BANCO DE ESPAÑA
Eurosistema

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RESEARCH UPDATE

Welcome to the Banco de España RESEARCH UPDATE

The Banco de España is pleased to publish the second issue of its *Research Update.* The featured articles that appear in this issue reflect the continuing policy challenges in today's macroeconomic environment.

In a first feature, Irina Baldeanu and Aitor Erce explore the links between banking crises and sovereign debt crises in historical data from emerging market economies. In a second feature, Alfonso Sánchez describes Spain's recent pension reforms and models their budgetary consequences over the coming century. Next, Javier Ándres, Óscar Arce, and Carlos Thomas model the impact of product market and labor market reforms in an economy subject to a process of deleveraging. Finally, while many analysts assume that the "Great Recession" of recent years marks the end of the "Great Moderation", María Dolores Gadea, Ana Gómez-Loscos, and Gabriel Pérez-Quirós show that there is little statistical evidence for this view: at least in US data, macroeconomic volatility remains low even when the sample is extended to include the Great Recession.

These featured articles are just a sample of the research work carried out by economists affiliated with the Banco de España in support of its policy responsibilities. This *Research Update* provides a more complete list of related research output, including working papers and publications in scholarly journals. It also includes information on past and future conferences and seminars, and profiles of Banco de España research staff.

We highlight these and other Banco de España research activities in hopes that they will interest the broader research community, in Spain and internationally, and thereby contribute to an improved understanding of economic policy.

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BANKING CRISES AND SOVEREIGN DEFAULTS IN EMERGING MARKETS: EXPLORING THE LINKS

I. BALTEANU AND A. ERCE

WORKING PAPER Nº 1414

This paper provides a set of stylized facts on the mechanisms through which banking and sovereign distress feed into each other. Using an event analysis methodology and a large sample of emerging market economies over three decades, we study the behavior around crises of variables describing the balance sheet interconnection between the banking and public sectors, the characteristics of the banking sector, the state of public finances, and the macroeconomic context. We find that there are systematic differences between "single" and "twin" crises across all these dimensions. Additionally, we find that the sequencing of events in "twin" episodes is important for understanding their drivers, transmission channels and economic consequences.

1 Introduction

The two-way interaction between fiscal and financial instability has been at the core of the recent turmoil in Europe. In some countries, systemic banking crises triggered fiscal distress due to the magnitude of bank rescue operations (for example, in Iceland and Ireland). In others, substantial sovereign debt tensions, leading to successive sovereign downgrades (and even to debt restructuring in Greece), severely weakened domestic financial systems.

In contrast to Europe, the combination of extreme fiscal and financial distress is nothing new to emerging markets. Ecuador (in the mid-1990s) and Dominican Republic (in early 2000s) accumulated so much debt trying to sort out a sequence of banking crises that were forced to restructure their sovereign debt obligations. In turn, during the Argentinean (2001) and Russian (1998) crises, governments relied on domestic banks as a source of financing. The eventual sovereign defaults imposed large losses on the heavily exposed banks, ultimately triggering banking crises.

Against this background, it is surprising that the large literature looking at how different types of crises occur and combine (the so-called "twin crises" literature) has only recently begun to examine the links between fiscal and financial distress. Concerning emerging markets, two notable exceptions are Panizza and Borenzstein (2008) and Reinhart and Rogoff (2011). However, these papers are mainly concerned with establishing whether it is banking crises that predict sovereign ones, or vice-versa; while they do provide a discussion of the main channels of transmission between the two crises, these channels are not studied formally. Similarly, the growing literature that studies feedback loops between sovereign and financial risks in the euro area models the common dynamics of banks' and sovereigns' Credit Default Swaps (see e.g. Acharya et al, 2014), but does not analyze the drivers of this relationship.

Our paper fills this gap by considering a large set of macro-financial variables through which fiscal or financial stress may be transmitted. New to the literature, we not only differentiate between "single" and "twin" crises, but we also distinguish those twin events that are initially triggered by banking crises from those initially triggered by debt crises. We use an event analysis methodology to study the behavior of each variable of interest around each type of crisis.

Our contribution is two-fold. First, we find systematic differences between "single" crises and "twin" ones. We find that a number of empirical facts usually associated with either "banking" or "debt" crises in general are actually associated with "twin" events only. Second, we show that considering the sequence of crises within "twin" events is important for understanding their transmission channels and economic consequences.

2 Definitions, data and methodology

The study covers 78 emerging market countries and covers three decades, from 1975 to 2007. Sovereign crises are defined following Standard and Poor's, while banking crises are the "systemic events" catalogued in Laeven and Valencia (2013). "Twin crises" are pairs of sovereign and banking crises that take place at intervals of less than three years one from the other. We thus isolate four types of events: (i) "single" banking crises; (ii) "single" sovereign debt crises; (iii) "twin bank-debt" crises, where a banking crisis is followed by a sovereign one during the following three years; and (iv) "twin debt-bank" crises, where a sovereign crisis is followed by a banking one during the following three years. Under these definitions, there are 140 distinct crises in the sample, of which 51 are single banking crises, 61 single debt crises, 15 twin bank-debt crises and 13 twin debt-bank crises.

The choice of variables used in the econometric analysis is guided by the literature on the main channels through which financial tensions may lead to sovereign stress, and vice-versa. These channels include direct balance sheet effects (through liquidity injections, public rescue operations, materialization of explicit guarantees or contingent liabilities and banks' holdings of public debt), as well as other indirect ways through which these crises, and policies deployed to address them, impact the wider economy and market sentiment. Accordingly, we consider four categories of variables, describing the bank-public balance sheet interconnections (namely: banks' holdings of public debt and credit from the central bank to the banking sector); banking sector characteristics (assets, credit to the private sector, and deposits); the state of public finances (budget balance, public revenues and expenses, and public debt); and other macroeconomic factors (real growth, inflation rate, foreign portfolio capital inflows, and the composition of external debt).

Following Gourinchas and Obstfeld (2011) and Broner et al (2013), we use an event analysis methodology, which allows us to estimate how the conditional expectation of each variable depends on the temporal distance from each type of crises, given the proximity of other crises, and relative to a "tranquil times" (i.e. non-crisis) baseline. We estimate a specification in which each variable of interest is regressed on a set of dummy variables, which take the value of 1 when a country is within three years before or after a crisis of each type. The regression allows for country fixed effects and, in some specifications, country-specific trends. The estimated coefficients measure the conditional effect of each type of crisis on the variable over the event window, relative to "tranquil times". The fact that the "tranquil times" baseline is common to all events makes the comparison among coefficients straightforward.

3 Banking crises and sovereign defaults: exploring the links

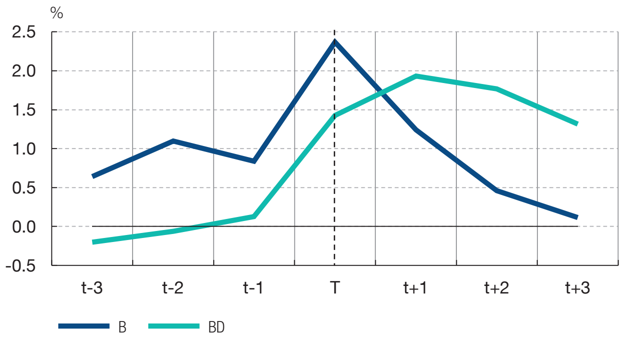
Figures 1-18 plot the estimated coefficients throughout the seven-year crisis window for a selection of the variables included in the working paper. We are interested in what differentiates "single" banking crises from those that bring down the sovereign and, similarly, what differentiates "single" sovereign defaults from those that eventually lead to banking crises.

3.1 Banking crises versus twin bank-debt crises

Regarding the difference between banking crises (B) and twin bank-debt crises (BD), the interplay between banks' and both central banks' and governments' balance sheets reveals systematic differences around the two types of episodes (figures 1 and 2). Ahead of single events, low exposures to government combine with high liquidity support from the monetary authority, while in the aftermath, liquidity support drops substantially and banks' holdings of public debt start

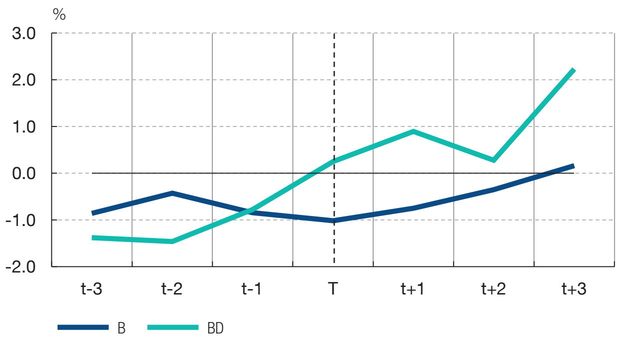
CREDIT FROM THE CENTRAL BANK/GDP

FIGURE 1



CLAIMS ON GOVERNMENT/GDP

FIGURE 2



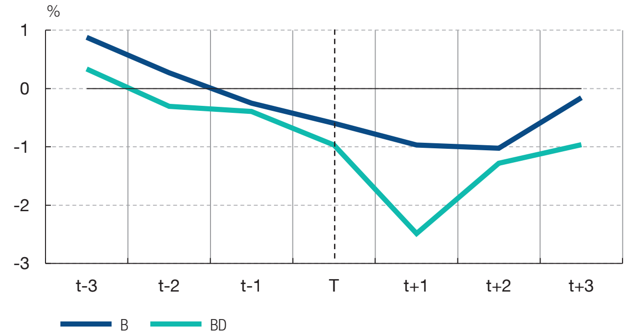
to accumulate. Ahead of BD events, the fast and substantial accumulation of government paper on banks' balance sheets combines with slow-growing central bank support, while in the aftermath, the increase in public claims moderates and liquidity support shoots up. These different patterns could be due to differences in the size and timing of the initial shock to the banking sector, policy choices by the central bank and government, structural features of the banking sector or, most likely, a combination of all these factors.

