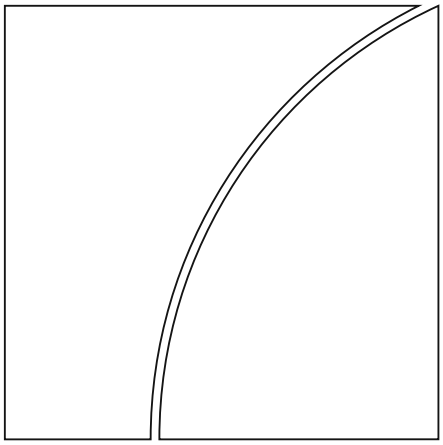

BANK FOR INTERNATIONAL SETTLEMENTS

BIS Working Papers

No 481

Credit booms: implications for the public and the private sector

by Tano Santos, comments by Andrés Velasco

Monetary and Economic Department

January 2015

JEL classification: E44, E51, E60, H30

Keywords: credit boom, liquidity, political economy

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This publication is available on the BIS website (www.bis.org).

ISSN 1020-0959 (print)
ISSN 1682-7678 (online)

Foreword

The 13th BIS Annual Conference took place in Lucerne, Switzerland on 27 June 2014. The event brought together a distinguished group of central bank governors, leading academics and former public officials to exchange views. The focus this year was on debt. The papers presented at the conference and the discussants' comments are released as BIS Working Papers 479 to 482.

BIS Papers No 80 contains the opening address by Jaime Caruana (General Manager, BIS) and a keynote address by Benjamin Friedman (Harvard University) and remarks by Stephen King (HSBC) and Masaaki Shirakawa (Aoyama Gakuin University).

Credit booms: implications for the public and the private sector

Tano Santos[1]

Abstract

The pre-crisis period was characterised by ample liquidity, a credit boom, and low yields in a wide range of asset classes. It was also defined by the accumulation of risks on and off the balance sheets of many financial intermediaries, particularly banks, as well as by a substantial increase in public and private sector debt in some countries. Understanding the relation between liquidity and the excessive accumulation of risks remains a central policy question. How do credit booms affect incentives? In the case of the government sector, credit booms may affect the incentives of different interest groups to agree on policies for reform or fiscal stabilisation. In the case of the private sector, it may change the incentives of originators to produce good assets. Credit booms complicate the evaluation of policies and agents and in addition may facilitate the entrenchment of interest groups and the deterioration of governance institutions.

Keywords: credit boom, liquidity, political economy

JEL classification: E44, E51, E60, H30

[1] Columbia University and NBER.

I thank Raghuram Rajan and Andrès Velasco (the discussants) for many comments and suggestions. Many of the ideas in this piece spring from joint research with Patrick Bolton, Jesús Fernández-Villaverde, Luis Garicano and Jose Scheinkman. I thank Tomasz Piskorski for many conversations on the issue of mortgage origination standards during the period preceding the crisis. Finally I thank Hyun Shin for the invitation to write this piece for the BIS.

1. Introduction

The pre-crisis period was characterised by ample liquidity and low yields in a wide range of asset classes. It was also defined by the accumulation of risks on and off the balance sheets of many financial intermediaries, particularly banks, as well as by a substantial increase in public and private sector debt in some countries. These two observations are not unrelated, and understanding the relation between liquidity and the excessive accumulation of risks remains a central policy question. For instance, Shin (2013) speaks of a second phase of "global liquidity" that started around 2010 and that is now centred around debt markets, mostly emerging market debt securities.

Liquidity is a key but elusive concept in financial economics. Whether a market is liquid depends on the portfolio decisions of a myriad of agents in the economy. For instance, agents may coordinate and conduct treasury operations in a particular market, which then becomes liquid by virtue of those decisions. This encourages others to conduct their treasury operations in the same market, and so on. This view of liquidity is incomplete, though, as it does not pin down which market is to become the focus of these treasury activities.

Assets with volatile and difficult to model payoffs seem poorly suited to trading in liquid markets, such as those described in the previous paragraph. The reason is that such assets may elicit information acquisition on the part of participants with better information acquisition technologies, which immediately introduces adverse selection issues in that market, the opposite of liquidity. Symmetrical information about payoffs thus seems to be a precondition for liquid markets. As Dang, Gorton and Holmstrom (2012) emphasise,[2] this symmetry is often easier to achieve through shared ignorance rather than by having all relevant parties acquire the same amount of information, which is socially wasteful. Securities that have information-insensitive payoffs would seem to be naturally liquid. The cost of opacity is that it may push risks to the tail, increasing the potential for systemic risk crises and thus the need for monitoring.[3] Still, if financial markets are going to perform their central allocative mission, (some) market participants must collect information, screen alternative projects to make sure asset originators produce good assets and monitor agents to prevent incompetence or malfeasance. Financial markets are thus permanently on a tenuous balance, living uneasily between the need for opacity to induce liquidity and the knowledge required to allocate capital properly.

The present paper is concerned with the economic impact of a breakdown of this tenuous equilibrium between opacity and knowledge acquisition. Specifically I am interested in situations in which a positive exogenous shock to the pool of uninformed funds, funds in the hands of uninformed investors, affects the liquidity of asset markets, the incentives to collect information and the incentives of the

[2] See also Bengt Holmstrom's 2012 Econometric Society Presidential Address.

[3] See also Rajan (2008), in particular Chapter 8, for a discussion on the issue of tail risk.

issuers of these assets for good origination at the margin, inducing the type of tail risk discussed above.[4]

This positive shock to the pool of uninformed funds can occur for several reasons. For instance, it may be that some countries are running large running current account surpluses that need to be refinanced in assets denominated in foreign currency, as in the savings glut hypothesis (Bernanke (2005)), or that non-financial firms increase their cash balances fearing liquidity shortages (Pozsar (2011)). In the first case, a foreign investor is at an informational disadvantage relative to local investors and may prefer to invest in, say, sovereign debt or securities issued by agencies that benefit from some type of government guarantee.[5] In the second, corporate treasurers may seek deposit-like instruments, the banking sector being unable to supply enough deposits to satisfy the demand, and invest in money market funds, asset-backed securities or commercial paper.

Clearly flows of uninformed funds have different effects depending on which market absorbs these flows. If uninformed funds flow to sovereign debt markets, one should be naturally concerned with the impact this flow may have on the political economy games that determine fiscal sustainability and thus the (long-run) quality of the debt. For instance, consider the situation in which a country is in an unsustainable fiscal dynamic and needs to adopt a fiscal stabilisation policy. Political economists, such as Alesina and Drazen (1991), model the adoption of these stabilisation policies as an attrition game between parties who share differently on the benefits and costs of fiscal stabilisation. How does a sudden inflow of uninformed funds affect the attrition game? If this inflow translates into lower yields for government debt, then easier credit can create the conditions for some budget-breaking and relieve the constraints that prevent agreement between different interest groups, perhaps by sharing some of the costs of reform with future generations.[6] But it may also be true that the different parties will feel less pressure to agree on a particular policy and be tempted to "kick the can down the road" by borrowing and so letting future generations deal with the consequences of today's inaction.[7] Liquidity inflows can thus have ambiguous effects on the political

[4] As in Diamond and Dybvig (1983) and Gorton and Pennachi (1990), to name two classic references, I assume the existence of debt and don't consider why it arises as a form of optimal contract.

[5] Recently there has been a remarkable amount of work on the topic of global liquidity, starting with the "Landau Report" (BIS (2011)). See also Borio, McCauley and McGuire (2011), Bruno and Shin (2013), Caruana (2013a and b), Chung, Lee, Louikoinova, Park and Shin (2013), Chen, Liu, Maechler, Marsh, Saksonovs and Shin (2012), Eickmeier, Gambacorta and Hoffman (2013), and Shin (2011, 2012 and 2013).

[6] This point has been emphasised by Tompson (2009, p 41): "[m]any structural reforms, particularly pension reforms, involve up-front fiscal costs, while the benefits are realized only later. A severe fiscal squeeze may therefore make reform harder to adopt and implement."

[7] Obviously, deficits and debt accumulation, as well as stabilisation, can arise for other reasons. For instance, in Persson and Svensson (1989), Tabellini and Alesina (1990), and Alesina and Tabellini (1990) deficits and debt accumulation arise today as a way of tying the hands of future majorities with preferences different to those of the current majority. Velasco (1999) proposes a model of an economy dominated by several influential interest groups, each of which benefits from a particular kind of government spending. Central fiscal authorities are assumed to be weak and these interest groups can influence them to direct transfers to desired targets. A problem of the commons obtains, and budget deficits and debt arise as the outcome of a political economy game. But as debt grows and the government becomes poorer, the gains associated with stabilisation become more attractive.

economy of fiscal stabilisation and structural reforms.[8] The political economy of policy reform non-adoption and delay is large.[9] The contribution here is to explore some of the political economy mechanisms in the context of credit booms in some detail as well as to offer some specific examples.

This is not the only channel through which large inflows of uninformed funds can affect the political economy of debt sustainability. In particular, the asset appreciation that accompanies the inflows of uninformed funds may complicate the inference that agents draw regarding, for example, the quality of policymakers and politicians. In turn, these actors, firmly in power due to the prosperity that increasing leverage typically brings, may actually take actions to entrench themselves in power and weaken governance institutions. This channel acts as a sort of political economy multiplier: it adds to the potential problems of delay discussed above by making it more challenging to address the problems, not only because of the higher level of debt but because the institutional environment in which to implement the reform deteriorates perhaps irretrievably. All this requires, of course, some form of bounded rationality on the part of voters or some costs of monitoring that lead to a lower monitoring intensity during booms. In Section 2, I build on Fernández-Villaverde, Garicano and Santos (2013) to explore these ideas in some detail and offer examples.

If instead uninformed funds flow into markets where private sector securities are traded, they may change the incentives to originate assets of a given quality. This may depend on how precisely this flow of uninformed funds alters the distribution of informed and uninformed capital, which is the mechanism explored in Bolton, Santos and Scheinkman (2014). To gain some insight into this effect, consider a situation where there is a sudden increase in the pool of uninformed funds flowing into markets for private sector securities, such as mortgages, corporate loans, and other securities. If the supply cannot respond immediately, a sudden increase in the pool of uninformed funds may result in an increase in the price of these securities and a drop in yields. The flow of uninformed funds into particular markets crowds out existing capital in those markets. As a result this existing capital may migrate to other markets in search of higher yields and, in the process, managers of that capital will acquire information about these other markets, which improves allocative efficiency. It follows that the inflow of uninformed funds may be beneficial in that it encourages information acquisition on the part of some agents in the economy and potentially may lead to better origination incentives. This is the standard competitive force operating in financial markets.[10]

But consider now a situation where generating those higher yields through information acquisition becomes increasingly difficult as the investment opportunity set displays decreasing returns to scale. In this case, the continuous inflow of

[8] Current research with Jesús Fernández-Villaverde focuses on the construction of models of fiscal stabilisation in the presence of unsustainable social security arrangements. This research explicitly considers the role of liquidity shocks in the political economy game played by successive generations to reform social security arrangements and stabilise debt dynamics.

