. First, historical patterns cannot be detected. The Spanish housing policy prior to the 1990s which influences the total home ownership and its institutional background could not be investigated. Second, surrounding factors such as political background or terrorist attacks in the beginning of the 2000s and their impact on policy changes and expectations were excluded. Third, cross-sectional differences in age and income could not be captured here. However, this aspect plays an important role in assessing households' ability to deal with shocks such as unemployment, interest rate and house price changes since the disaggregated numbers might differ significantly from the aggregated numbers. Finally, this indicative study deals only with the causes and not the consequences of rising financial fragility, namely financial instability.

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Appendix

Appendix 1 Main Literature Reviewed (Economic Policies and Open Economy)

<i>Literature</i>	<i>Policy</i>	<i>Country</i>	<i>Time</i>	<i>Key Themes</i>	<i>Approach</i>	<i>Missing</i>
<i>General Discussion</i>						
<i>Arestis et al. (2003)</i>	-	-	-	Survey of literature on financial liberalization in emerging market economies	Theoretical	No focus on Minsky
<i>Cruz et al. (2006)</i>	-	Mexico	1994-95	Focus on Minsky's model and domestic financial liberalisation	Theoretical and empirical	Focus on liberalisation policies
<i>Mulligan (2013)</i>	-	North America	2002-2009	Sectoral analysis based on firm-level data in connection to Minsky's taxonomy of finance; focus on stock market	Empirical	No policy discussion
<i>Fiscal Policy</i>						
<i>De Santana Vasconcelos (2014)</i>	Size and scope of government	US	-	Discussion of Minsky's fiscal policy and his sectoral balances approach	Theoretical	No empirical data or country perspective
<i>Forestater (2013)</i>	Employer of last resort	US	-	Analyses local and national aspects of a job guarantee programme	Theoretical	No empirical data
<i>Frenkel (2013)</i>	Focus on crisis response	Europe and Argentina	GFC	Pre-crisis policies focus on emerging markets; policy responses on both	Theoretical discussion	Eurozone narrative, no empirical data
<i>Kaboub (2007)</i>	Employer of last resort	Numerous countries	-	Historical background and examples of job guarantee programmes	Mainly theoretical	Solely focus on job guarantee
<i>Kregel (2015)</i>	Size of government	EU	Current	Applies Minsky's FIH to the European Union regulations	Theoretical	No discussion of fiscal policy scope
<i>Papa-dimitriou and Minsky (1994)</i>	Spending and taxes, financial reform	US	Clinton era	Criticism of effectiveness of monetary policy alone, financial reform; fiscal policy reform	Theoretical underlined by quantitative data	Focus on US
<i>Tcherneva (2011)</i>	Employer of last resort	US	GFC	Discussion of aggregate demand management tool targeting unemployed, survey of literature	Theoretical	No discussion of other countries

Wray (2011b)	Employer of last resort	US	GFC	Analysis of recent crisis and policy responses after the crisis	Theoretical	No connection between monetary and fiscal policy's impact
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Monetary Policy/Financial Reform

Kregel (2014)	Macro-prudential Regulation	US		Adaptation of Minsky's regulatory proposals to the recent US financial environment including cash flow examination	Theoretical	No connection to fiscal policy
Nasica (2010)	Inefficiency of Monetary Policy	-	-	Comparison of different business cycle theories	Theoretical	No empirical data
Tokucu (2014)	Monetary Policy Response	Turkey	GFC	Discussion of appropriateness of Turkey's monetary policy under the light of Minsky's FIH	Theoretical and empirical	No discussion of the scope of fiscal policy
Tropeano (2010)	Inefficiency of Monetary Policy	US	GFC	Discussion of appropriateness of US's monetary policy under the light of Minsky's FIH	Theoretical	No empirical data and no discussion of fiscal policy
Wray (2011b)	Criticism of pro-cyclical interest rate policy	US	GFC	Analysis of the recent crisis and policy responses after the crisis	Theoretical	No connection between monetary and fiscal policy
Wray (2012)	Lender of Last Resort	US	GFC	Discussion of Minsky's stages approach and monetary policy responses	Theoretical	No policy discussion prior to crisis
Zalewski (2012)	Lender of Last Resort	US	GFC	Discussion of different housing programmes and of the need to adjust it to the Minsky-Kindleberger approach	Theoretical	Sole focus are housing policies