Figures 3 and 4 reveal significant differences between banking sectors around the two types of events. On average, banking systems are significantly larger and deeper around banking crises that are part of "twin" events, thus potentially needing larger public support in situations of stress. They are also likely to have a more damaging effect on the economy (and the sovereign), giving the government more incentives to intervene. In "single" episodes, banks start to size down already ahead of the crisis and continue to do so as the crisis unfolds. In contrast, in "twin" episodes, asset downsizing starts late into the banking crisis and the process is more gradual. This might indicate that the policy response is to try to keep the banking sector afloat, postponing deleveraging until the crisis engulfs the public sector as well.

While the two events occur against similar initial debt and budget positions, diverging patterns of public finances emerge once banking crises are underway, as figures 5 and 6 show. Banking crises that are part of "twin" events are associated with a sharper increase in budget deficit and a larger accumulation of public debt, which suggests that they put more strains on government finances than "single" banking events. Finally, banking crises that are part of "twin" episodes have a more damaging and persistent effect on the economy (as shown in figures 7 and 8) and are also associated with a larger loss in foreign investors' confidence, as reflected in figure 9.

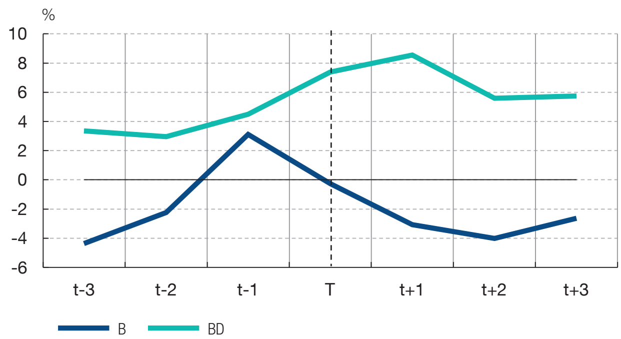
BUDGET BALANCE/GDP

FIGURE 5



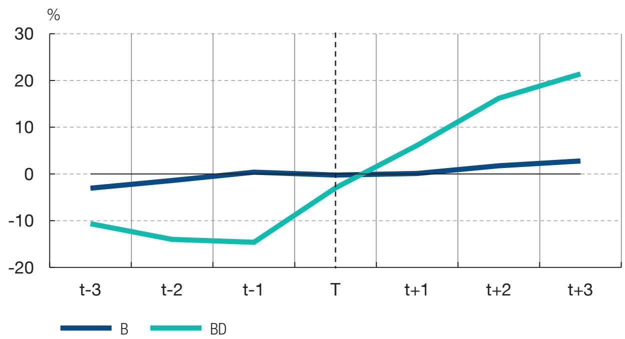
ASSETS/GDP

FIGURE 3



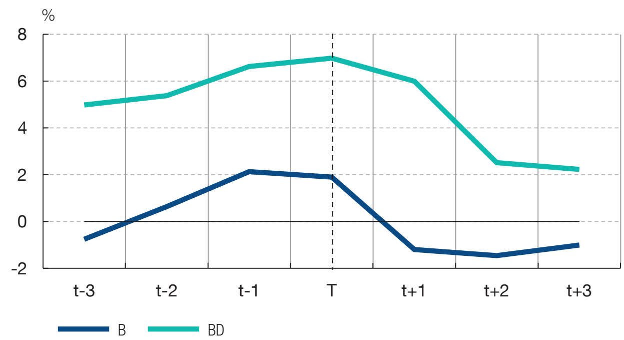
GOVERNMENT DEBT/GDP

FIGURE 6



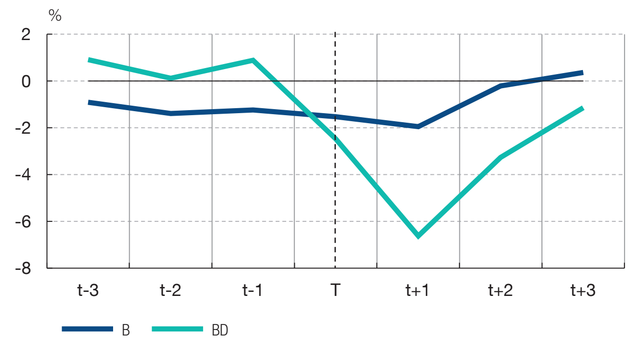
CREDIT TO THE PRIVATE SECTOR/GDP

FIGURE 4

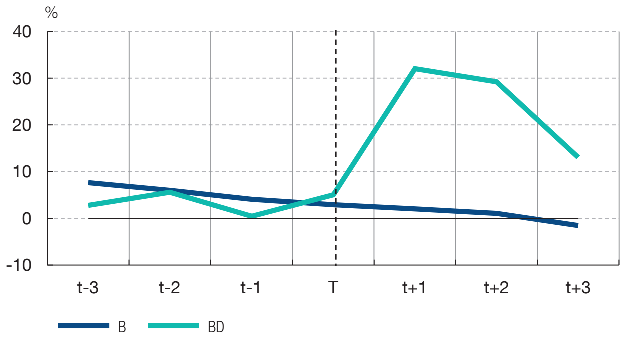


REAL GROWTH

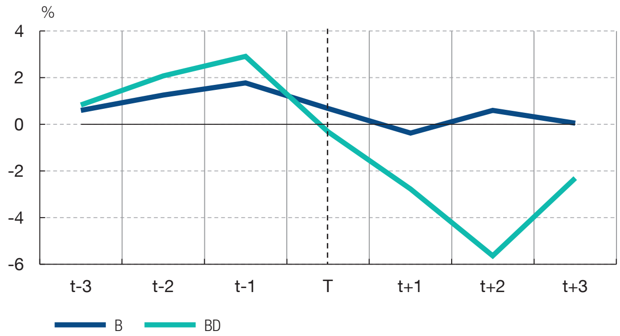
FIGURE 7



INFLATION RATE FIGURE 8



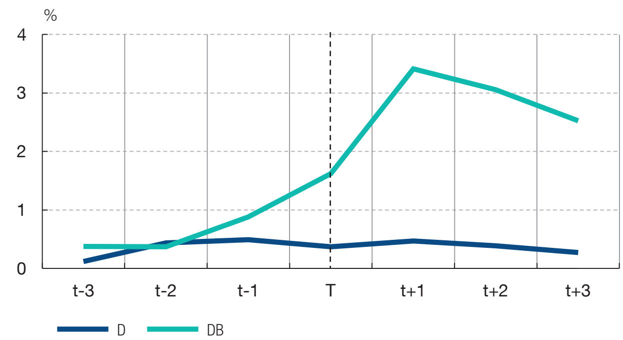
PORTFOLIO CAPITAL INFLOWS FIGURE 9



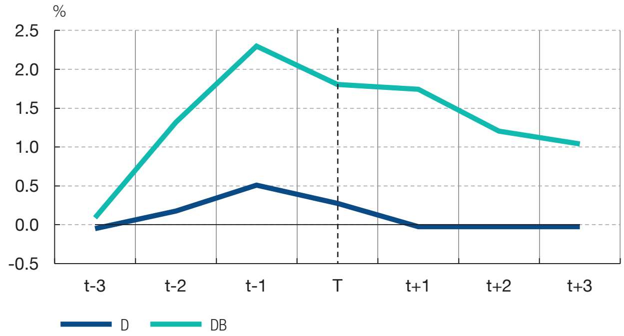
3.2 Sovereign debt crises versus twin debt-bank crises

Regarding the differences between "single" debt (D) and "twin debt-bank" (DB) crises, we find that, ahead of the latter, the average banking sector is more exposed to the government and the pace of increase in its public debt holdings is faster (figure 11). The amount of liquidity support provided by the central bank is significantly large around the two episodes (figure 10), suggesting that banking sector tensions accompany both events, including "single" ones. Nevertheless, while the liquidity support is flat throughout D crises, it increases dramatically during DB ones. These differences could indicate that "twin" defaults are more damaging to banks' balance sheets and may leave the sovereign with less margin to support the banking sector. Overall, the average banking sector around DB events appears to be smaller than the one ahead of D events (figures 12 and 13).