[9] For a textbook treatment of this issue, see Drazen (2000, particularly Chapter 10).

[10] Rajan and Zingales (2003) emphasise the role of financial development in fostering product market competition and guaranteeing entry. Here competition is between financial intermediaries.

uninformed funds will compress the spreads across markets, in the process undoing incentives for good origination – for what is the point of originating a good asset when the market pays the same for a good or a bad asset? What arises is thus a theory where the impact of a positive shock in the pool of uninformed funds can have strong non-linear effects on the incentives to originate good assets, whether mortgages, auto loans, real estate loans or sovereign debt. A small amount of uninformed funds may be good because it pushes other, more agile capital, into alternative markets, producing in the process information about new investment opportunities. But too much of it destroys incentives for good origination.

The theory advanced in this research agenda also informs the increase in leverage of informed financial intermediaries. Indeed, managers of uninformed funds do not necessarily invest the funds themselves. They typically rely on intermediaries to allocate these funds for them but they also restrict the class of assets in which these managers can invest. As a result many of these funds find their way, for example, into repo markets, where they provide cheap leverage for many financial intermediaries. This is a double-edged sword. On the one hand, the existence of these markets allows for additional funds to potentially flow into the hands of informed investors, increasing the amount of funds bundled with information. On the other hand, the increased leverage is a source of increased fragility. In sum, variations in liquidity affect the joint distribution of knowledge and capital and, with that, the incentives to originate good or bad assets.

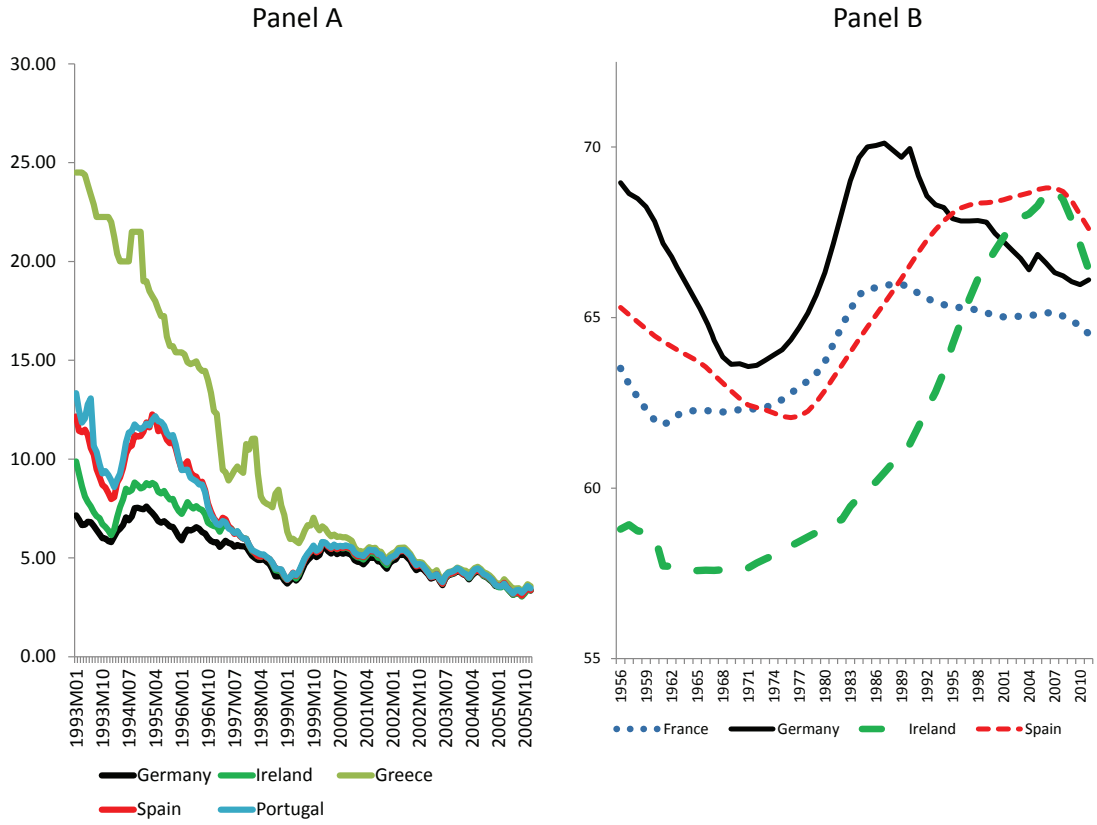
There are two questions that remain to be addressed, although not in this paper. First, what are the causes of these liquidity surges? One possibility is that they are policy-induced, when countries repress internal demand and adopt growth models based on exports or perhaps reform their pensions system out of demographic concerns and implicitly encourage more saving by households. Another reason may be precautionary motives by some sectors. For instance, it may be that households faced with some exogenous shock, such as the migration of jobs to another country, react by increasing savings or that the non-financial corporate sector, faced with permanent financial crises, saves in order to avoid financial constraints.

The second question concerns the recipients of these liquidity flows. Why are some countries more susceptible than others to these liquidity booms? Much has been made of the exorbitant privilege enjoyed by the United States, the benefit attached to issuing assets denominated in the reserve currency. This, of course, does not explain why, for instance, Spain was the recipient of large capital inflows. Clearly cross-sectional differences in the marginal productivity of capital must be a starting point but there is more to it than that. It may be that Spain was particularly adept at attracting these funds given its large banking sector and big international banks. Another possibility is that capital flowed into Spain precisely because there were some governance issues that international investors were not fully aware of. As already mentioned, the causality advanced in this paper is the opposite: it is large liquidity flows that cause institutional deterioration.[11]

[11] Tornell, Sachs and Velasco (1996), in studying the lessons of the Mexican peso crisis, identify three factors that explain whether a country is vulnerable to a financial crisis: A large appreciation of the real exchange rate, a weak banking system, and low levels of foreign exchange reserves; these lessons echo in the recent euro zone crisis.

In the rest of the paper, I explore these ideas and give several examples related to the euro zone. Clearly, there are many episodes of capital inflows, lending booms and asset inflation such as those experienced by Latin America in the late 1970s and 1980s, emerging Asia in the run-up to the 1997 crisis and many emerging nations in the early 2000s and again after 2010.[12] These episodes are thus nothing new. The next section is concerned with the impact on policy decisions of inflows of uninformed liquidity, emphasising situations where these inflows have negatively affected political games. Clearly access to liquidity has many benefits but here I want to focus on the negative effects of "too much" liquidity. I use several examples from the euro zone to illustrate these ideas. Section 3 is concerned with the effects of uninformed liquidity on the private sector and the focus is on the potentially negative effects of too much liquidity on the incentives for good origination. Section 4 concludes.

Exogenous factors: yields and population dynamics — Graph 1



Panel A: Government bonds, 10-year yields. Monthly: 1993 M01–2005 M12. Source: Eurostat.

Panel B: Percentage of the population between 15 and 64 years of age. Annual data: 1956–2011. Source: OECD.

[12] A thorough description of these episodes can be found, for example, in Gourinchas, Valdès and Landerretche (2001). In addition, the recent surge of liquidity flowing into emerging markets has led some to reconsider the case for capital controls in the light of recent experience. See for instance Ostry, Ghosh, Habermeier, Chamon, Qureshi and Reinhardt (2010).

2. Liquidity and the political economy of reform

As mentioned in the introduction, the years preceding the financial crisis were characterised by ample liquidity and the accumulation of risk, both in public and private balance sheets. In this section, I discuss the impact of this liquidity surge on the politics of structural reform. In addition I explore the political economy multiplier discussed in the introduction, the deterioration of governance institutions that accompanies many of the episodes of excessive liquidity. The examples are all taken from the euro zone, where some countries, particularly those in the periphery, experienced extremely easy credit conditions. Fernández-Villaverde, Garicano and Santos (2013) attribute these easy conditions to the euro and indeed many have argued that the elimination of exchange rate risk and the completion of capital market integration across the euro zone led to strong capital flows from the core to the periphery.[13] The euro zone is an interesting laboratory for these ideas precisely because many expected that the euro would address many of the political economy problems that were delaying reform. For instance, Lucas Papademos, then governor of the Bank of Greece, said the following at a conference in 2001 to mark Greece's entry into the euro:

> [A]fter entry into the euro area, the Bank of Greece will be implementing the single monetary policy decided by the Governing Council of the European Central Bank and it will certainly be impossible to improve the economy's international competitiveness by changing the exchange rate of our new currency, the euro. The objectives of higher employment and output growth will therefore have to be pursued through structural reforms and fiscal measures aimed at enhancing international competitiveness by increasing productivity, improving the quality of Greek goods and services and securing price stability.

Mr Papademos was thus voicing the hope of many in the European periphery that the euro was to be the means for a transformation from one variety of capitalism, one based on a demand-based growth strategy coupled with occasional devaluations, to another based on tight controls over unit labour costs, preferably because of productivity growth, and stable exports. This of course had deep implications for the evolution of the euro experiment: whereas many of the discussions on the viability of the euro were focused on asymmetric business cycle shocks, the relevant asymmetry for many was that of policies in response to shocks.[14] These views are implicitly predicated on the idea that fixed exchange rate mechanisms act as a disciplining device. Tornell and Velasco (2000) argue that this is not necessarily the case. The reason is that, although it is true that under fixed rates bad behaviour today leads to punishment tomorrow, under flexible rates unsound fiscal policies manifest themselves immediately through movements in the

[13] For instance Eichengreen (2007, p 375) states that "[t]he advent of the single currency led to explosive growth and consolidation of European securities markets ... No longer worried by the risk of currency fluctuations between member states, investors began searching out attractive corporate debt securities regardless of the national market in which they were issued."

[14] For an introduction to the varieties of capitalism literature, see Hall and Soskice (2001). For an application of this approach to the euro zone crisis, see Hall (2012).

exchange rate. In this case bad behaviour today leads to punishment today, which may be welfare-enhancing.

Others, of course, saw the euro as a means to achieving an elusive fiscal stabilisation, even in the "core" countries. For instance, Jean-Luc Dehaene, the Belgian prime minister (1992–99) said in 1992 that[15] "[T]he consolidation of public finances is an indispensable element of the integration of Belgium in the European Monetary Union. Our country, that lies at the heart of Europe, and whose economy is orientated towards foreign countries and especially towards Europe, our country has to be in the first group of countries that will take part in the European Monetary Union before the end of this century." The euro was thus seen by many as the panacea that would address long-standing policy challenges, and this view was based on the euro as a constraint or as a commitment device.