Open Economy

Arestis and Glickman (2002)	International Clearing Union	Indonesia Malaysia Philippines South Korea Thailand	Asian Crisis	Extends Minsky's FIH to open, financial economies – criticism of having no international big bank	Theoretical and empirical	No discussion of economic policies prior to crisis situation
Davidson (2008)	-	US	GFC	Critical discussion of Minsky's FIH in relation to GFC	Theoretical	No policy discussion
Dymski (1999)	Influence of exchange rates and interest rate differentials	Korea and Japan	Asian Crisis	Application of Minsky's FIH to two open countries; short theoretical discussion of limitations of big bank and big government; capital controls	Theoretical	No empirical evidence for model or discussion of economic policies prior to crisis

Dymski (2010)	Mortgage Securitization	US	GFC	Application to households and changing role of banks	Theoretical	No discussion of fiscal and monetary policy
Frenkel and Rapetti (2009)	Focus on Policy Responses and Exchange Rate Policy	Argentina Chile Korea Mexico Thailand	Diverse periods	Differences between developed and developing countries under the light of Minsky's Financial Instability Hypothesis	Theoretical and empirical	Focus on developing countries and no detailed policy discussion
Kregel (1998)	-	Asian and Latin American countries	Asian and Latin American Debt Crisis	Minsky's model applicable to open economy but with adjustments including exogenous shocks	Mainly theoretical	No connection to economic policies prior to crisis
Kregel (2008)	Financial Reform	US	GFC	Discussion of Minsky's cushions of safety	Theoretical	No empirical analysis of other economic policies
Tymoigne and Wray (2014)	Policy Responses, Financial Reform, Employer of last resort	US	GFC	In-depth development of Minsky's theory in the US	Theoretical and empirical	No empirical analysis of other economic policies
Wolfson (2002)	Influence of exchange rates and interest rate differentials	-	Asian Crisis	Minsky's model applicable to open economy but with capital controls	Theoretical	No empirical, country specific analysis; no further policy discussion
Wray (2011a)	Long-term transformation	US	GFC	Analysis of Minsky's stages approach	Theoretical	No empirical analysis; only general overview of policies
Wray (2011b)	Long-term transformation	US	GFC	Analysis of the recent crisis and policy responses after the crisis	Theoretical	No empirical data

Appendix 2 Analytical note on Kalecki's profit equation

Both the sectoral balances as well as Kalecki's profit equation can be derived from the balances of identity presented in section 4.2 with S as private savings, I as private investment, G as government spending, T as taxes received, X as exports and M as imports:

$$(S - I) = (G - T) + (X - M) \quad (1)$$

Kalecki assumes that there are two classes comprised of workers and capitalists. According to Wray (2012b), the private balance saving ($S - I$) can be replaced by profits (π) profits minus investment plus saving out of wages (Sw) less consumption out of profits ($C\pi$):

$$\pi - I + (Sw) - C\pi = (G - T) + (X - M) \quad (2)$$

This equation can be rearranged and one gets:

$$\pi = I - Sw + C\pi + (G - T) + (X - M) \quad (3)$$

Assuming the government balance is negative, it portrays the government's deficit (Df) stated in Kalecki's profit equation and if the external sector runs net imports instead of net exports, it shows as current account deficit (BDf):