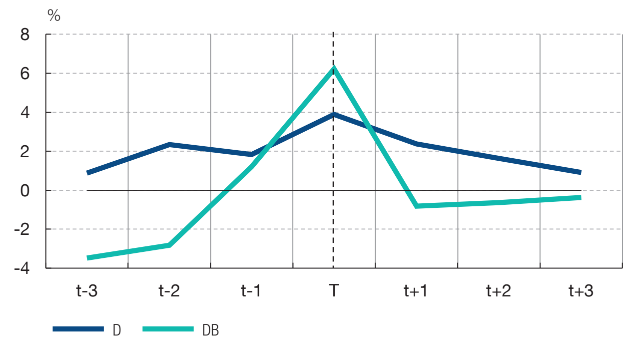
CREDIT FROM THE CENTRAL BANK/GDP FIGURE 10



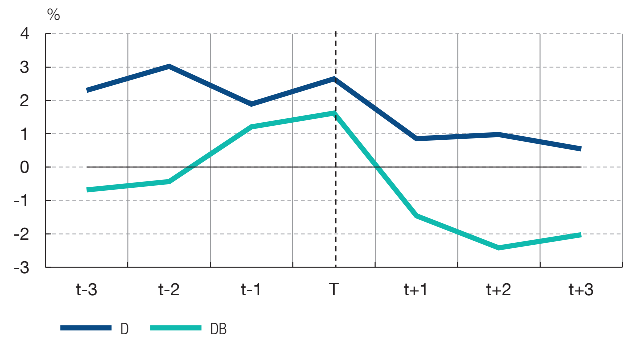
CLAIMS ON GOVERNMENT/GDP FIGURE 11



ASSETS/GDP FIGURE 12



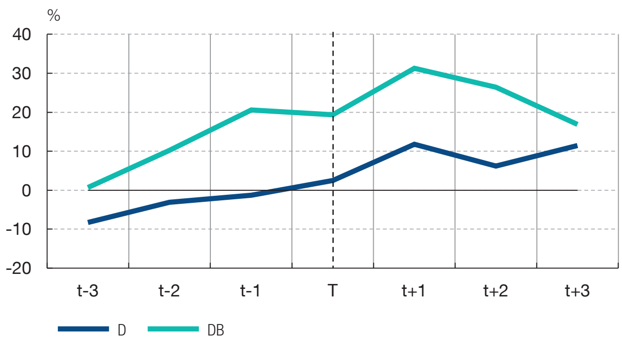
CREDIT TO THE PRIVATE SECTOR/GDP FIGURE 13



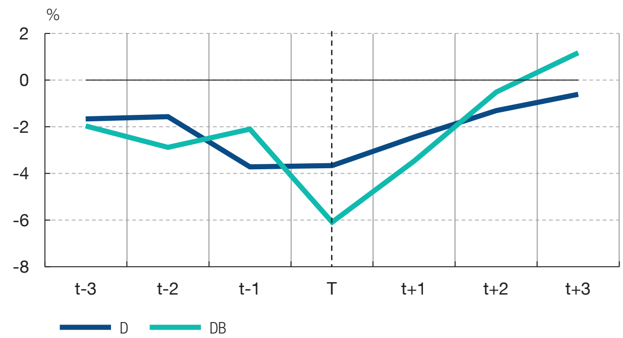
BUDGET BALANCE/GDP FIGURE 14

While public finances are roughly similar ahead of the two classes of events, public expenditure is cut more drastically (and public debt drops faster) in the aftermath of “twin” defaults (figures 14 and 15). This could point to either a lack of fiscal space, or the adoption of a more austere stabilization package, both of which may negatively affect the banking sector and the economy in the short run. DB defaults have a larger immediate negative impact on growth, while the recovery in the aftermath is slower (figure 16). These growth dynamics are accompanied by inflation rates that fall more markedly during “twin” events than during “single” ones (figure 17) – which might be a further indication of a tight austerity package implemented in the aftermath of DB defaults. Finally, around DB events there is little foreign capital flowing into the economy (figure 18).

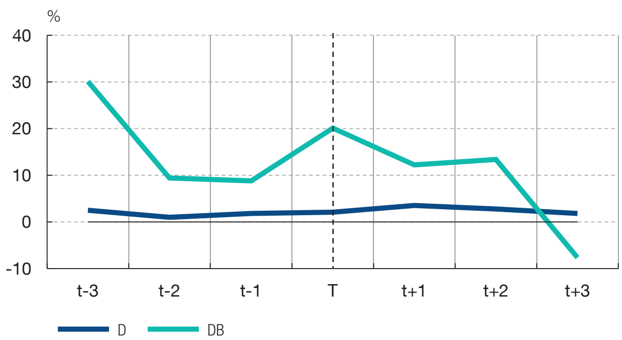
GOVERNMENT DEBT/GDP FIGURE 15



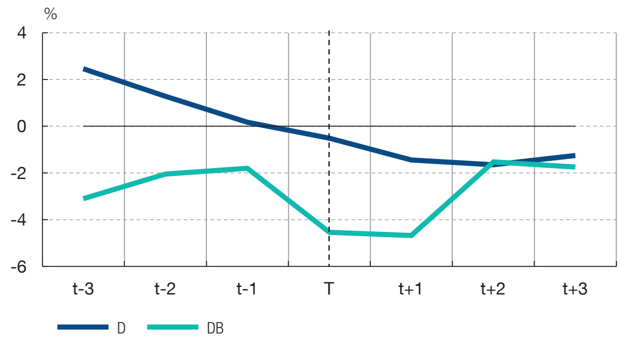
REAL GROWTH RATE FIGURE 16



INFLATION RATE FIGURE 17



PORTFOLIO CAPITAL INFLOWS/GDP FIGURE 18



3.3 Timing matters

Apart from the systematic differences between “single” and “twin” crises, our analysis also shows that “twin” crises themselves are far from being homogenous events. By taking into account the sequencing of crises during “twin” episodes, we find significant differences in the levels and dynamics of budget deficits, inflation rates, credit to the private sector, and portfolio capital flows. This is a relevant result, given that the twin-crises literature does not typically examine the sequencing of twin events.

4 Conclusions

Our results add to the literature aimed at uncovering stylized facts associated with financial and economic crises. The event study presented in this paper distinguishes several different types of crises, and can reveal nonlinear relationships. We believe that these results, by providing a detailed understanding of the economic dynamics around different crisis episodes, can help in building better early warning indicators, as well as in designing theoretical models where these issues can be studied more formally.

THE AUTOMATIC ADJUSTMENT OF PENSION EXPENDITURES IN SPAIN: AN EVALUATION OF THE 2013 PENSION REFORM

ALFONSO R. SÁNCHEZ

WORKING PAPER Nº 1420

The Spanish pension system was reformed in 2011, and again in 2013, with the goal of ensuring its fiscal balance over the long term. This study, undertaken by Alfonso Sánchez of the Univ. Pablo de Olavide while he was a Visiting Fellow at the Banco de España, quantifies the budgetary and distributional impacts of the 2013 reform.

1 The 2013 Spanish pension reform: context and content

Ever since the 1980s, Spanish long-term demographic prospects have been among the weakest in the OECD. The authorities have been under constant pressure to reform its large pay-as-you-go pension system, but the pace of reforms has been sluggish. This state of affairs was shattered by the 2008-2012 crisis: acute short-term financial imbalances emerged and the government responded with a broad set of reforms, implemented in two stages in 2011 and 2013. The former was a standard package of parametric changes, including a gradual increase in the statutory retirement age (from 65 to 67, staggered for completion by 2027), in the early retirement age (from 61 to 63) and in the qualifying contributive years in the pension formula (from 15 to 25 years). The changes in 2013 went much further, introducing an automatic adjustment mechanism linked to life expectancy and to the financial condition of the pension system. The life expectancy adjustment is by now relatively standard among OECD countries, but the macro-adjustment mechanism is an unprecedented innovation. It seeks to guarantee the financial stability of the system (over a complete business cycle) by adjusting pensions while keeping contributions stable.

The new pension formula

Before 2013, pension payments were a function of individual characteristics (retirement age, contributive wages and years of contributions) and were indexed to consumer inflation. The reform introduced three new elements:

(i) **"Factor de sostenibilidad" (sustainability factor).** Starting in 2019, a new multiplicative term in the pension formula will reduce the *initial* pension in lockstep with the observed gains in life expectancy at age 67 (using the Social Security mortality tables and taking the value recorded five years before as a reference).

(ii) **"Indice de Revalorización (IR)" (revaluation index).** The annual growth rate of the entire pool of pensions remaining at the beginning of the period, g_{t+1}, is no longer linked to inflation but to (a linearized version of) the following formula:

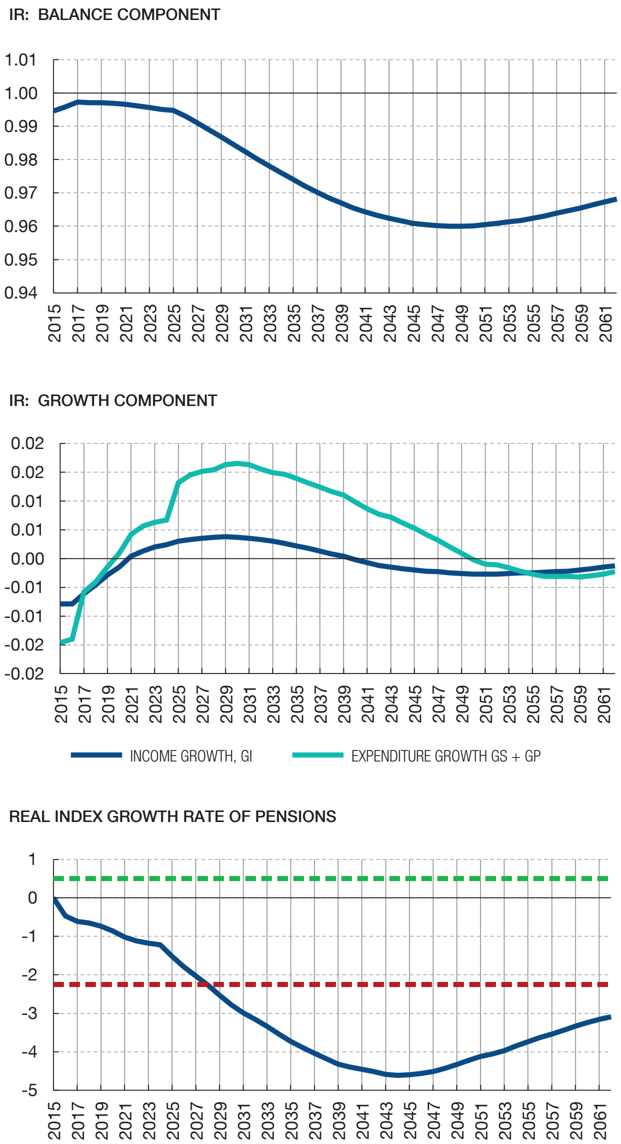
$$(1+g_{t+1}) = \frac{1+g^{I}_{t+1}}{(1+g^{P}_{t+1})(1+g^{s}_{t+1})}\left(\frac{I_t}{G_t}\right)^{\alpha} \qquad (1)$$

where g^{P}_{t+1} is the growth rate of the number of pensions, g^{s}_{t+1} is the growth rate of the average pension (the pensions of the deceased are generally smaller than those of newcomers), g^{I}_{t+1} is the growth rate of social contributions, and I_t and G_t represent the system's aggregate gross income and expenditure. In an effort to smooth the computation over an entire business cycle, these growth rates are 11-year moving averages. Also for smoothing, only a fraction $1/4 \leq \alpha \leq 1/3$ of the annual imbalance is corrected each year.