Fernández-Villaverde, Garicano and Santos (2013) argue that the opposite happened, at least until the crisis. For the purposes of this piece, whether the euro is the primary reason for the non-adoption of policy reform or simply the result of global liquidity conditions that would have resulted in the same outcome even in the absence of monetary union is not key. It is enough to accept the evident fact that countries such as Portugal, Greece and Spain experienced remarkable current account deficits and extremely low yields on their sovereign debt. I first discuss the implications for reform and then turn to the issue of the political economy multiplier. I finish this section with a discussion of Germany, which tackled many of the reforms that were delayed in other member nations. As Blanchard (2006) presciently mentioned, Germany offered a path for many countries suffering similar problems to the ones Germany experienced at the turn of the century.

A. Liquidity inflows, attrition games and fiscal stabilisation

First, consider the case where these uninformed funds flow into sovereign debt to fund government expenditures. Assume that the issuing sovereign, a small open economy, is facing some unsustainable fiscal dynamics that can only be resolved through some tough political choices. It may be that the country in question has an unsustainable pension system or an overly generous unemployment insurance scheme. As political economists have emphasised (see Alesina and Drazen (1991), Casella and Eichengreen (1996), Svensson (1999), among others) fiscal stabilisation can be thought of as an attrition game between different interest groups who share differently on the benefits of fiscal stabilisation. A sudden inflow of uninformed funds and a drop, say, in the interest rate at which the sovereign funds itself fundamentally alters the nature of the attrition game played by the different parties, delaying fiscal stabilisation and potentially increasing the probability of a sudden stop that may produce an even more painful stabilisation down the road. Why would politicians reform an unsustainable pension system when the world is happy to fund the government at ever lower rates?

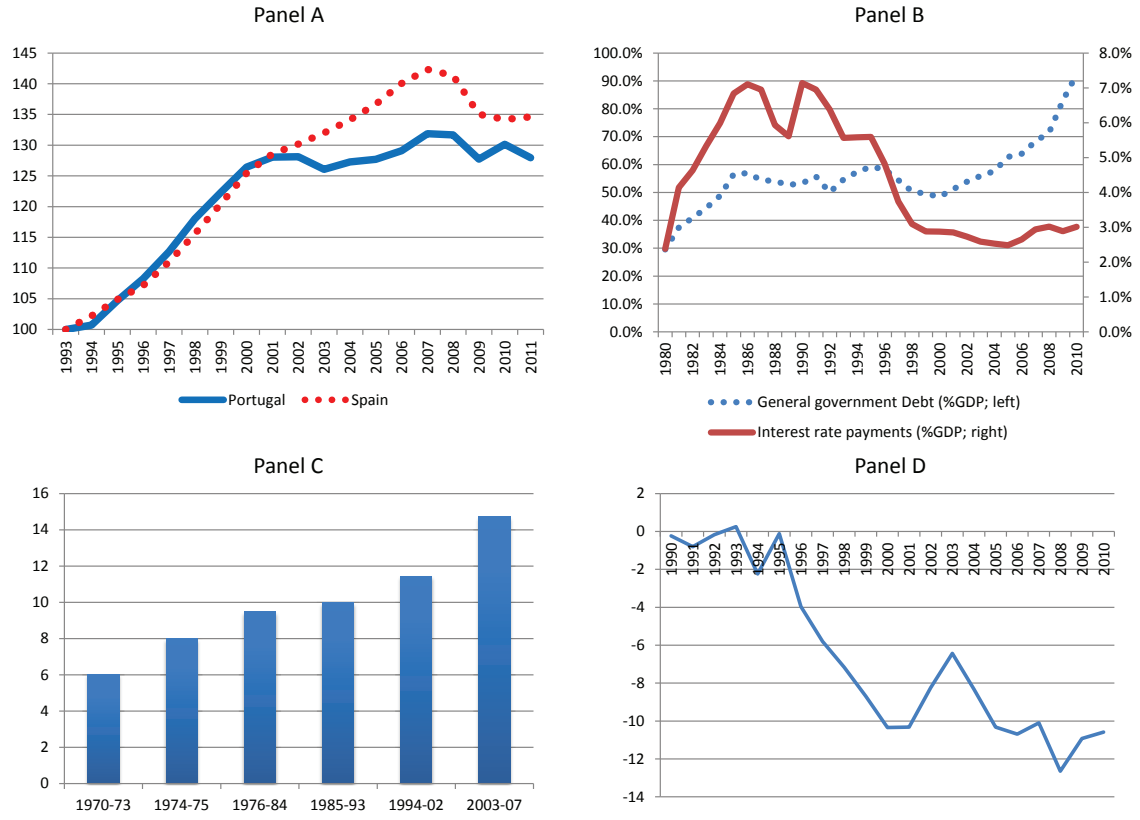
As is well known, a critical development in financial markets prior to the financial crisis was the remarkable drop in sovereign yields across the euro zone

[15] Quoted in Wenzelburger (2011), who also offers a useful primer on the political economy of fiscal consolidation with an eye on the euro crisis.

(see Graph 1, panel A). In addition, spreads with respect to the reference bond in Europe, the German bund, all but disappeared. As Fernández-Villaverde, Garicano and Santos (2013) argue, this had a dramatic effect in dampening the drive for reform in many of the euro zone countries. Consider, for instance, the case of Portugal.

Portugal

Graph 2



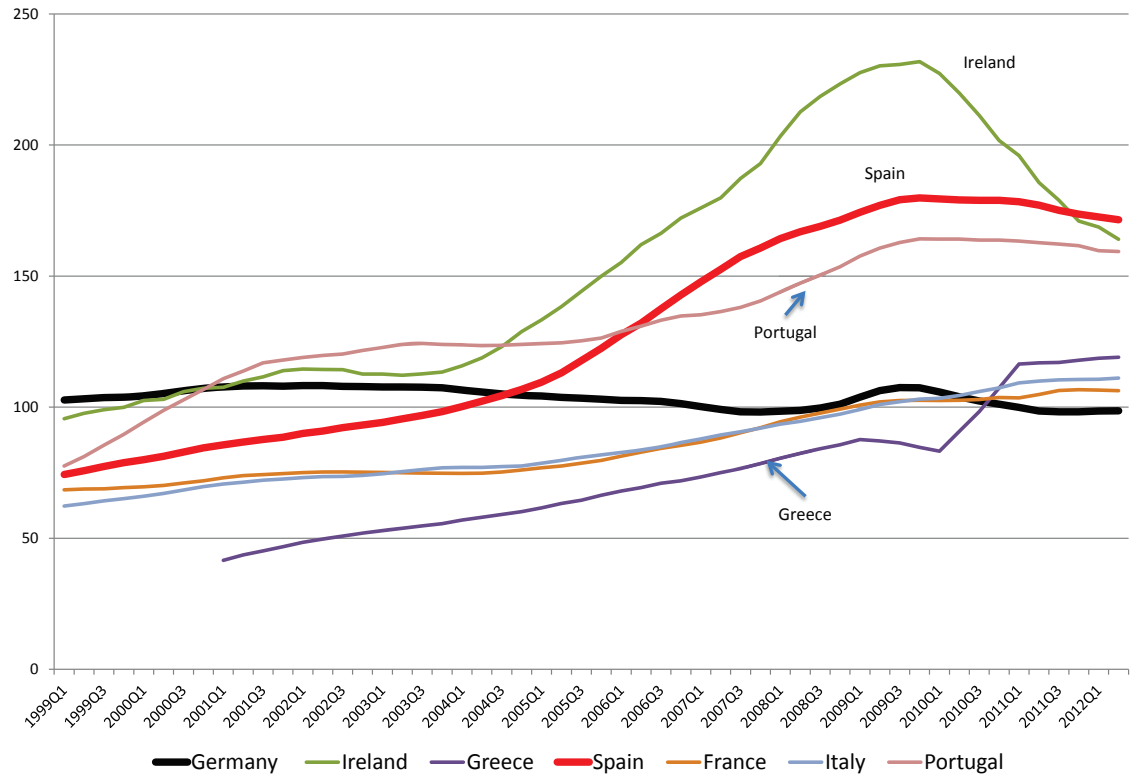
Panel A: Real GDP per capita, Portugal vs Spain (dotted line). Annual: 1993–2011. 1993=100 Source: OECD.

Panel B: General government debt (dotted line; left axis) and interest rate payments (right axis) as a percentage of GDP. Data source: C Marinheiro, "The sustainability of Portuguese fiscal policy from a historical perspective", *Empirica*, vol 33, no 2–3, 2006, pp 155–79. Annual: 1980–2010.

Panel C: Social Security Spending as a percentage of GDP; average over selected sample periods. Data source: A Pereira and J Andraz, *Social Security and Economic Performance in Portugal*, 2011.

Panel D: Current account deficit as a percentage of GDP. Data source: IMF.

Private lending Graph 3



Loans to other residents granted by monetary financial institutions as a percentage of GDP Quarterly: Q1 1999–Q2 2012.

Source: Eurostat.

After a long period of sustained growth following its accession to European institutions, the Portuguese economy stagnated dramatically at the turn of the century. Graph 2 shows the evolution of real GDP per capita in Portugal and Spain from 1993 to 2011 (normalised by the 1993 figure). As can be seen, Spain and Portugal closely tracked each other until the turn of the century, when both economies diverged markedly. The reasons for this stagnation are many. Both Santos Pereira and Lains (2010) and Blanchard (2006) emphasise the dramatic productivity slowdown that Portugal experienced during those years. Santos Pereira and Lains argue that the investment phase hit the threshold of diminishing returns.[16] In addition, growth was also hindered by a difficult adjustment to the euro. Indeed, the investment boom that preceded euro membership led to an output boom and large current account deficits. Still, the slump did not result in a

[16] Eichengreen (2007) argues that the slowdown in the European economy in the 1970s and 1980s is due to the exhaustion of the extensive growth model of Europe after the World War II, one that emphasised capital accumulation and increased labour participation. It may have been that this extensive pattern lasted longer in Portugal, which started its catch-up phase later than the European core.

correction of the large current account deficit. The reasons are twofold. First the boom period led to upward pressure on wages, which led to overvaluation; this combined with downward nominal rigidities to maintain the large current account deficits Portugal had experienced since the mid-1990s (see Graph 2, panel D).