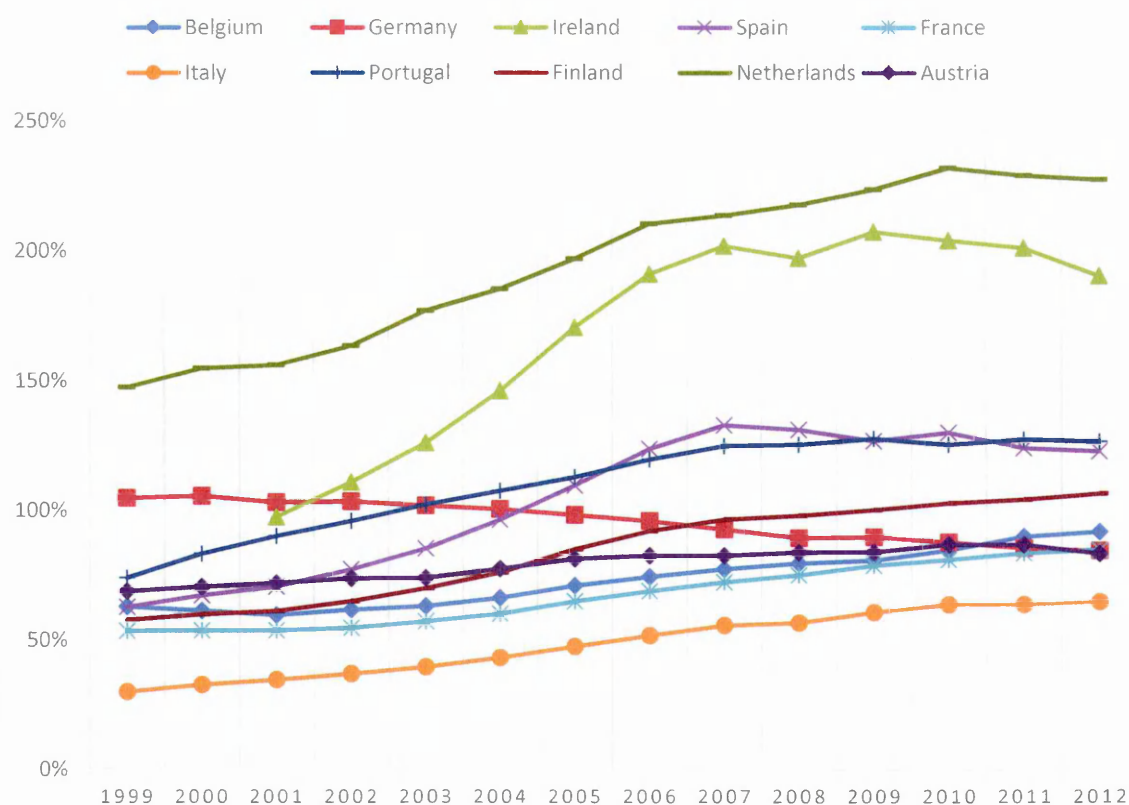
$$\pi = I + Df - BDf - Sw + C\pi \quad (4)$$

Both equations, sectoral balances approach and the profit equation, can be directly derived from the national accounting identity which states that GDP equals consumption plus investment plus net exports plus government spending. Thus, both equations state an ex-post relationship and do not explain causality, contradictory to Kalecki's assumption (Bagnai, 2012). However, the accounting identity can be used to identify which aspects need to be explained.