In equation (1), the first fraction captures the *dynamics* of the system's financial state (growth component), while the second reflects the current disequilibrium between revenue and expenditures (balance component). Figure 1 provides a simulation of the workings of the mechanism in our base environment (which, as described below, assumes an increase in pension expenditure G_t with roughly constant income from contributions I_t). In this setting, the balance component, I_t/G_t, leads to a negative adjustment in the level of pensions (top panel). Similarly, the dynamics of revenue and expenses (middle panel) also contribute to lower index values (except for a brief interval at the beginning). The combined effect, captured by g_t in the bottom panel, is one of constant declines in the real value of pensions. Declines peak in the 2035/2055 interval, with annual cuts exceeding 4%. Cumulatively, the cuts are significant (the real pension benefit 40 years after retirement in 2015 could be around 30% of its initial value).

(iii) **Bounded IR mechanism:** Lower and upper bounds on the indexation growth rates were introduced to moderate the size of the pension cuts in (ii).

UNBOUNDED IR MECHANISM IN THE BASE ECO/DEMOGRAPHIC ENVIRONMENT FIGURE 1



NOTE: Top and middle panels: workings of the two components of the IR indexation mechanism (equation (1)). Bottom panel: simulated growth rate of the overall pension index, g_t, in real terms, assuming 2.5% inflation.

> The 2013 law includes explicit values for those bounds: *a minimum nominal increase* in current pensions of 0.25% and a *maximum real increase* of 0.5%, show in red and green, respectively, in the bottom panel. Assuming inflation of 2.5%, the real lower bound on g_{t+1} is an annual decrease of 2.25%.

Our aim is to quantitatively assess the financial future of the system, with and without the 2013 changes and considering a broad range of eco/demographic scenarios. We also quantify the welfare costs of the 2013 reform.

2 The simulation model and its calibration

We implement a large-scale OLG model in the Auerbach-Kotlikoff tradition, applied to the interval 2010/2100. The basic components of the model and the eco/demographic scenarios follow.

Demographics

We use a built-in model to simulate the population dynamics in two potential scenarios. Our base setting reproduces EUROSTAT's fertility, mortality and immigration assumptions (as used by the EC *Aging Working Group).* Alternatively, we adopt the long-term projections of the Spanish National Statistics Institute to devise a more up-to-date scenario for fertility and mortality, and develop a model of our own for the joint performance of immigration and unemployment. This latter calibration is our base case, featuring smaller immigration flows, higher dependency ratios and lower population growth.

Households

Individuals in each generation are grouped in representative households that differ in terms of education and relative value of leisure (i.e. retirement behaviour). They pool their labor income and idiosyncratic longevity risk and take coordinated retirement and consumption/saving decisions by acting as rational expected utility maximizers. Individual income flows are generated by exogenous models of their life-cycle labor participation and employment, the labor earnings of full-time employees and the distribution of education. Again we consider base and alternative scenarios, although in this case the benchmark is less optimistic than the alternative, assuming a slow return to moderate unemployment rates (16% by 2050), compared with the AWG projection (8% by 2035).

Institutions

We model the retirement and survival pensions in the Spanish General Regime, taking the configuration after the 2011 reform as our reference. The model includes the individual pension formula, affiliation requirements, and the system's discretionary components (minimum and maximum pensions and contributions). This institutional framework is assumed constant with two important qualifications: (i) we make explicit assumptions about the future discretionary components and (ii) include changes in the very generous system of survival pensions. For both (i) and (ii) we propose a basic and an alternative scenario. In the base case, minimum and maximum pensions stay essentially constant in real terms, while maximum contributions capture half of the growth in labor productivity, and survival pensions are progressively eliminated for pensioners having their own retirement benefit. In the alternative environments, real discretionary components are constant and survival regulations are unchanged. The rest of the public sector includes rules for public expenditure and public debt as a percentage of GDP and for the workings of the pension Trust Fund. The overall public budget is balanced with a simple linear income tax.

Macroeconomic environments

The supply side of the economy is entirely neoclassical, including a Cobb-Douglas production function and exogenous technological growth. The model leaves aside monetary considerations, but we include inflation assumptions to deal with the nominal bounds in the IR mechanism. We consider a 2.5% annual inflation rate as our base and explore two additional settings with larger (4%) and smaller (1%) inflation rates. We also consider alternative scenarios for productivity growth with an annual 1.6% rate as the base and high/low alternatives featuring 2/1% rates.

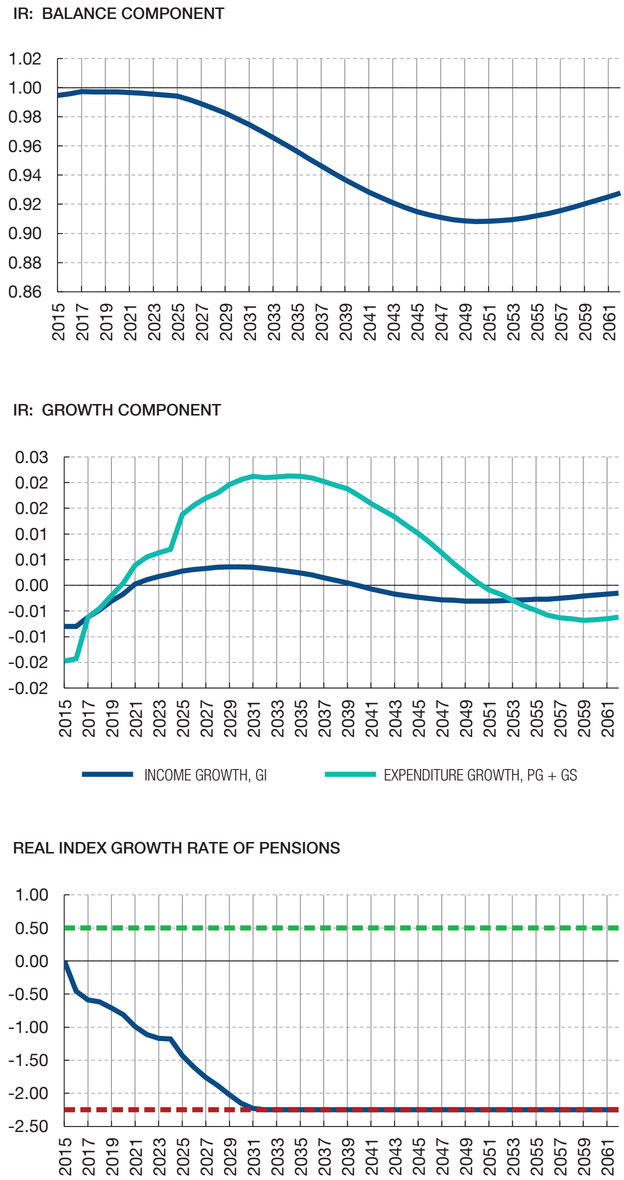
3 Results

In the base case without the 2013 reform, pension expenditure will eventually exceed contributions by almost 8% of GDP in 2050/2070 (Base/R11 column of Table 2). Tax collection should increase from 22% to 34% of GDP in 2070 to cope with this extra expenditure. The need for additional reform is, therefore, clear. The impact of the 2013 changes is shown under the BAA headings ("bounded automatic adjustment") in Table 2. The pension expenditure/GDP ratio peaks after the reform below 12%, implying "savings" of 5.5 percentage points of GDP by 2050. The BAA system seems to work well, although the legal bounds imposed on pension indexation prevent the system from fully restoring its financial equilibrium (a 2% deficit remains in 2050). Figure 2 illustrates this outcome: the IR mechanism results in pension contraction, but the lower bound is reached by around 2030 and stays there for more than 3 decades. The income coverage of pension benefits around 2050 (top panel) is only 91% (compared to a 96% value in the unbounded simulation). Clearly, the operation of the floor in g_t significantly blocks the correction of the imbalance. There is also a higher (lower) incidence of minimum (maximum) pensions and appreciable changes in retirement patterns.

The welfare changes induced by the reform are evaluated by calculating an equivalent consumption

BOUNDED IR MECHANISM IN THE BASE ECO/DEMOGRAPHIC ENVIRONMENT

FIGURE 2



NOTE: Top and middle panels: workings of the two components of the IR indexation mechanism (equation (1)). Bottom panel: simulated growth rate of the overall pension index, g, in real terms, assuming 2.5% inflation.

variation (the percentage shift in the household's life-cycle consumption that leaves utility unchanged after the reform). Table 1 shows the results. Cohorts of older workers suffer large losses, peaking at around 4% for those born around 1990 (with some variation by educational level). In contrast, cohorts of young workers when the reform is implemented and future cohorts are better off under the new institutional setting. Educational heterogeneity is more important for future generations, as college graduates emerge from losses earlier and enjoy a steeper profile of gains by age of birth.