In addition, and more tellingly, as Kang and Shambaugh (2013, 2014) emphasise, the distinction between trade and current account balance is an important one when it comes to Portugal. They point out that, in the case of Portugal (and of Greece as well), trade deficits have exceeded 5% of GDP since the early 1980s, but that the current account has been close to balance on many occasions due to official transfers and remittances. But these transfers have declined sharply since the mid-1990s: Over this period, transfers declined by about 6% of GDP and net income payments increased by 4.5%, which accounts for the entire deterioration of the current account over this period. The drop in private transfers is related to Portugal going from being an emigrant nation to attracting inward migrants from Brazil and eastern Europe. Moreover, as the availability of cheap credit increased, there was less need for transfers from Portuguese citizens living abroad (Kang and Shambaugh (2013, page 13)). Declining transfers should have led to a reduction in internal demand and a closing trade deficit. Instead, loans replaced transfers, which maintained living standards in Portugal and resulted in growing current account deficits. Indeed, commentators on the Portuguese economic situation have emphasised the accumulation of sovereign debt during this period, but private lending picked up significantly as well. Graph 3 shows the lending to domestic households and firms by monetary financial institutions for 1999–2012. As can be seen, Portugal is behind only Ireland and Spain, the countries that experienced the largest private lending booms. In sum, the Portuguese economy borrowed its way out of adjustment and competitive disinflation during the early years of the euro.

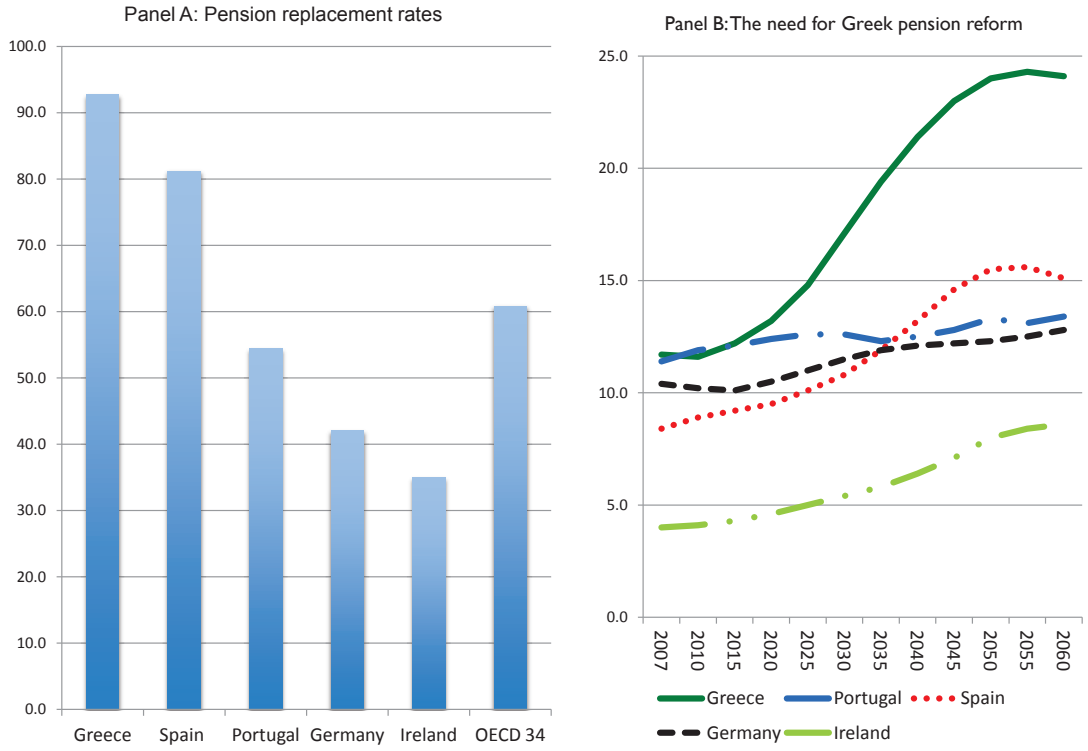
Clearly Portugal, in the absence of the structural reforms that could improve productivity growth and borrowing from abroad, faced a long period of stagnation and wage disinflation to restore competitiveness. As Fernández-Villaverde, Garicano and Santos (2013) argue, there was no support for reforms aimed at liberalising product or labour markets.[17] And why should any have been expected? The considerable drop in interest rates allowed Portugal to delay the painful adjustment that the economy needed.

Panel B of Graph 2 shows the evolution of debt and debt servicing costs as percentages of GDP. During the long slump, Portugal saw a noticeable increase in the level of debt but no comparable increase can be observed in interest payments. This allowed Portugal to increase social transfers (as a percentage of GDP), which went from an average of 11.4% in the period 1994–2002 to 14.7% in the period 2003–07 (see Graph 2, panel C).

[17] Blanchard (2006), although sounding a sceptical note about the short-run effectiveness of many of them, offers several proposals, from reducing informality to improving licensing requirements as well as labour market reform to improve the quality of worker-firm matches. Eichengreen (2007, Table 9.6) shows the level of employment protection for several European countries for the period 1960–2003. Portugal is the country where the level of employment protection grew the most, albeit from a very small initial level. By the late 1980s, Portugal had the strongest labour protection laws in Europe, a situation that still obtained when the slump set in.

Greece

Graph 4



Panel A: Gross pension replacement rates: average earners. Source: OECD, *Pensions at a Glance*, 2011. Panel B: Projected public pension expenditure as a share of GDP.

Source: OECD.

The Greek case is also illustrative. As in the case of Portugal, it also ran large current account deficits. In the case of Greece, however, the large external imbalances were exclusively driven by the public sector; as seen in Graph 3, private sector borrowing was not the problem here. Among the many challenges in the public sector, none is more salient than pension reform, which has been recognised as essential in Greece for more than two decades.[18] Several attempts have been made at reforming the Greek public pension system.

As Featherstone (2003, p 8) writes, the "first serious moves for reform came in 1990–92 when Greek public finances were in deep crisis and the EMU tests were being established. Fiscal laxity imperilled Greece's European membership." After Constantine Mitsotakis's New Democracy government was elected in 1990, a renewed impulse for pension reform was initiated. Timid reforms such as the Souflias Law (named after the National Economy Minister, Georgios Souflias) left

[18] This description of the several attempts at pension reform in Greece is taken from Featherstone (2005).

structural problems untouched and the government promised a new round of reforms to tackle the pension system's long-term problems. A second attempt under Souflias's successor, Stefanos Manos, was met with widespread opposition and once again many of the structural problems of the system went unaddressed. As Lutz (2002) concludes in his survey of Greek pension reform attempts during the 1990s:

> "Despite these efforts, the 1990–92 measures were of a stopgap nature. Pensions continued to be overly generous compared with the contribution in actuarial terms, even for new labour market entrants. Moreover, the supposed surplus of the pension system was more than accounted for by budget transfers, and pension funds collected earmarked taxes that often had no clear economic link to specific funds, and, moreover, contributed to a fragmented tax system."

The electoral defeat of the Mitsotakis government in 1993 brought back Andreas Papandreou and pension reform was shelved until the new prime minister, Costas Simitis, brought a renewed sense of urgency to the issue after the 1996 election. Several proposals were floated during this period. Perhaps the most ambitious was the one put forward in 2001 by the labour minister, Tassos Yiannitsis. This proposal contemplated several far-reaching measures: the retirement age was to be raised; the required insurance period for a seniority pension increased; the replacement rate reduced to 60% of reference earnings; the minimum pension raised but means-tested; and the lower retirement age for mothers of younger children replaced. But the proposals were withdrawn in the face of massive protests. A new reform package sponsored by the new minister, Dimitris Reppas, was characterised by creative accounting – no increase in the retirement age, while some would be able to retire early (Featherstone (2005)) and little real reform – sailed through parliament in 2002. The key issues identified by observers as problematic (sustainability, inequality and fragmentation) remained untouched, and the reform impetus started in 1992 was abandoned. As Sakellaropoulos and Angelaki (2007) note, the challenge of pension reform was shelved after the 2002 reform, at least as far as the socialists and trade unions were concerned, although this was not the case for the conservatives. The IMF (2003) summarised the situation best when it said that "the reform largely failed to address the projected rapid rise in public pension expenditure over the longer term. Based on the government's projections, pension expenditures, already relatively high in relation to GDP, would almost double over the coming decades – by far the largest increase projected for any EU country. This is clearly not sustainable. While we recognize that the present circumstances are not conducive to further reforms, the issue needs to be addressed at an early stage – and with sufficiently decisive steps to provide a stable framework for old-age pensions that allocate sufficient minimum incomes to the most needy among the pensioners." Indeed, in terms of public expenditure, the 2002 reform would only have a "substantial" impact in 2040 when pension outlays would diminish from 22.5% of GDP, under the pre-reform system, to 21.4%.

Thus, the year 2001 saw the defeat of the last efforts at thorough pension reform in Greece even when it was considered to be "extremely urgent" (Borsh-Supan and Tinios (2001)). Given a system that was overly generous and on a clearly unsustainable path, Greece's partners "saw her convergence as being partially dependent on pension reform" (Featherstone (2005)). But the European Union, rather than imposing real budget constraints, saw itself at that point as simply "facilitating policy learning".

At the time of the euro's adoption, the Greek pension system was seen as a key problem – pensions consumed 12.1% of output and 52% of total social expenditure, versus 28% on average in the European Union. And yet the poverty risk for pensioners was 2.3 times larger than for the general population, the largest by far in the European Union (where the same figure is 1.2). Moreover, the system was extremely fragmented, with 236 separate funds in 2003 (O'Donnell and Tinios (2003)). This fragmentation not only caused multiple inefficiencies and duplications, but it also had a negative effect on labour mobility, as moving jobs often meant losing previous entitlements. Finally, the system was extremely unequal, with large privileges handed to the liberal professions and public sector employees.

Once Greece had entered the euro zone, Europe's role changed. There was no more pressure for real reform and even fewer constraints on Greece's decisions. Rather, the pressure from the accession negotiations was replaced by "soft" pressure in the form of what the European bureaucracy referred to as the "open method of coordination", based on benchmarking, surveillance, and sharing of best practices, on the assumption that countries wanted to undertake reforms but were constrained by lack of knowledge. In other words, once Greece had dealt with the challenges of the euro accession, and its budget was sustainable thanks to the large fall in interest payments, the reform momentum was gone. As Hall (2012, p 361) states, "successive Greek governments took advantage of lower borrowing costs to expand a public sector closely associated with political patronage and failed to reform a tax system based on non-compliance." The reform that was supposed to be the culmination of the entire process started in 1992 was not taken up again until the recent crisis.

The examples of Portugal and Greece thus seem to suggest that the first phase of the global liquidity surge led to policy non-adoption and a deepening of the imbalances in these two countries, postponing the inevitable reforms and adjustment. The larger topic, of course, is how debt is encouraged or issued to avoid either difficult political choices or intractable developments such as the increasing skill premium. Rajan (2011) and Streeck (2014) have recently made this case forcefully. Rajan (2011, see Chapter 1) for instance argues, in the case of the United States, that the political class encouraged the credit boom to the private sector in order to mask increasing income inequality under the veil of a consumption boom that affected primarily those whose income was falling behind. Streeck (2014, p xiv) states that "[M]oney, ..., served to defuse potentially destabilizing social conflicts, at first by means of inflation, then through increased government borrowing, next through the expansion of private loan markets, and finally (today) through central bank purchases of public debt and bank liabilities." At the heart of these developments is the end in the 1970s of what Eichengreen (2007) has termed the extensive growth era, one based on putting more people to work and basic capital formation, and the difficulties of switching to an intensive growth model based on innovation and productivity growth. Perhaps then this crisis was long in coming for countries such as Portugal, Spain or Greece, which were latecomers to the extensive growth model as compared with the core countries of the euro, which were forced to adjust earlier.