Appendix 3 Overview of Documents Analysed

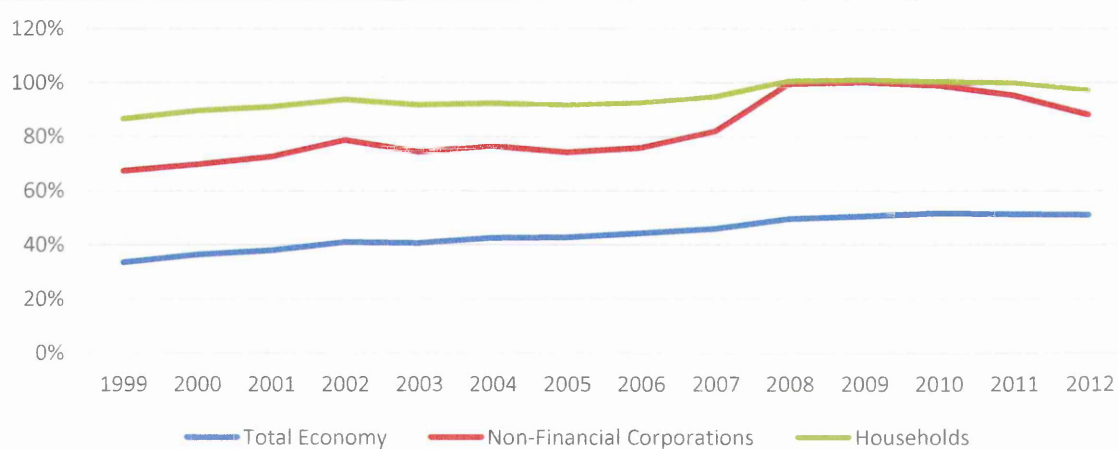
Documents	Amount	Years	Key Search Themes
Analysed			
Stability Programmes of Spain – Bank of Spain	6	2001, 2002, 2003, 2004, 2005, 2006	Fiscal Policies, Strategy, Economic Growth
ECB documents published online	20	ECB press releases online 2002-2006 (search by activity)	Monetary Policy, Strategy, Banking Structure, Financial Stability
Financial Times	10	25/09/2002, 07/03/2003, 29/03/2003, 17/04/2003, 07/07/2004, 26/05/2005, 16/01/2006, 23/10/2006, 25/10/2006, 11/11/2006	Spanish Economic Policy, Spanish Housing Boom/Real Estate Sector, Economic Growth
The Banker	2	01/01/2004, 01/06/2006	
The Main Wire	14	23/03/2004, 05/04/2004, 29/06/2004, 05/07/2004, 22/03/2005, 11/05/2005, 13/05/2005, 22/06/2005, 06/07/2005, 22/10/2005, 15/11/2005, 05/01/2006	Governor of the Bank of Spain, ECB, Governing Council, Economic Growth, Housing
Additional Newspapers included: Agence France Presse, Associated Press, Daily Mail, Daily Telegraph, Irish Times, New York Times, Newsweek, Sunday Times, Sunday Tribune, The Scotsman, United Press International, Washington Post	25	2002-2006	Spanish Economic Policy, Spanish Housing Bubble/Real Estate Sector, Economic Growth

Appendix 4 Gross Debt to Income of Households



Source: Eurostat (2015)