WELFARE CHANGES INDUCED BY THE BOUNDED AUTOMATIC ADJUSTMENT REFORM

TABLE 1

Cohort	Primary	Secondary	Adv secondary	College
1930	-2.50	-0.29	-0.32	-0.31
1940	-0.87	-0.98	-1.04	-1.08
1950	-1.54	-1.64	-1.76	-1.82
1960	-2.46	-2.48	-2.88	-2.74
1970	-2.73	-3.37	-3.42	-3.19
1980	-3.23	-3.43	-3.22	2.77
1990	-4.10	-3.33	-2.69	-1.37
2000	-2.77	-1.77	-0.97	2.19
2010	-0.96	0.12	1.07	6.33
2020	0.32	1.41	3.50	8.96

NOTE: Welfare changes induced by the BAA reform in the base scenario. Equivalent varations (percentage points) by education level and cohort of birth for workers retiring at 65. Negative (positive) sign indicates welfare loss (gain).

PENSION DEFICIT IN DIFFERENT ECO/DEMOGRAPHIC ENVIRONMENTS

TABLE 2

	Base		Low Immigration		Low Unemployment		Survivors & Old-age pension accumulation		Neutral Max/Min pensions	
	R11	BAA	R11	BAA	R11	BAA	R11	BAA	R11	BAA
2010	-0.91	-1.12	-0.93	-1.11	-0.90	-1.13	-1.67	-1.64	-0.90	-1.11
2030	0.52	-0.71	1.60	-0.04	-1.04	-1.44	0.46	-0.69	1.32	-0.09
2050	7.76	2.21	12.35	4.95	5.21	0.59	8.92	3.20	9.48	4.08
2070	7.92	0.80	11.85	2.91	5.96	-0.29	10.33	2.61	9.79	3.18

	Low productivity growth		High productivity growth		Low inflation		High inflation	
	R11	BAA	R11	BAA	R11	BAA	R11	BAA
2010	-0.66	-0.94	-0.80	-1.00	-0.91	-0.99	-0.91	-1.15
2030	1.32	-0.24	0.25	-0.88	0.52	-0.17	0.52	-0.84
2050	10.39	3.88	6.35	1.31	7.76	3.89	7.76	0.87
2070	10.00	2.52	6.46	-0.15	7.92	2.82	7.92	-0.10

NOTE: Deficit of the pension system (expenditure minus income) as a percentage of GDP under different simulation scenarios. “R11” indicates pension system after 2011 reforms. “BAA” indicates pension system under bounded automatic adjustments introduced in 2013.

4 Conclusions

At the aggregate level, the 2013 pension reform implies substantial progress towards achieving the long-term fiscal balance of the system, largely addressing the impact of gradual population aging. This will likely stabilize the system, but there is considerable uncertainty about the final outcome. Table 2 illustrates this uncertainty by showing how the results change in the alternative eco-demographic environments. The most probable result is that the reform will fall short to some extent and some additional adjustments will still be necessary. This general conclusion is also contingent on the future course followed when setting survival pensions and minimum/maximum pensions and contributions. On welfare grounds, some cohorts suffer a disproportional share of the costs. Moreover, the mechanism used to rebalance income and expenditures relies heavily on reducing pensions in real terms during the retirement period (as the Revaluation Index grows below the rate of inflation) and less on cutting initial pensions through the Sustainability Factor. Therefore retirees may face decreasing purchasing power year after year during retirement.

STRUCTURAL REFORMS IN A DEBT OVERHANG

JAVIER ANDRÉS, ÓSCAR ARCE AND CARLOS THOMAS

WORKING PAPER Nº 1421

Motivated by current Euro area policy debates, this paper analyzes reforms in product and labor markets using a macroeconomic model that incorporates credit restrictions and a pre-existing stock of long-term debt. These two core features of the current scenario facing some Euro area countries combine to produce a slow deleveraging of the private sector and a persistent recession following a negative financial shock. In this environment, structural reforms may stimulate output and employment even in the short run, despite their deflationary effects. Furthermore, by favoring a faster recovery of investment and collateral values, product market reforms bring forward the end of the recessionary deleveraging phase.

1 Structural reforms, deleveraging, and the zero lower bound: Uncharted territory

In spite of recent improvements in some countries, economic growth in the periphery of the Euro area remains fragile, in a context of high private and public debt. The lack of room for expansionary fiscal and (conventional) monetary policies foreshadows protracted private sector deleveraging amid low growth. Against this backdrop, structural reforms in product and labor markets have recently attracted much support by multilateral bodies, central banks and commentators.[1]

Internal devaluations fostered by reforms leading to lower and/or more flexible prices and wages should naturally help the external sector lead the recovery in the short term, while also stimulating current expenditure of forward-looking households and firms (the expectations channel). However, as monetary policy is constrained by the zero lower bound, the disinflationary effects of reforms are also likely to set loose contractionary forces in the short term arising from higher real interest rates and debt-deflation effects (the deflationary channel). Which of the two previous forces dominates – competitiveness and long-run expectations versus the deflationary channel – remains an open question and, in principle, well-intended reforms could end up worsening the recession and postponing the recovery, as Eggertsson et al. (2014) recently emphasized.[2]

2 A macro model of slow deleveraging

To shed light on this issue, this paper examines the conditions under which structural market reforms are likely to produce positive effects in the short term. To this aim, the authors develop a macroeconomic model of an open economy within a monetary union in which the nominal interest remains fixed, thus emulating the zero lower bound constraint. Specifically, the model features borrowing constraints that limit the volume of loans that debtors can assume relative to the value of their real estate holdings. An important novelty with respect to most previous work in this area, aimed at producing an empirically plausible slow deleveraging path, is the assumption of long term debt contracts that impose a constant amortization rate for existing debts.

A baseline deleveraging scenario motivated by the financial origin of the recent crisis is constructed by introducing a 'credit crunch' shock, represented as a permanent fall in the loan-to-value ratios faced by borrowers. This shock produces a sharp drop in real estate prices and, as a result, collateral values fall sufficiently so as to move the economy into an alternative debt regime, in which gross new credit suddenly stops and the stock of debt starts decaying at the contractual amortization rate (see Figure 1). The credit freeze depresses domestic demand and produces a protracted recession. At some point, the value of collateral relative to debt recovers sufficiently to justify new credit flows. This gives rise to an expansionary phase, characterized by a virtuous circle of higher borrowers' net worth, increasing asset prices and new lending, that ultimately lead to positive growth and higher employment. Importantly, the time at which the economy switches from the deleveraging phase to the recovery phase is endogenous.

3 Labor and product market reforms: Some room for a positive impact in the short-run

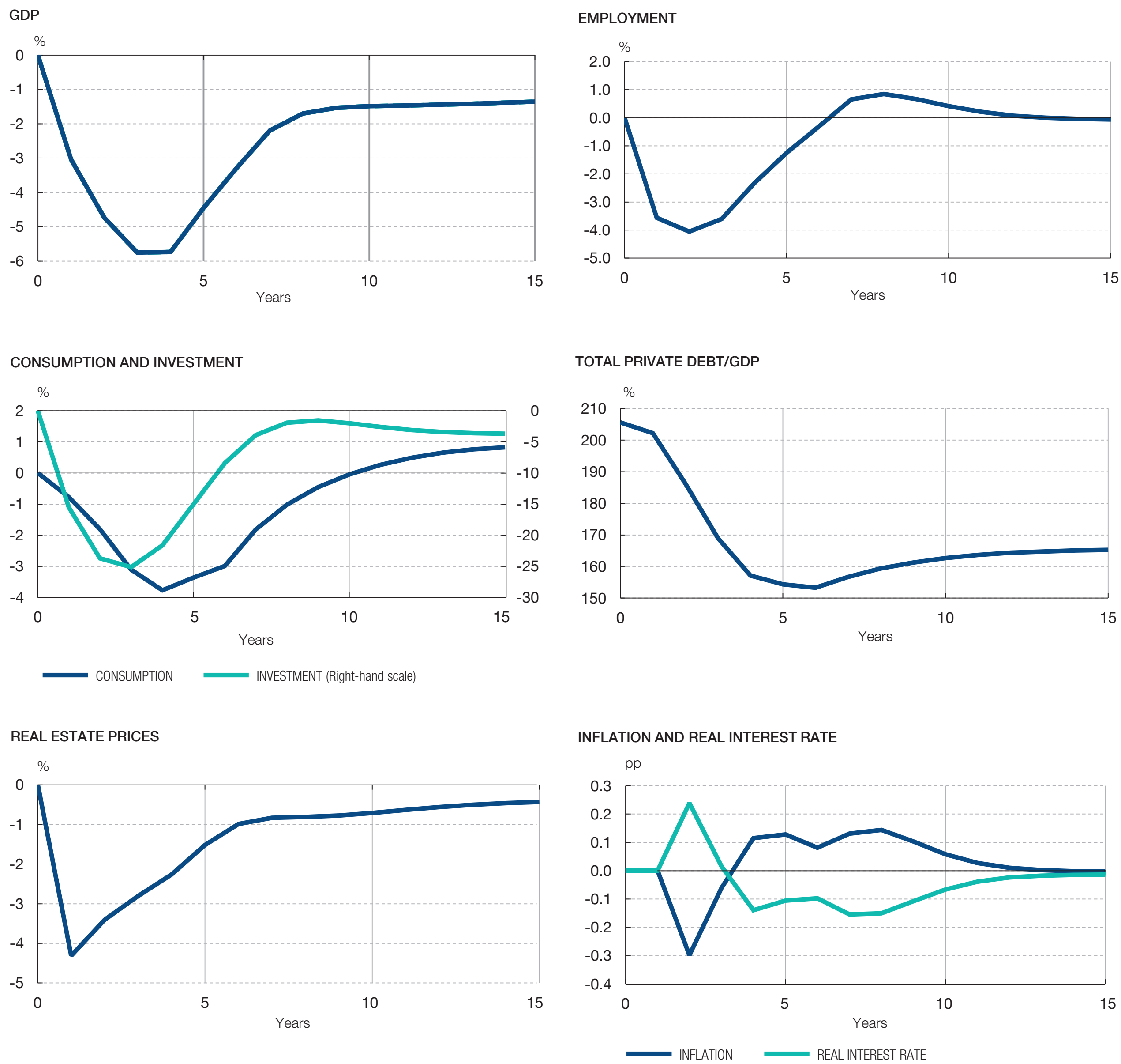
Building upon the previous baseline scenario, the authors simulate the effects of permanent reductions in desired price and wage markups, as proxies for reforms in product and labor markets, respectively. In addition