It is important to understand that this thesis is not without controversy. Tompson (2009, p 41), in his large cross-sectional study on the political economy of reform, while acknowledging that exogenous fiscal pressure can be a driver for reform, argues "that one of the most robust findings to emerge from the recent

econometric work on the political economy of structural reform is that sound public finances tend to be associated with more reform." The reason is that debt capacity allows for compensation of interest groups hurt by the reform.[19] Whether the possibility of issuing debt accelerates or delays reforms thus remains an open question.

In the next section, I explore a different potential role for politicians in credit booms, one in which they take actions to entrench themselves and weaken governance institutions.

B. Liquidity inflows, inference and the political economy multiplier

In addition, the inflow of uninformed funds complicates problems of inference. Liquidity affects inference in two different ways. First, when there is uncertainty about the benefits that different interest groups will enjoy in the presence of reform,[20] price distortions driven by the inflow of uninformed funds may bias different groups against the wisdom of these reforms. For instance, it may be that a government is proposing adjustments to the pension system to guarantee the system's long-run sustainability. Opponents of such reforms can point at the lower yields on government debt as proof that there is no day of fiscal reckoning in sight and can thus forcefully argue against the need for any such reforms. Low yields on sovereign debt may thus strengthen the bargaining power of some groups at the expense of others. In addition, there may be behavioural biases associated with updating, so that too much weight is placed on price signals relative to what is prescribed by Bayesian updating; alternatively there may be some costs of monitoring that lead to a lower monitoring intensity during booms.

A second inference problem affects the evaluation of managers and policymakers. First, the asset appreciation and economic boom that inflows produce get politicians re-elected, independently of their merits. But perhaps more harmful is that politicians elected under these circumstances may use such situations as an opportunity to entrench themselves in their positions. Governance institutions are weakened, for instance, when politicians build a client network of political appointees that can deliver future elections, or they change laws to guarantee the political control of otherwise independent agencies and entities. The pernicious effects of such actions are not easily seen during good times, when voters experience the benefits of ample liquidity in the form of employment booms and easy credit conditions. It is here that an important political economy multiplier takes effect as the inflow of uninformed liquidity, in addition to the delay of structural reforms and fiscal stabilisation already discussed, erodes governance institutions, thus limiting the scope for effective policy action when the crisis comes. Finally, it becomes all the more likely that the wrong individual is in place when the crisis breaks.

An interesting example is Spain. As is well known, Spain experienced a remarkable real estate bubble during the early years of the euro. As shown in

[19] See for instance Table 1.A.1.1 in Tompson (2009, p 33). See also Hoj, Galasso, Nicoletti and Dang (2006).

[20] See Fernández and Rodrick (1991) and Rodrick (1993) for an early application of this idea to the problem of trade reform.

Graph 3 the growth in private credit was second only to that in Ireland. As in the cases of Greece and Portugal, Spain ran significant current account deficits, the by-product of the huge investment boom during those years, but – in contrast to the other two countries – the driver of Spain's current account deficits was the private rather than the public sector. The banking system played a critical role in channelling these inflows into real estate development projects, among other activities.[21] One particular feature of the Spanish banking system was to prove crucial in the development of the crisis, namely that a significant proportion of credit was granted by the cajas sector, the notorious private savings and loans institutions that, at their peak, comprised 50% of the Spanish credit market, and that were controlled to a large extent by Spain's local political elites.

The cajas were private entities with ill defined property rights that made them susceptible to political capture. This was because the 1985 law regulating the governance of the cajas enshrined the principle of local political representation in their governance bodies. Both municipal and regional governments made their presence felt. For instance, local governments, which are granted ample powers under Spanish laws, were quick to regulate the cajas to further increase their control over them. The cajas were attractive targets for political capture precisely because they were seen as an instrument for funding the type of real estate project that creates the short-run prosperity that helps local government officials to get re-elected. It is not surprising, therefore, that many of the cajas were run at some point by prominent local or even national politicians, and that the Bank of Spain had to restructure most of these institutions during the crisis.

Liberalisation of the Spanish credit market in the 1980s and 1990s, falling interest rates as well as the loose monetary conditions that accompanied the introduction of the euro all helped the cajas to grow and feed on the real estate bubble. The political capture of the cajas thus came at a very inopportune time and acted as a multiplier in the presence of unprecedented liquidity conditions.

The case of Valencia, a prosperous region in eastern Spain, is a perfect example of this political economy multiplier. Valencia was home to three important financial institutions, Caja del Mediterráneo (CAM), Bancaja, and Banco de Valencia, a century-old bank controlled by Bancaja since the mid-1990s. In 1997, as the cycle of prosperity started rolling in earnest, the regional government took the fateful step of changing the law regulating the cajas to increase the ceiling for political appointees that could serve in their governing bodies. The law opened the way, for the first time, for the direct appointment by the local government of 28% of the board; this, together with municipal appointments accounting for another 28%, made sure that the political appointees on the board handsomely exceeded the original ceiling of 40% mandated in the national 1985 law that was intended to set the governance parameters for the entire cajas sector. The 1997 law was sponsored by the then economics minister of Valencia, José Luis Olivas, who in 2004 stepped down as the region's president to head both Bancaja and Banco de Valencia until their nationalisation during the crisis. Thus, the same politicians who were supposed to supervise this important segment of the Spanish credit market changed the legal environment under which the cajas operated to further assure their political control.

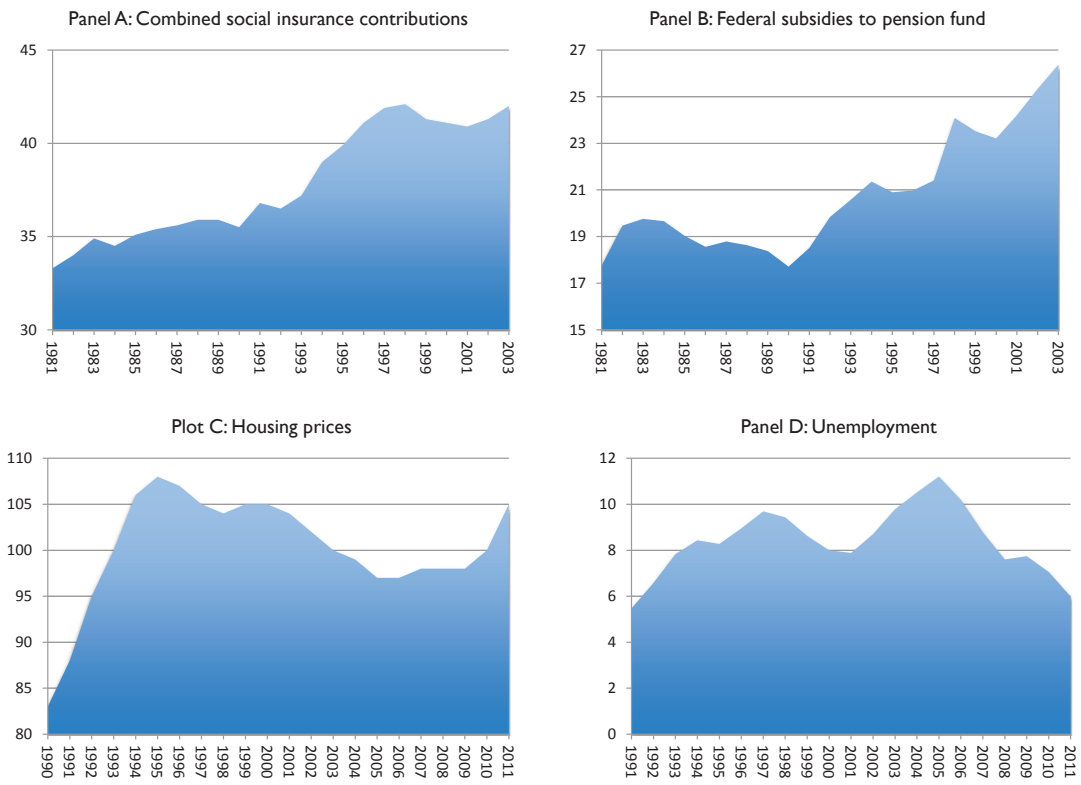
[21] For a more detailed account of the evolution of the Spanish banking system in the years prior to the financial crisis, see Santos (2014).

Moreover, when the crisis hit, the same politicians who had presided over the enormous accumulation of risks in these entities were entrusted with the task of addressing the crisis they themselves had created; Mr Olivas, for instance, stepped down only in 2011, long after the crisis had broken.

It is not surprising, therefore, that Spain could not resolve its banking crisis without recourse to its euro zone partners. The cajas sat at the lethal intersection of politics and the credit market, creating enormous difficulties in the management of the crisis. The Spanish banking crisis only abated when Spain entered into a memorandum of understanding (MoU) with its euro zone partners. Spain was to receive a €100bn credit line and conduct a rigorous stress test under the supervision of the ECB, the European Commission and the IMF. The MoU required Spain to entirely reform its supervision and resolution toolbox; in addition, it effectively terminated the cajas. The handling of the Spanish banking crisis had been transferred to a third party, beyond the country's borders. But, by then, the lethal mix of politics and the cajas left little room for any alternative.

The problems of inference in the Spanish case were further complicated by the fact that the real estate boom had started out with some solid underpinnings. Panel B of Graph 1 shows the proportion of the population between 15 and 64 years of age in four euro zone countries. The working age population showed a significant increase in both Spain and Ireland, precisely the countries that experienced the strongest cycles of real estate appreciation in the euro zone. The baby boom took place in Spain, and in Ireland, about a decade and half later than in other core euro zone countries. For instance, the proportion of the population between 15 and 64 years of age peaked in the mid-1980s in the case of France and Germany, whereas in Ireland and Spain this happened in the mid-2000s. Two opposing effects are associated with demographic booms: there is an increase in the demand for housing and also in the availability of labour supply for the construction sector in producing the new houses needed. Importantly, Spaniards own rather than rent their housing; thus, so the rather loose argument goes, demographic shocks can induce an increase in real estate prices. Spain did indeed have one of the highest ownership rates among large economies on the eve of its euro accession, and the rate increased further after the euro was launched. In addition, Spain had very high levels of youth unemployment during the crisis in the first half of the 1990s, and so the potential for household formation was certainly enormous. There were thus solid reasons to expect some housing appreciation in Spain. This made the governance problems developing in the cajas sector even harder to detect.