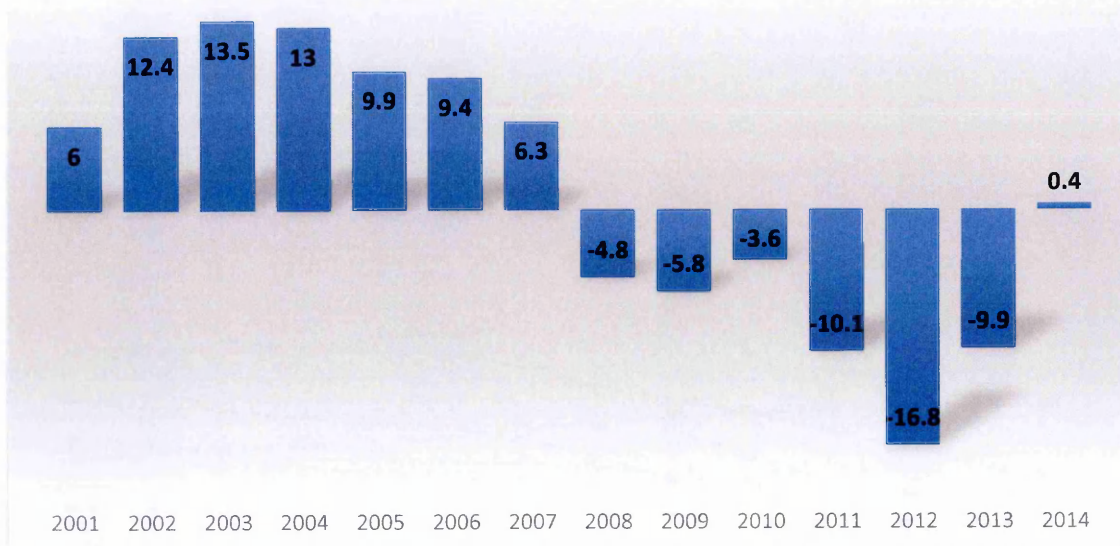
Appendix 5 Financial Leverage Ratios



Source: Author's calculation based on Eurostat (2015)⁷

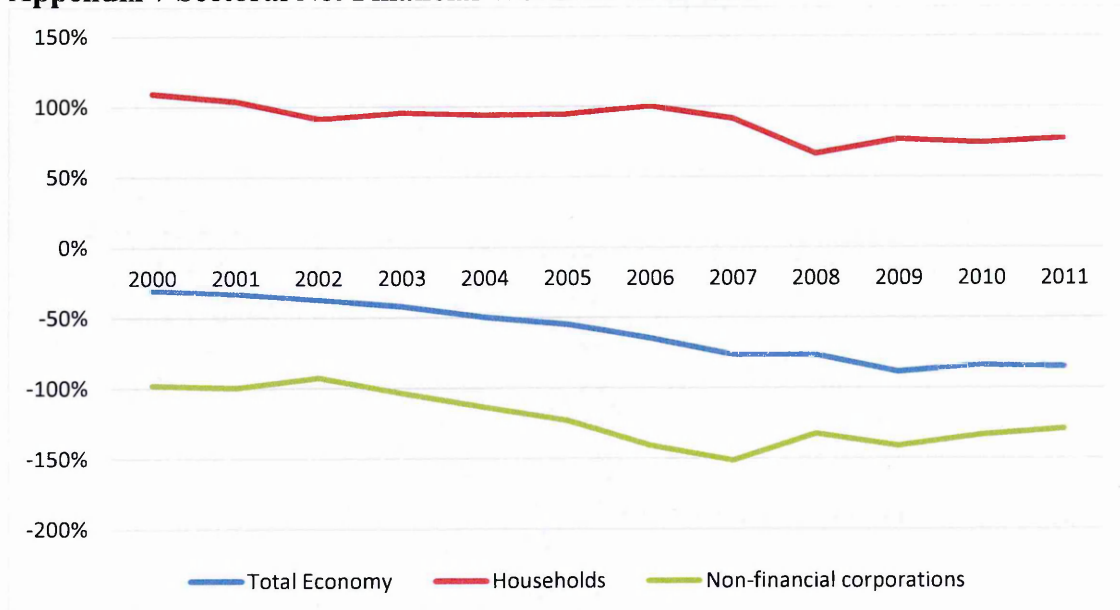
⁷ Debt = loans and securities other than shares, Assets = currency, deposits, securities other than share, loans, shares and other equity, Insurance and technical reserves and other accounts (Sotiropoulos et al., 2013)

Appendix 6 House price index, deflated in %, Annual Average Rate of Change



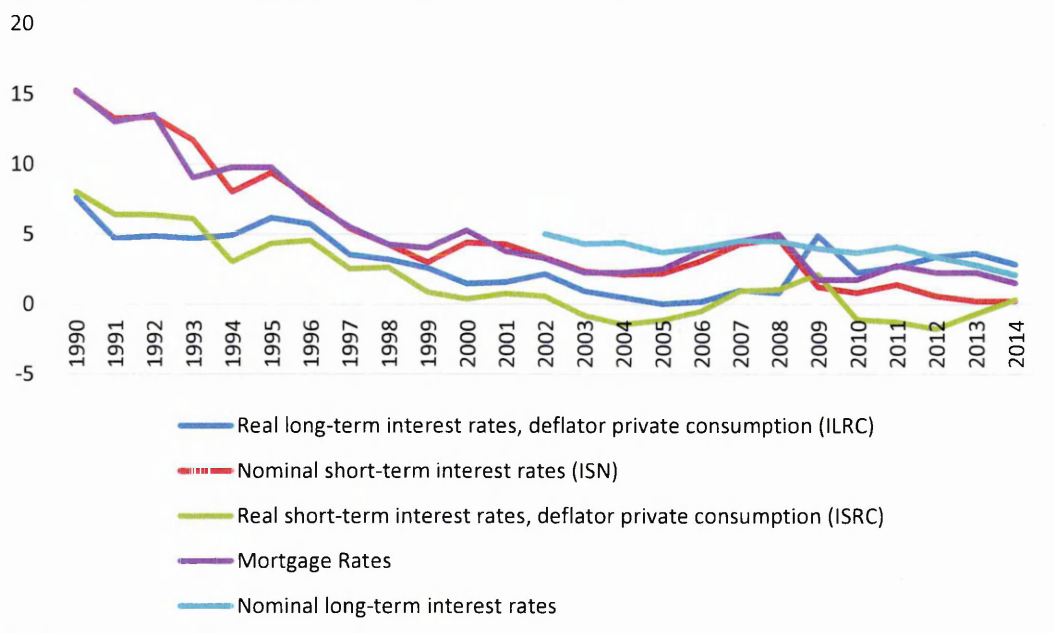
Source: Eurostat (2015)