[1] See e.g. M. Draghi (2014) "Unemployment in the Euro Area", speech at the Annual Central Bank Symposium in Jackson Hole, 22nd August.

[2] Eggertsson G., A. Ferrero and A. Raffo, 2014. "Can structural reforms help Europe?," *Journal of Monetary Economics,* 61(C), 2-22.

A BASELINE DELEVERAGING SCENARIO

FIGURE 1



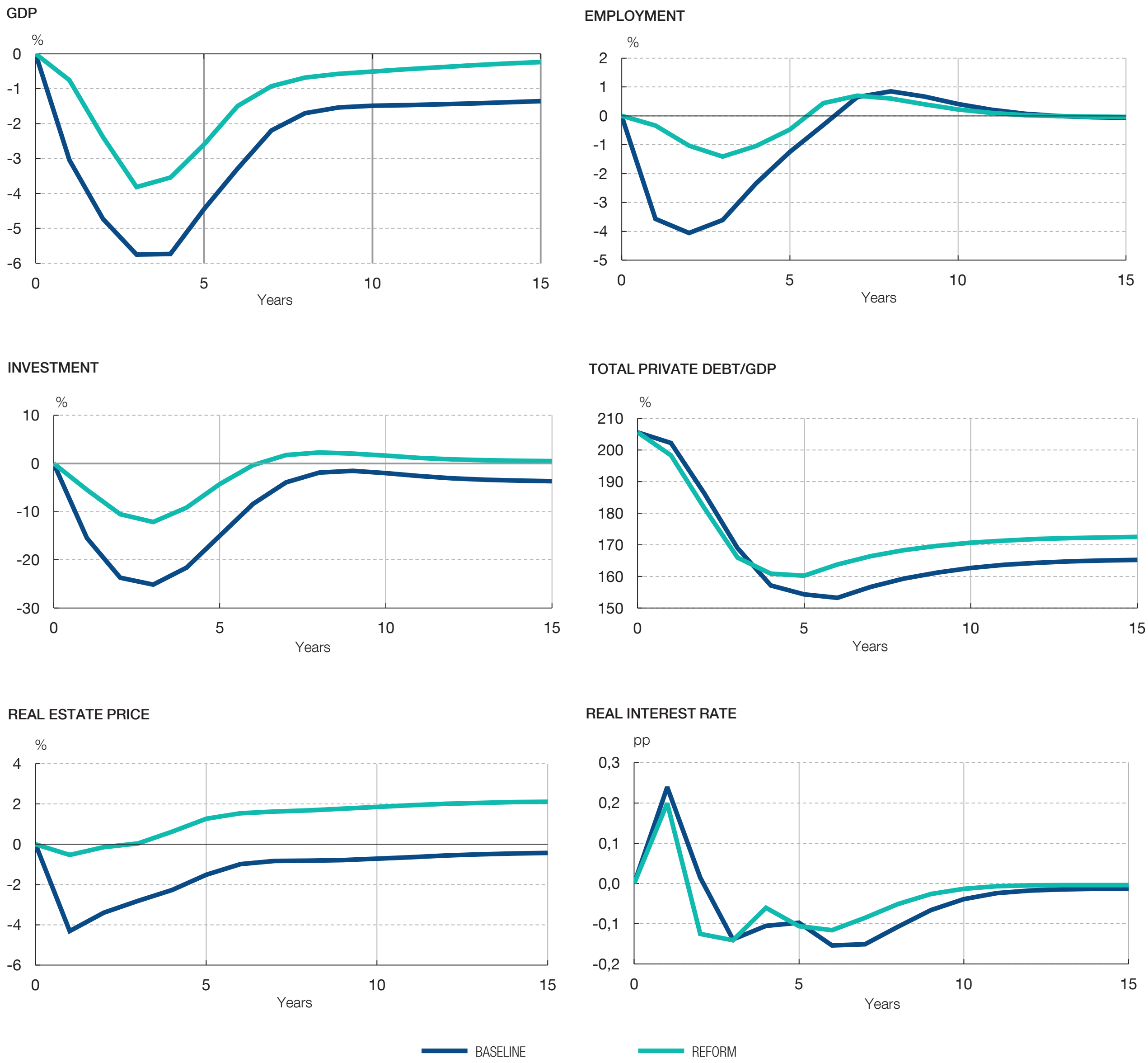
to the familiar long-run output gains in economic activity, it is found that this set of reforms can mitigate the short-run output and employment losses caused by the deleveraging shock, although the effectiveness of the reform in this respect varies depending on the market at hand.

First, stronger competition among firms in the product market, and the ensuing long-run gains in consumption and output, lead forward-looking households and firms to increase their investment in the short run, vis-à-vis the baseline (no-reform) scenario (see Figure 2). Stronger investment demand in turn alleviates the fall in real estate prices produced by the deleveraging shock with a positive impact on borrowers' net worth and, hence, on investment. In this way, a faster recovery of their net worth allows borrowers to obtain fresh credit at an earlier date. That is, the reform brings forward the end of the deleveraging process and hence of the recession. These effects (more collateralized credit at an earlier date, and faster exit from recession) lead borrowers to further increase their investment demand today, with the resulting boost to asset prices, collateral values, and so on.

By contrast, a labor market reform that reduces the wage markups by a similar magnitude, which yields long-run gains similar to those from the product market reform, produces more modest improvements in GDP in the short run (see Figure 3). Two factors explain this