Germany Graph 5



Panel A: Combined social insurance contributions (unemployment, health care, and pension) as a percentage of gross wages. Annual: 1981–2003. Source: Streeck and Trampusch (2005), Table 1.

Panel B: Federal subsidies to the pension insurance fund as a percentage of the total revenue of the fund. Annual: 1981–2003. Source: Streeck and Trampusch (2005), Table 2.

Panel C: Residential property prices; all dwellings; index 100 in 2010; Bundesbank calculations based on data provided by Bulwiengesa AG. Annual: 1990–2011. Source: BIS.

Panel D: Unemployment rate. Annual: 1991–2011. Source: IMF.

C. Constraints at work: the case of Germany[22]

In the years after the introduction of the euro, Germany undertook painful reforms of its welfare state. Why did Germany take on the reforms that many of the peripheral countries rejected? The answer is to be found in Graph 1. The euro meant the convergence of the other countries' interest rates toward "German" levels, but Germany's rates were, obviously, already at German levels. Thus, for Germany, the euro implied tighter budgetary and fiscal constraints and not the looser financial

[22] This section is taken, with minor variations, from the working paper version of Fernández-Villaverde, Garicano and Santos (2013).

conditions that Portugal and Greece, for example, experienced. Absent the leeway provided by the financial boom, politicians had no choice but to act.[23]

After the years of fast growth that followed reunification, the German economy slowed during the years leading up to the euro. The average growth rate in the second half of the 1990s and first years of the euro was barely above 1%. As a result, unemployment in Germany reached 11% in 2005 (Graph 5, panel D). In addition, the demographic factors that were so helpful in Ireland and Spain were not present in Germany (Graph 1, panel B). The share of the population between 15 and 64 years of age peaked in 1987 at slightly above 70% and then declined steadily for the next two decades. The sorry state of the East German economy[24] and the crisis that followed unification only added to the challenges (Akerlof et al (1991)) and thus, while Spain and Ireland were enjoying real estate booms, Germany's prices were actually declining (Graph 5, panel C).

All these factors put the German welfare state under severe strain, which was met with higher social security taxes endangering German competitiveness. As documented in Graph 5, panel A, the combined social insurance contributions increased considerably as a percentage of gross wages during the years preceding the euro's introduction. Compared with other countries, Germany's labour market policies were characterised by high expenditures and the long duration of programmes. Since social insurance schemes were essentially paid by employees, a decline in hours worked made the situation dire (Jacobi and Kluve (2007)). The unification exacerbated an already problematic state of affairs. Indeed, between 1990 and 1998, social insurance contribution rates increased from 35.5% to 42.1%, German unification accounting for about half of that increase (Streeck and Trampusch (2005, p 176)).

The constraints faced by German politicians were severe. First, wage rigidities led to unemployment in times of economic crisis.[25] According to Manow and Seils (2000), the independence of the Bundesbank and the political fragmentation associated with federalism prevented the expansionary demand policies needed to sustain employment. This left the German welfare state as the only mechanism of adjustment. Given the rigidities of the real wage bargaining system, the increases in labour taxation needed to fund social schemes (see Graph 5, panel A) translated into higher labour costs and thus higher unemployment. Shortfalls in the social programme funds (pensions, health care, and unemployment) could only be met

[23] Deeg (2005) argues that the reform process has been more sustained and consistent than is typically thought. Looking back as far as the early 1990s, he offers a sweeping account of the many reforms Germany has undertaken since reunification. In particular he notes that "the 1992–93 recession was in many ways the key catalyst of the growth of firm-level pacts and deviations from collectively bargained agreements." When the present crisis hit Spain in 2012, this was one of the first measures adopted by the new conservative cabinet.

[24] For a case study of the integration of East Germany into the German pension system, see Hegelich (2004).

[25] There were, however, some salient cases of wage adjustment in the face of labour force competition from eastern Europe. For instance, and as told by Eichengreen (2007, p 411) in the summer of 2004 workers at two Siemens plants in Germany agreed to work five additional hours per week to without extra pay in order to prevent reallocation of the plants to Hungary. A similar pattern was to recur with Spanish autoworkers when the crisis hit Spain. Perhaps the salience of the competitive forces plays an important role when it comes to downward nominal rigidities.

through recourse to the general budget, but this conflicted with the constraints on fiscal policy already mentioned.

Reunification and the opening of eastern Europe to German capital increased the pressure on an overstretched welfare state and the arrival of the euro tightened the constraints further. But even with reunification, a unique catalyst for change, reforms were slow in coming.[26] As mentioned, delays in the reform of the welfare state meant that shortfalls in the different social security schemes were increasingly covered by federal subsidies. For instance, federal subsidies to the pension insurance fund were 18.5% of total fund revenues, but reached 26.4% in 2003 (see Graph 5, panel B). To stabilise these contributions, Chancellor Helmut Kohl reformed the pension system in 1997 by including the use of demographic factors to account for increases in life expectancy. The Social Democrats made large gains in the 1998 election, partially by campaigning on the repeal of these changes (which indeed they were able to do when they came to power). This reversal increased expenditures and the Schröder cabinet reacted with a battery of measures aimed at increasing revenues. These measures further stretched the federal budget and compelled the government to consider reforms that went beyond the original stopgap measures (Streeck and Trampusch (2005, page 181)).

Hence, Germany entered the monetary union in a state of distress and the sustained drop in interest rates the world experienced during those years did little to alleviate these long-run problems. The ECB was setting a monetary policy for a newly created euro area that was too tight for Germany. In addition, the ECB was establishing its reputation and was unwilling to make concessions to German politicians' wishes.[27] Unpopular reform was the only road left open. In particular, Gerhard Schröder launched the Agenda 2010, the core of which were the Hartz I–IV reforms that constitute the greatest overhaul of the German welfare state since World War II.[28] The Hartz reforms are an important change in the principles of the German welfare state, as they emphasise quick job placement over the preservation of the unemployed worker's social status, which was the case until then.

Could German authorities have "kicked the can" further down the road to avoid these reforms? As mentioned before, Germany did not see a drop in interest rates because rates were already low. Second, the kernel of "truth" behind the bubbles in

[26] Hassel (2010) summarises the prevalent view among German scholars on the dynamics of reform in Germany, "[t]he fall of the Berlin Wall was a catalyst for a major transformation of the German welfare state and labour market. The adjustment process that started in the early 1990s was prompted by multi-layered challenges of unification and the consequent institutional adaptation, the changing role of Germany in the European Monetary Union, the recession prompted by unification, and the long-term structural problems of the Bismarckian welfare state, which had been building up since the early 1970s."

[27] For example, as Schröder put it, "As well as their obligation to ensure price stability, the ECB also has the task of keeping growth in mind. And one can be sure that they also will do this", as quoted in "German Slump Prompts Push for Lower Rates: Schroeder Urges the ECB To Focus on Growth, Too", *New York Times*, 30 June 2001.

[28] For a survey of the political economy of the Hartz reforms see Tompson (2009, Chapter 10). For a view of welfare reforms in the context of risk-taking behaviour on the part of policymakers, see Vis (2010, pp 127–30), for the Hartz reforms in particular as a gamble for resurrection. For an assessment of these reforms in the context of Germany's recent economic performance, see Dustmann, Fitzenberger, Schonberg and Spitz-Oener (2014). See also Helms (2007) for the political environment surrounding the adoption of the Hartz reforms.

Ireland and Spain, favourable demographics and strong growth in the late 1990s, was absent in Germany. Welfare state reform was the sole option. The long-run effects of the Hartz reforms are still being debated (Jacobi and Kluve (2007)). Since the early years of the Hartz welfare state were characterised by strong growth in the periphery and in China – with which German exports have a high positive correlation – it remains to be seen how the German welfare state fares when these factors are no longer active.

It is important to clarify that no claim is being made that Germany's economic performance during the Great Recession is linked to the effectiveness of the Hartz reforms. This is a matter of some debate.[29] There is some preliminary evidence that this is not the case. For instance, Dustmann, Fitzenberger, Schonberg and Spitz-Oener (2014) argue that the reforms implemented following the reunification, the enlargement of European institutions to eastern Europe and the recession of 1992 and 1993 were more central to Germany's good performance during the Great Recession. In particular, these authors, as well as Deeg (2005, p 340), argue that the additional flexibility in collective bargaining agreements (the "hardship and opening clauses") which essentially allowed firms to deviate from them to pay lower wages, are central in understanding the greater flexibility of the German labour market. Whereas in 1993 about half a million workers were employed by firms that concluded such clauses, this number was 9 million in 1999, or one in five workers.[30] Perhaps unsurprisingly, the Spanish labour market reform of 2012, as the Spanish crisis got going in earnest, started in precisely the same way, by weakening collective bargaining agreements. In addition, the evaluation of the effectiveness of the Hartz reforms is difficult as some of Germany's trading partners, such as Spain, were undergoing a strong consumption and import boom while the reforms were being implemented (whether there is a casual link between both events is something that remains to be explored). The problems of inference associated with speculative cycles extend well beyond the borders of the economy experiencing the boom.

3. Liquidity and origination incentives in the private sector

A. Uninformed funds and origination incentives

The previous section emphasised the impact that large surges in liquidity may have on the political economy of reform. Liquidity surges also have implications for the private sector. Here the source of liquidity may be rather different. For instance, Pozsar (2011) refers to institutional cash pools as the "short-term cash balances of global non-financial corporations and institutional investors such as asset managers, securities lenders and pension funds". He notes the striking growth of these

[29] For the remarkable performance of the German labour market during the Great Recession, see Burda and Hunt (2011).