Appendix 7 Sectoral Net Financial Worth in % of GDP



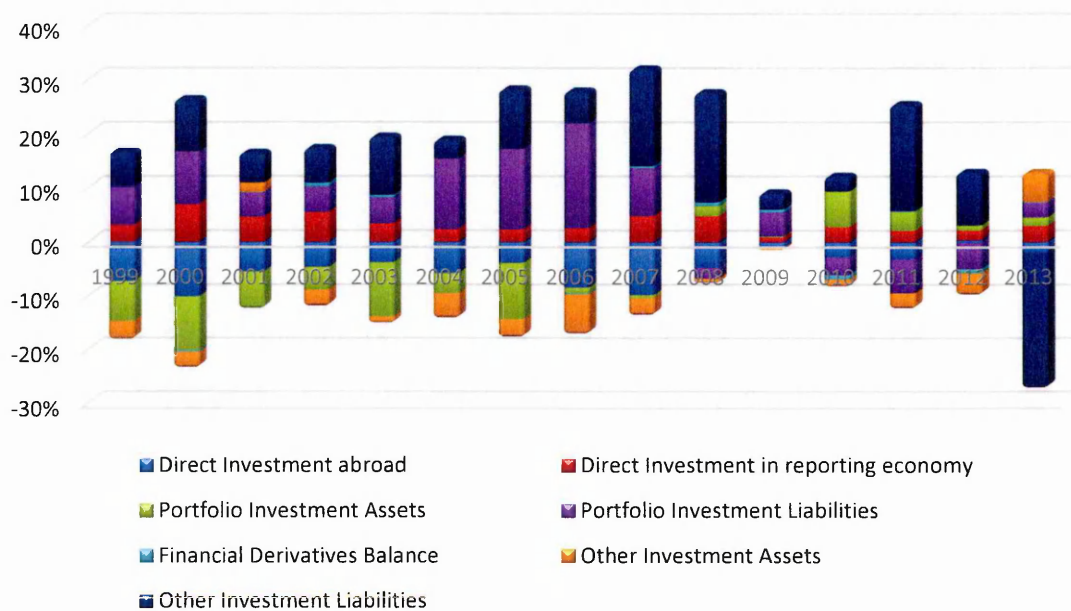
Source: OECD (2015)

Appendix 8 Development of Interest Rates in %



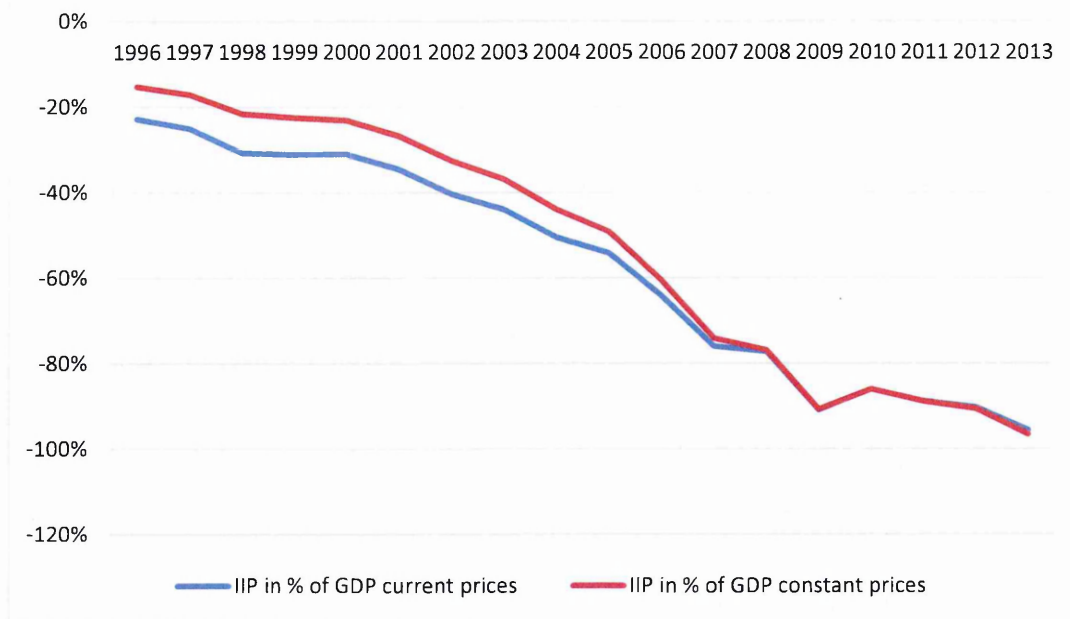
Source: OECD (2015)