THE IMPACT OF A PRODUCT MARKET REFORM

FIGURE 2

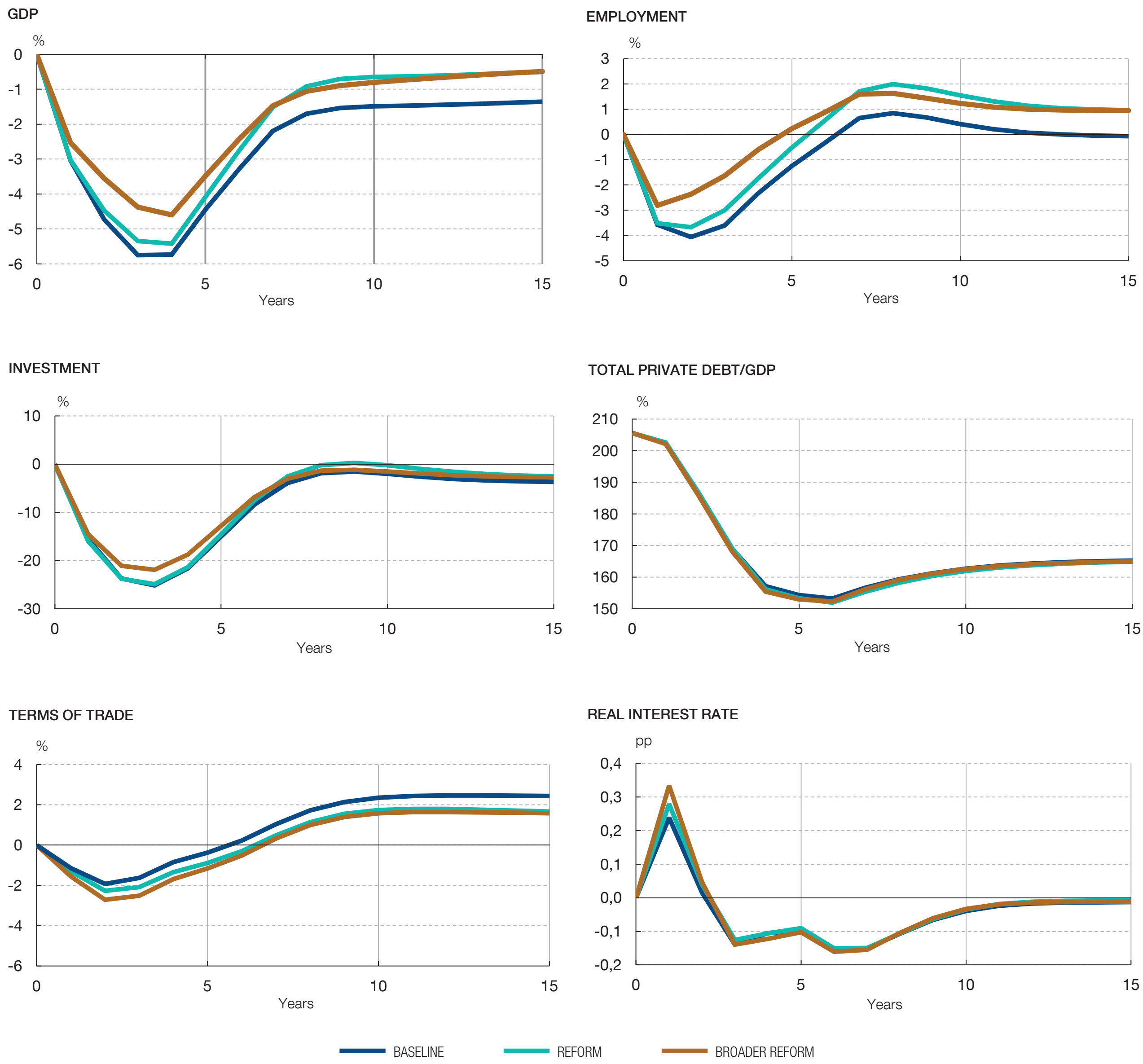


difference. First, this reform makes labor cheaper relative to capital (equipment and commercial real estate), and hence does not produce a significant rise in the demand for real estate or in its price. As a consequence, neither collateral values, nor investment, nor the end of deleveraging are much affected. Second, unlike a reduction in price markups, a reduction in wage markups needs to overcome a double layer of nominal rigidities (wages and prices) before affecting actual production prices. In fact, a broader labor market reform that includes an increase in nominal wage flexibility turns out to be significantly more powerful in the short run, underlining the adverse effects of nominal wage rigidities on employment and output (see the broader reform path, show in beige, in Figure 3).

The foreign sector plays an important role in shaping the short-run effects of reforms, in the sense that higher elasticities of exports and imports with respect to the terms of trade lead to larger short-run gains from reforms. In particular, under some counterfactual calibrations, labor market reforms may lead to some negative short-run effects on GDP and employment if price elasticities of trade flows are sufficiently low, whereas product market reforms seems significantly more robust to a more muted response of net exports. The reason is intuitive: the labor market reform conveys a negative impact on wages (this effect is positive under the product market reform), whose effect on domestic households' disposable income may be large unless the positive reaction of employment is strong enough.

THE IMPACT OF A LABOR MARKET REFORM

FIGURE 3



This last condition, in turn, requires a sufficiently large response of net exports.

4 Inspecting the mechanism

Collateral constraints and long-term debt play an important role, essentially, by buffering the short term impact of reform-driven changes in various prices, such as consumption and real estate prices, and the real interest rate. Interestingly, credit restrictions and long term debt mitigate the (negative) deflationary effects induced by the reforms. On one hand, the fact that the new credit flow freezes during the deleveraging phase implies that the increase in real interest rates brought by the reforms has little effect on domestic demand. On the other hand, since under long-term contracts debtors pay back only a small fraction of their outstanding debt each period, the deflation produced by the reform has only a second order effect on borrowers' net debt flows and hence on their spending capacity.

Hence, somewhat paradoxically, a scenario of widespread financial tightness and long-term debt contracts may work as an anaesthetic for some of the short-term negative side-effects of reforms.

THE TWO GREATEST. GREAT RECESSION VS. GREAT MODERATION

MARÍA DOLORES GADEA, ANA GÓMEZ-LOSCOS
AND GABRIEL PÉREZ-QUIRÓS

WORKING PAPER Nº 1423

The Great Recession of 2008 prompted debate about the possible end of the tranquil times of the Great Moderation. However, this paper presents evidence for the US economy that the decrease in volatility (the hallmark of the Great Moderation) seems to be quite a permanent phenomenon. Reduced volatility is detected even through the turmoil of the Great Recession, and would be detected even if this pattern of recession-recovery lasted for extended horizons. This fact has important implications for policymakers, and invites a reconsideration of the explanations of the Great Moderation, especially those related to good policy or good luck.

1 Introduction

The period of unusually stable macroeconomic activity experienced in the United States during the last decades of the 20th century is known as the Great Moderation (GM, henceforth). Kim and Nelson (1999) and McConnell and Pérez-Quirós (2000) were the first to document the substantial decline in US output volatility in the early 1980s. Recently, Furman (2014) called attention to the GM when he stated that "In the wake of the Great Recession, it is worth reassessing the Great Moderation hypothesis and understanding what it means for policy going forward". The literature on the GM is prolific, and its possible causes continue to be a matter of lively debate. The explanations fall into three main categories, namely, changes in the structure of production, improved policy and good luck.

Prior to the recent economic crisis, the GM was seen as a permanent phenomenon. Blanchard and Simon (2001) concluded that "The decrease in output volatility appears sufficiently steady and broad based that a major reversal appears unlikely. This implies a much smaller likelihood of recessions...". Lucas (2003) stated that the "central problem of depression-prevention has been solved, for all practical purposes". In fact, since 1984, the US had experienced only two relatively mild recessions, until the latest one[1].

The Great Recession (GR, henceforth) was of unprecedented severity and duration in the postwar US business cycle and led many economists to suspect a major breakdown in the data generating process of the GDP, possibily implying the end of the GM period[2]. A number of influential papers conjecture that the GM has ended as a consequence of accumulated disequilibria. That is, an excess of confidence led to excess leverage, which left the economy vulnerable to small shocks to asset prices (see Brunnermeier and Sannikov, 2013, and Brunnermeier, Eisenbach and Sannikov, 2013). Bean (2010) relates the end of the GM to a misperception of risk, while Williams and Taylor (2009) and Taylor (2010, 2012) claim that the GM ended because of the "Great Deviation". Empirically-oriented papers also conclude that the GM is over; see Ng and Tambalotti (2012); Ng and Wright (2013); Keating and Valcarcel (2012); and Canarella, Fang and Miller (2008). Against these arguments, Clark (2009) argues that the economy undergoes occasional shifts in volatility, although low volatility is the norm, which suggests that the GM is not over.

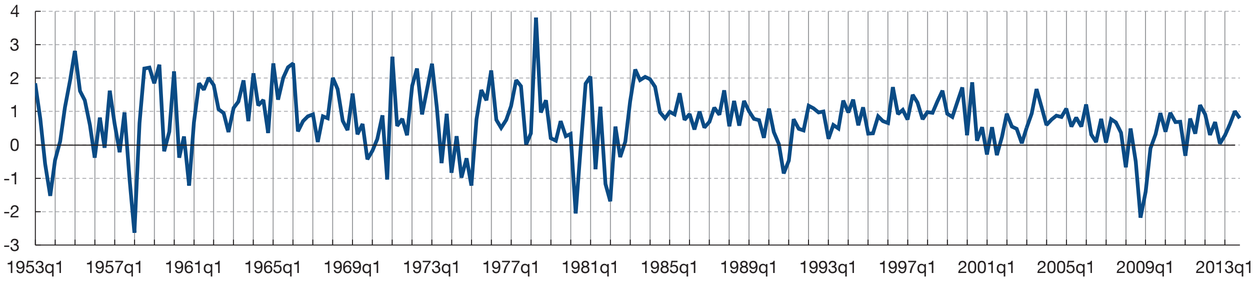
For academics and policymakers, the question whether the GM has ended or continues is just as important as the original discovery of the GM. For the academic literature, a break in volatility matters for widely-used theoretical and empirical techniques, for example, in the estimation of state-space models of business cycle fluctuations; model calibration exercises; and the estimation of structural vector autoregression models over periods spanning the break. For policymakers, it is also crucial for predicting the expected magnitude of future expansions, the likelihood of sluggish or jobless recoveries, or other changes in business cycle characteristics. Therefore, given the relevance of the issue, a clear statement based on sound statistical procedures on whether the GM still holds is very much needed.

[1] The National Bureau of Economic Research identifies three recessions since the beginning of the GM: 1990.3-1991.1, 2001.1-2001.4, 2007.4-2009.2.

[2] From now on, by "GR" we refer to the period that comprises the recession that started in 2007.4 and its subsequent recovery, because we look for a permanent structural break in the data, not a temporary change associated just with the recession period.

US GDP GROWTH RATE

FIGURE 1



2 Statistical methods and results

The quarterly US GDP growth rate is plotted in Figure 1. Several challenges come to mind when we wish to analyze whether or not the GM has come to an end. First, unlike the original papers that detected the GM, we are looking for more than one break in the data. We should find a break for the GM and, if the GM has ended, an additional break associated to the GR. Second, if an additional break exists, it would show up at the end of the sample, when a structural break test is less powerful. Third, if this additional break exists at the end of the sample, the sample could be too short, implying imprecise estimates of the dynamic behavior after the break, making it difficult to find statistically significant differences with respect to the previous periods. These three challenges: several breaks, end-of-sample lack of power, and short sample uncertainty make it hard to test for additional structural breaks.

In Gadea, Gómez-Loscos and Pérez-Quirós (2014) we carefully analyze all these technical issues. For the problem of identifying multiple breaks, instead of the Andrews (1993) and Andrews and Ploberger (1994) tests, we apply Bai and Perron (1998, 2003a,b), and Inclan and Tiao (1994). While these tests permit more than one break, the only one we find is the break associated with the GM. We find no evidence of additional breaks associated with the GR.

To deal with the end-of-sample problem, we propose an experiment where we consider what the structural break tests would have found if the GR had started in any period from 1984.2 to 2007.3, instead of 2007.4. Regardless of where we place the GR sample, the tests fail to find an end of the GM.