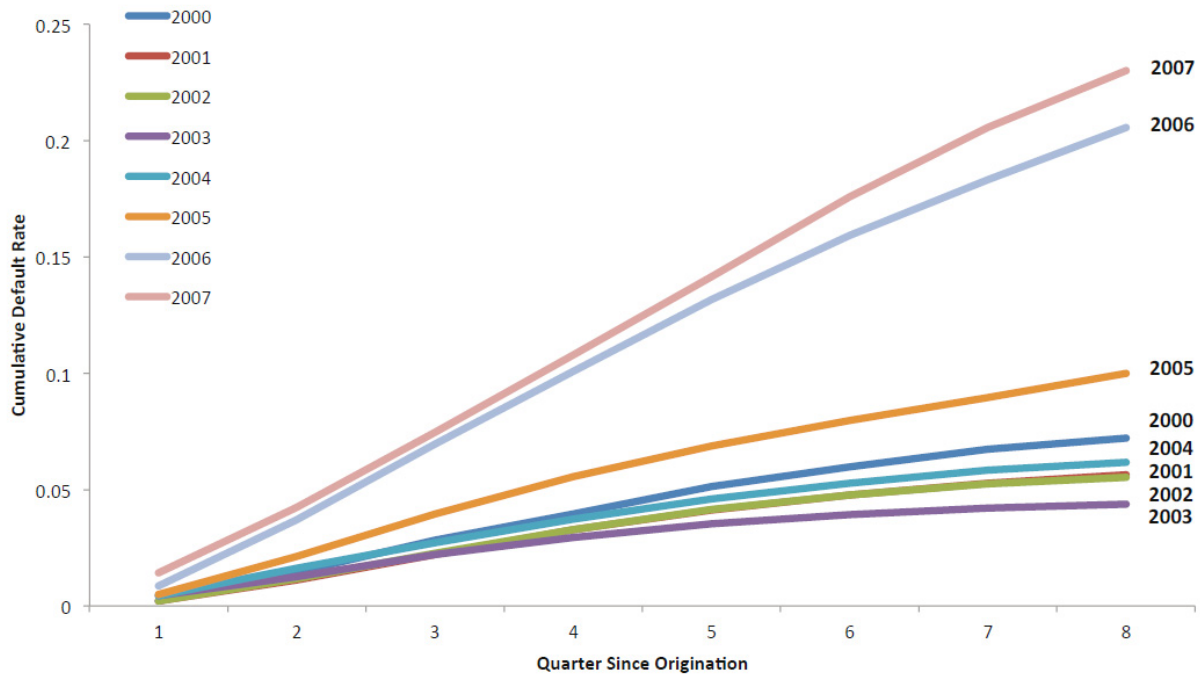
[30] There has been a substantial increase in wage inequality in Germany over the last two decades. Card, Heining and Kline (2013) investigate the sources of this increasing cross-sectional dispersion in German wages. In particular, they emphasise the fact that new establishments drop out of the collective bargaining agreement, and as a result pay lower wages, as a factor behind this increase in inequality.

institutional cash pools since the early 1990s. Taking as a proxy for these institutional cash pools the cash in the balance sheet of S&P 500 corporations, the cash collateral of securities lenders and the cash holdings of long-term mutual funds, he estimates that the total size of these funds was $2.2 trillion at the peak in 2007, whereas it was only $100 billion in 1990.

Interestingly, 90% of institutional cash pools are subject to written cash covenants stating explicitly that the objectives of asset managers should be first and foremost the preservation of principal. Clearly, the banking sector cannot supply enough federally insured deposits to satisfy the demand for the safety of these institutional cash pools. An alternative, of course, could have been short-term government-guaranteed securities, such as bills and agencies, but in these markets institutional cash pools had to compete with increasing foreign holdings of these instruments. As a result, at the 2007 peak, Pozsar (2011) estimates that there was a $1.6 trillion shortage of deposit-like instruments for these institutional cash pools.

As is now well understood, these institutional cash pools flowed into privately insured money market instruments, such as repos and asset-backed commercial paper, as well as unsecured private money market funds.

Subprime mortgage origination standards — Graph 6



Average cumulative default paths for the non-agency securitised loans by year of their origination. The cumulative delinquency rates are of all privately securitised residential mortgages calculated from loan-level, monthly Corelogic-Blackbox data. A loan is defined as delinquent if it ever becomes 60 days past due and is considered delinquent thereafter. The graph is separated by year of mortgage origination; the y-axis plots cumulative delinquency rates in each quarter following origination which is depicted on the x-axis.

Data source: Corelogic-Blackbox.

Bolton, Santos, and Scheinkman (2014) emphasise the "uninformed" nature of these institutional cash pools. Because these institutional cash pools realise that they are indeed uninformed, the prime consideration in their investment decisions was safety and thus the demand for short-term debt-like contracts, where the logic

of Dang, Gorton and Holmstrom (2012) applies. In the model of Bolton, Santos and Scheinkman (2014), an increase in the size of these institutional cash pools reduces the yields of the assets they hold. As a result, some of the agents present in those markets before the increase in the size of the cash pools may find it profitable to invest in information acquisition, thus discovering better investment opportunities and increasing the return on their investments. Because there is now more capital in the economy bundled with knowledge, incentives for good origination improve and this translates into a net social gain. This is the sense in which additional liquidity "from below", that is uninformed liquidity, induces competition among managers to find good investment opportunities which may result in a more information-intensive allocation of capital.[31]

But consider now the case where this uninformed liquidity continues to accrue, flooding markets and compressing yields across many different markets. In this case origination incentives may, in fact, deteriorate – because there is no point in generating good assets when the market pays the same for a good and a bad asset.

Bolton, Santos and Scheinkman (2014) thus argue that the growth of institutional cash pools may have had a non-linear effect on the incentives to generate good mortgages during the real estate cycle in the United States. Graph 6 shows some evidence of this effect regarding US subprime mortgage loans. The plot shows the average cumulative default paths for all privately securitised (non-agency) residential mortgages calculated from loan-level data by the year of their origination.[32] As can be seen, origination standards improved considerably between 2000 and 2003, but deteriorated markedly after that. This occurred even when prices kept rising through this period. Keys, Piskorski, Seru and Vig (2013, Figure 4.4) add to this evidence by showing that the percentage of incomplete documentation loans, a measure of poor origination standards, was flat between 1998 and 2002 but that in 2003 it started increasing dramatically, almost doubling with respect to the levels observed at the turn of the century. Moreover, these authors document that, although the loan-to-value (LTV) ratios of mortgage loans remained relatively stable between 2002 and 2006, the combined loan-to-value ratio (CLTV), which measures the debt from both the first and second liens, showed a dramatic increase during this period, again signalling a deterioration of origination standards.

B. Leverage and the joint distribution of funds and knowledge

In addition these institutional cash pools, as already mentioned, found their way into repo markets, providing a significant source of leverage to broker-dealers. This

[31] Chemla and Hennessy (2013) develop a model where moral hazard at origination is solved through skin in the game but that the optimal amount of equity retention depends on the informativeness of the price.

[32] The source of the data is BlackBox, a private company that provides a comprehensive, dynamic data set with information about 21 million privately securitised subprime, Alt-A and prime loans originated after 1999. These loans account for more than 90% of all privately securitised mortgages in the United States. The BlackBox data, which are obtained from mortgage servicers and securitisation trustees, include static information taken at the time of origination, such as the mortgage origination date and amount, borrower FICO credit score, servicer name, interest rate, term, interest rate type, CLTV, and borrower occupancy status. The BlackBox data also include dynamic data on monthly payments, mortgage balances, and delinquency status. I thank my colleague Tomasz Piskorski for sharing the data needed to generate Graph 6.

is important for two reasons. First, the fact that there is a significant increase in the flow of uninformed funds does not mean that all the funds are invested by uninformed managers. A significant fraction of these uninformed funds, as was indeed the case, found their way to agents, such as broker-dealers, that are in principle better informed about risks in the market. The manager of one of these institutional cash pools must be indifferent between investing the marginal dollar in an ABCP vehicle or in a repo transaction through some money market mutual fund. In this sense, the distribution of knowledge and capital is endogenous and it is this distribution that ultimately determines the incentives for originating good assets.

The second reason is that the flow of these uninformed funds increases the leverage of presumably informed investors, potentially increasing the system's fragility. This is because, as already discussed, origination incentives eventually deteriorate but, as shown in Bolton, Santos and Scheinkman (2014), the leverage ratio is a monotonically increasing function of the level of uninformed funds. Origination quality and leverage correlate negatively when the pool of uninformed funds gets sufficiently large.

C. Fluctuations in the market price of risk: a different interpretation

So far I have emphasised quantities: an exogenous surge in uninformed funds flows into sovereign debt markets or securities issued by the private sector, and this induces particular political economy problems or alters incentives for good origination through changes in yields. But there is an alternative story. The asset pricing literature provides abundant evidence for significant variation in discount rates. In particular discount rates seem to be countercyclical: that is, high in the trough of the business cycle and low at the peak.

It may be, then, that all that is occurring is that the premium that uninformed investors require to invest in a certain class of securities fluctuates, whereas the discount rates of marginal investors in more information-intensive markets are more stable, founded as they are in better knowledge. As a result, spreads across all these markets fluctuate and, with these fluctuations, incentives for good origination vary too.

4. Conclusions

Credit booms affect incentives differently depending on whether the public or the private sector is the recipient of the credit. If it is the public sector, it is natural to focus on the political economy consequences of the credit boom, whereas if it is the private sector it is natural to focus on the incentives for good origination. This piece builds on Fernández-Villaverde, Garicano and Santos (2013) and Bolton, Santos and Scheinkman (2014) to argue for particular channels through which credit booms affect incentives in either sector.

In the private sector, credit booms affect incentives for good origination through changes in the joint distribution of knowledge and capital. Bolton, Santos and Scheinkman (2014) argue that changes in this distribution can have non-linear effects on incentives for good origination and in addition lead to leverage and

fragility in a particular segment of the financial services sector (the information-intensive sector of the financial services industry.)

In the public sector, the relevant incentives effects are those of politicians and interest groups. A possible framework for understanding the way in which credit booms interact with, for instance, the political economy of reform or fiscal stabilisation is the attrition game of Alesina and Drazen (1991). These authors do not, however, investigate the relationship between attrition games and credit booms. Intuitively, credit booms can potentially have two opposing effects on political economy games. On the one hand, they can relax constraints and postpone the attrition game's resolution; on the other, they can facilitate the issuance of debt so that the transitional costs associated with reform are shared with future generations. Fernández-Villaverde and Santos (2014) model this trade-off explicitly to shed light on what determines whether, for instance, a credit boom is "taken advantage of" to fund structural reforms or simply leads to policy non-adoption. I have argued that, at least in the case of the first global liquidity phase, some countries in the euro zone periphery avoided necessary reforms and simply levered up in order to delay the inevitable.

In addition there is a "political economy multiplier". Politicians and managers can use the credit boom to veil actions that entrench themselves and weaken governance institutions. Politicians and managers can thus take complementary actions that reinforce the dark side of credit booms. For instance, in the case of Spain, local politicians reinforced the credit bubble through changes in the governance of the cajas sector, the private but politically controlled savings and loan institutions. This had disastrous consequences when the crisis hit and made it impossible for Spanish banking crisis to be resolved domestically.

If this is the case, credit booms can have long-lasting effects beyond the asset price correction and misallocation of capital that accompanies them. They transform institutions and the long-run growth rates of the affected economies, potentially for the worse. Perhaps some of the political developments in the European periphery are thus not entirely detached from the extraordinary credit cycle during the first years of the euro. The usual policy of "cleaning up after the party is over" may therefore have long-run costs that should be internalised by policymakers, costs that are directly linked to this political economy multiplier.

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Comments Andrés Velasco[33]

Why do lending booms often end in disaster? Economists who follow emerging markets have been asking this question for decades. Now the question has come to Europe.