Appendix 9 Gross Capital Flows in % of GDP, 1999-2013



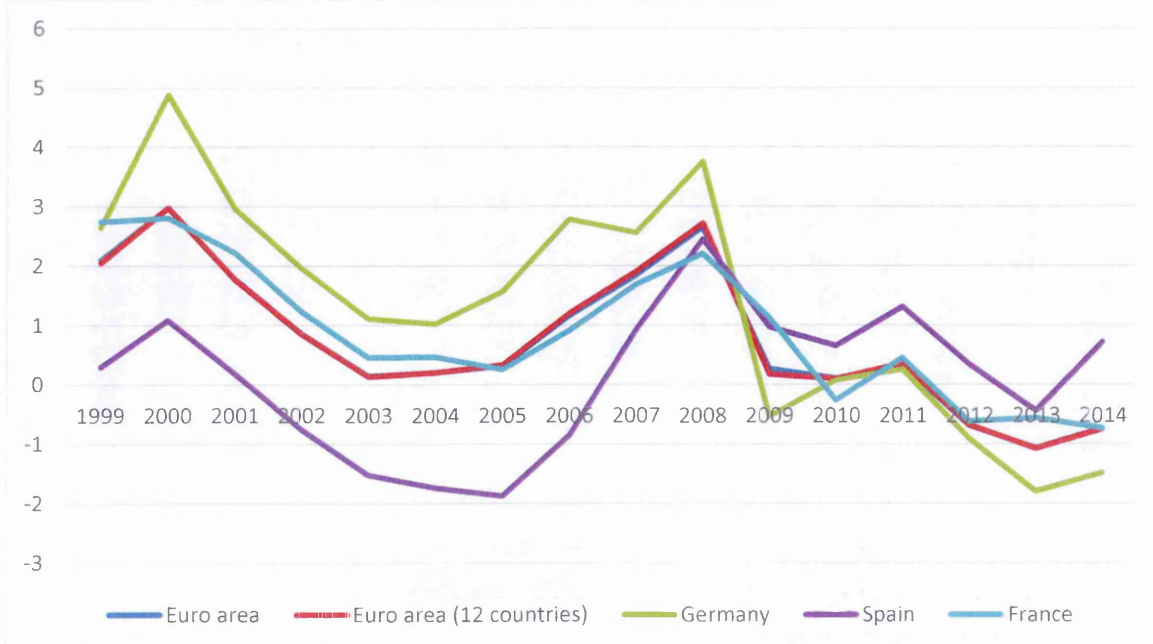
Source: OECD (2015)

Appendix 10 International Investment Position in % of GDP



Source: OECD (2015)

Appendix 11 Euro Area Real Short-term Interest Rates in %



Source: AMECO (2015)

Appendix 12 Motivational Factors in a Minsky Cycle

Minsky Cycle	Economic Development	Fiscal Policy	Monetary Policy	Uncertainty level high/low	Optimism high/low
Displacement					
Boom					
Euphoria					
Profit Taking					
Panic					