Following the adoption of the euro, appetite for financial assets issued in the countries of southern Europe rose dramatically. Capital surged into Portugal, Spain, Italy and Greece, among other countries. Early developments in those countries were easy to celebrate: risk spreads fell, asset prices rose, domestic credit boomed and economic growth accelerated.

But, as we know today, the boom proved unsustainable. Little was done to enhance domestic savings and domestic supply, and so stronger domestic demand meant current account deficits that sooner or later had to be reversed. Lower credit spreads allowed some governments to go on a borrowing binge. That too eventually came to an end. The result was the debt and financial crisis that has engulfed the euro zone for the better part of the last four years.

This thought-provoking paper revisits the classic question of capital inflows and their consequences from two interesting angles. First is political economy. Ample liquidity makes it easier to postpone reforms and "kick the can down the road". Liquidity can also change the nature of the political economy game. Whenever easy credit fuels economic growth, voters cannot be sure if that growth is due to good policy or good luck. If the competence of policymakers is at stake, it is especially hard to tell good and bad policymakers apart during a lending boom. Even more troubling, bad politicians can use liquidity to entrench themselves in office, buying votes and rigging institutions in their favour. The paper argues that the evolution of the Spanish "cajas" (savings and loan institutions) is an example of this last phenomenon.

The second point has to do with imperfect information and asset origination. During a lending boom, borrowing costs are low even for risky borrowers. This again makes it more difficult for investors to tell good and bad credits apart, which in turn causes origination incentives to deteriorate. What is the point of generating good assets when the market pays the same for a good and a bad asset? Therefore, during the boom average asset quality deteriorates, and this matters for financial stability once the capital inflow episode ends.

Each type of effect from lending booms – the political and the financial – is very different, but they have one thing in common: a kind of hysteresis. A temporary shock (capital inflow, lending boom) can have permanent effects (changed political landscape, changed asset composition).

The political economy of lending booms must depend on what macroeconomic variables are affected in these episodes. Fortunately we have abundant evidence on the connections between capital inflows, current account deficits, domestic lending expansions, asset inflation and relative price distortions. Political economy effects also come into play. This evidence comes from dozens of episodes in Latin America

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in the late 1970s and early 1980s, emerging Asia in the run-up to the 1997 crisis, and in emerging nations across the globe in the early 2000s and again since 2010.

An example is Gourinchas, Valdés and Landerretche (2001), who look at a good many episodes. The paper shows that the end of a boom is typically associated with current deficits and capital inflows; increased investment and consumption; appreciated real exchange rates and inflated asset prices; deteriorated budget balances; and, finally, higher vulnerability to banking and balance of payments crises.

What is the political economy impact of these macroeconomic developments? On the one hand, ample liquidity relaxes borrowing constraints and makes it possible to delay adjustment. On the other hand, that very same liquidity makes it possible to compensate losers, rendering reform politically more feasible. Which effect dominates? Judging from the experience of the euro zone, the paper concludes that the "delayed reforms" effect seems to prevail.

That conclusion seems empirically incontrovertible, but it is not theoretically satisfying. It is not enough to "be able" to postpone adjustment. If postponement is collectively inefficient, then one must have a political economy story as to why the government "wants" to postpone adjustment. Different papers – among them Alesina and Drazen (1991) and Velasco (1999) – propose political economy accounts of why that might be so. Alesina and Drazen (1991) develop a game of attrition, while Velasco models a "switching game" among different government agencies that benefit from specific kinds of government spending and share the same government budget constraint.

In these models and others, one can perform comparative statics around a given "delayed" stabilisation equilibrium. If a given exogenous parameter changes, what happens to the length of that delay? What happens, for instance, if there is an exogenous drop in output? There is a large empirical literature on whether "crises" accelerate stabilisation and adjustment: Drazen and Grilli (1993); Casella and Eichengreen (1996); Drazen and Easterly (2001), among others.

The theoretical answer is generally yes: crises, generally defined as periods of low output and consumption, tend to shorten the period of delay. In attrition games, they accelerate resolution. In switching games, crises make it harder to defect from cooperative policies. The only caveat is that such results are sensitive to the precise political economy mechanism assumed in each paper.

Here we have what is in some sense the inverse question: do "booms" cause a greater delay in adjustment? For the same theoretical reasons that crises do accelerate adjustment, booms can delay resolution even further. An important caveat is that this does not mean crises are good for welfare, or that booms are bad for welfare. Generally speaking, booms increase short-term consumption, but also shorten the period during which high consumption is feasible. The net effect is ambiguous.

It would also seem that the type of reform needed makes a difference. If the problem is an unsustainable pension system, and the medicine required is pension reform, then the higher availability of credit helps spread costs across time, and it may well facilitate policy change. On the other hand, if the problem is an unsustainable current account deficit, and resource allocation (from non-traded to traded production) and real devaluation are called for, such changes are almost

impossible to achieve in the middle of lending boom. In that case, the occurrence of a boom is likely to deter adjustment.

In short, it would seem that more work is needed before we can make precise predictions on the link between boom episodes and the political economy of reform. It would be useful to have a detailed theoretical model linking (a) the type of boom (eg lending boom, commodity boom, others); (b) the type of reform needed (spending cuts, tax increases, changes in relative prices etc); and (c) the precise political economy mechanism at work (attrition game, coordination game, voting game, others). Tano Santos is reportedly working on this. We can look forward to the results of that research agenda.

Next I wish to ask: what are policy implications of the analysis in the paper? Suppose that we take for granted the preliminary conclusion that capital inflows and lending booms delay policy reform and adjustment. Then the question arises: can this link be severed or weakened? Does the institutional regime in place (for monetary, fiscal and exchange rate policies) make a difference? Can policymakers (or institution builders) play an autonomous role, or does political economy analysis put policymakers out of work?

Focus first on the role of prudential policy and capital controls. One could conjecture that if capital inflows cause lending booms, and such episodes often end in disaster, then there is a role for public policy either to limit capital inflows or to limit the domestic credit consequences of capital inflows. Of course trade-offs may be involved. But these two policy options cannot be rejected as *prima facie* undesirable.

Reducing capital inflows may require capital controls. Once completely unacceptable in the mainstream policy establishment, such controls are increasingly seen as one valid option in the toolkit of ministers of finance and central bank governors. The paper by Ostry, Ghosh, Habermeier, Chamon, Qureshi and Reinhardt (2010) is a good example of this recent view.

Cutting the link between capital inflows and surges in domestic lending may call for tighter macroprudential regulation. Of course, there is a burgeoning literature on this issue, a good deal of it arising from the BIS. Borio (2003); Dell'Ariccia, Igan and Laeven (2008); Galati and Moessner (2011) are examples. At the risk of oversimplification, one conclusion from this literature is that there is a role for pre-emptive prudential regulation when faced with volatile financial conditions.

One political economy caveat is that, if the government benefits politically from the lending boom (for instance by making it cheaper to run fiscal deficits), then it will oppose prudential regulation. Similarly, if domestic financial intermediaries (banks and others) make temporary profits from the lending boom, they will also oppose regulation. For all these reasons, the political independence of both the central bank and the financial regulators and supervisors is absolutely key.

Turn now to fiscal policy. Lending booms that help finance unsustainable fiscal deficits are one example of a more general (and worrisome) phenomenon: procyclical fiscal policies. Again, this is a problem that has long been studied in the context of emerging markets, since commodity producers seem to be particularly prone to fiscal procyclicality (Céspedes and Velasco (2012, 2014)).

What are the policy implications? If fiscal procyclicality is the problem, then a fiscal rule mandating countercyclical or acyclical fiscal policy is one obvious answer.

According to the IMF (2009), at the end of the previous decade 80 countries had some kind of fiscal rule in place. However, only eight of those rules involved "cyclical" or "structural" adjustments. Things have changed in the intervening years. Today all countries in the euro zone are expected to design and apply fiscal rules. Among the emerging markets, first Chile and then Colombia, Panama and Peru have put fiscal rules in place. The same has happened in frontier markets such as Mongolia, Nigeria and Kazakhstan, among others.

Here again a political economy caveat is in order. Most fiscal rules specify that governments should run deficits in bad times and surpluses in good times. The first part is easy, but the second part is politically challenging. Chile is one example of a country that strictly enforced its rule and ran large fiscal surpluses during the commodity boom of 2005–08. But those surpluses were politically controversial, as one might expect them to be anywhere. Put differently, the rule must be the outcome of a "political economy equilibrium" if it is to be enforced in good and bad times alike. In Parrado and Velasco (2012) we discuss the Chilean fiscal rule and offer some reasons of why applying it has proven politically feasible over the last decade and a half.

Last but not least, consider the role of the exchange rate regime. The conventional wisdom at the time of the euro's adoption was that the common currency would impose financial and fiscal discipline and facilitate reform. For this view see Papademos (2001), Bentolila and Saint Paul (2000) and Bean (1998), among others. The same logic was present in the Latin American debate, with optimists hoping that Argentina's 1991 adoption of a currency board with a one-to-one parity of the peso against the US dollar would put an end to decades of Argentine fiscal profligacy.

The reality, regrettably, was very different. In Argentina, the currency board experiment came to an abrupt end with the financial crisis of 2001, and fiscal and financial mismanagement were both to blame for that sad outcome. In the euro zone, a common currency did not guarantee reform and sound policies in member countries. If anything, as the paper by Tano Santos stresses, the opposite seems to have taken place, with capital inflows motivated by the absence of exchange risk helping to delay any kind of adjustment. Fernández-Villaverde, Garicano and Santos (2013) also discuss this phenomenon at greater length.

So the question then arises: what is the role of the exchange rate regime in all of this? Do fixed rates provide discipline, as the conventional wisdom once argued?

Many years ago, long before the Argentine and the euro zone crises, Aaron Tornell of UCLA and I (1995 and 1998) argued that the conventional wisdom was wrong and that flexible rates provide more fiscal discipline. The intuition is simple: under flexible rates, the effects of unsustainable fiscal policies on the exchange rate and the price level show up right away; under fixed rates, they show up much later, once reserves run low and the parity comes under pressure. If the fiscal policymaker discounts the future sufficiently, then flexible rates provide more pain in response to misbehaviour, and hence such misbehaviour is less likely to happen in equilibrium.

In short: this insightful paper by Tano Santos is right to argue that capital inflows and lending booms can set off some troubling economic and political dynamics. But the shape of those dynamics, and the associated social and financial costs, depend crucially on the policy regime in place. So there is a role for domestic

institution builders, and international institutions like the BIS, the IMF and the European Union, to help shape that policy regime.

Put differently, the outcome of the political game depends on the rules of the game and the incentives they provide. If it is politically feasible to tweak those rules and build up monetary, fiscal and exchange rate institutions, then enlightened politicians can contribute crucially to reducing the costs associated with unsustainable credit booms.

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