The small sample problem is solved by generating an artificial additional sample with simulated data using a stationary bootstrap of the GR sample. We add 5, 10 or 15 years of data that have the same properties as the GR data and we generate 10,000 simulations, i.e. 10,000 US economies enlarged with 5, 10 or 15 years of data. In no case do we find an additional structural break in the data associated with the GR, even when the data are extended by 15 more years. Obviously, the immediate interpretation of the results is that volatility has increased during the GR, but not by enough to indicate a return of the pre-GM volatility period. Next, to test this interpretation, we rescale the additional sample to equate its variance to that of the pre-GM period. An example is shown in red in Figure 2(a). Still, in most cases, the results show no additional break. At this stage, the question is how can it be that we fail to find an additional break, even if we add 15 years of data with the pre-GM volatility? Is there something wrong in the specification of the tests?

To address this question, we instead generate 15 years of artificial data by bootstrapping from the pre-GM sample. An example is shown in blue in Figure 2(a). Now, indeed, the test results change. Now, the GM is the only break found in only 5% of the new artificial datasets. In 40% no break is found, and the GM does not show up; in 40% an additional break is found, associated with the GR; and in the rest of the cases, there are random breaks not associated with the GM or the GR.

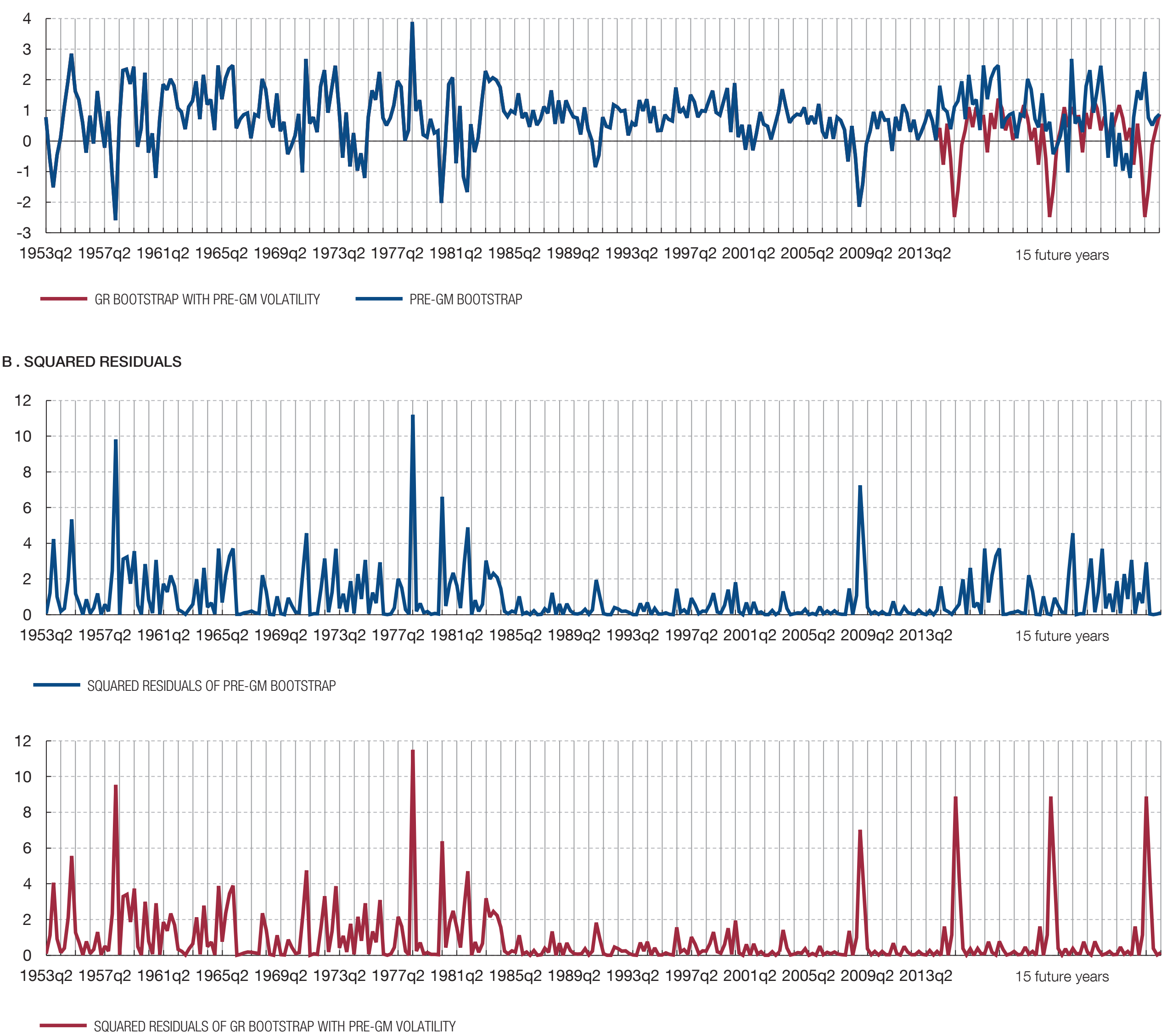
Thus, the difference between the pre-GM sample and the GR period seems not just related to the level of volatility. So what is the difference? The intuitive explanation can be seen in Figure 2, comparing the hypothetical future path bootstrapped from the pre-GM data (blue) with the path bootstrapped from the GR period and rescaled to match its variance to that of the pre-GM period (red). A look at each of these series, and their squared values in Figure 2(b), allows us to observe that the same volatility comes from two very different paths. On the one hand, the pre-GM series (blue line) reflects a fairly uniform increase of volatility. On the other hand, the GR series normalized with the pre-GM volatility (red line) shows that the rise in volatility is caused by extreme recessionary events. It is worth noting that, outside of these recessions, the volatility remains greatly reduced. Coming back to the postulated

HYPOTHETICAL FUTURE GDP SCENARIOS (15 years)

FIGURE 2

A . GDP GROWTH RATES

B . SQUARED RESIDUALS



explanations of the GM, it seems acceptable to exclude good luck or even good policy playing a primary role in an economy such as that shown by the red line.

With respect to the depth of the last recession, we carry out an exercise in which we compare the growth rate of the GDP series during the last recession with the growth rate of the pre-GM data. We compute a Wilcoxon rank sum test and find that we cannot reject that the observations of the last recession come from the same distribution as those of the pre-GM recessions. This strongly suggests that, contrary to the predominant opinion, the GM is only linked to the characteristics of expansion periods. Finally, therefore, we investigate which features of the GM expansions make them fundamentally different from the pre-GM ones.

The existing literature has focused on the shape of the recoveries, because it has crucial implications for the stochastic properties of the GDP growth series, long-term economic activity and job creation capacity. Some authors claim that the peak-reverting phase of the business cycle, during which output reverts to its long-run trend, with intense job creation (as opposed to the apathetic recoveries since the nineties, with sluggish job creation) disappeared after the mid-eighties[3]. However, the severity of an episode such as the GR, unprecedented in the GM times, leaves the door open to a possible transformation in the shape of recoveries. According to Morley and Piger (2006), the

[3] See Camacho, Pérez-Quirós and Rodriguez-Mendizabal (2011) and Ng and Wright (2013).

sluggish recoveries of the first two recessions of the GM were basically linked to the fact that these two recessions were mild. However, even though the GR was powerful, and comparable to the pre-GM recessions, we find that the first year of the expansion is clearly different from the pre-GM ones. We check this using the Wilcoxon rank sum test, and clearly reject the null hypothesis that the first year of the last expansion is equal to the first year of the pre-GM expansions. However, this is not the case for the second and third year of expansions.

The GM was originally associated with a decrease in output volatility and was considered a great achievement in terms of reducing risk and of decreasing the frequency and depth of recessions, which was, in turn, linked to good luck or good policies. However, after carefully analyzing the characteristics of the GM, they seem to be more clearly associated with the shape of expansions. Perhaps the benefits associated with an apparent increase in stability are paid for at a very high price. Feeble expansions may be the price to pay for low volatility.

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COUNTRIES' SAFETY AND COMPETITIVENESS, AND THE ESTIMATION OF CURRENT ACCOUNT MISALIGNMENTS

TERESA SASTRE AND FRANCESCA VIANI

WORKING PAPER Nº 1401

Current account imbalances and their sustainability are among the most debated international policy issues. Through the recently designed External Balance Assessment methodology (EBA), the IMF estimates the impact of several countries' fundamentals and policies on their current account balance, calculates misalignments in their current account position and indicates policy recommendations which, if implemented, should contribute to reducing these imbalances.

In this paper, we explore some extensions to the EBA, following two courses. First, we distinguish in current account regressions between countries that are considered safe investment destinations and non-safe economies. Since this distinction is likely to acquire special relevance in periods of global turmoil, we also distinguish between periods of global stress and tranquil times. Second, we embed in EBA regressions variables that drive countries' external competitiveness.

Results show that current account dynamics may be affected by competitiveness factors and differ significantly between safe and non-safe economies, with such differences becoming particularly relevant in turbulent times. These findings suggest that EBA regressions may be overlooking the influence of countries' safety and competitiveness on external balances. Our alternative misalignment estimations show larger imbalances than those calculated with the EBA for some Asian economies and smaller imbalances for some high-surplus EU countries.

SOVEREIGN DEBT MARKETS IN TURBULENT TIMES: CREDITOR DISCRIMINATION AND CROWDING-OUT EFFECTS

FERNANDO BRONER, AITOR ERCE, ALBERTO MARTIN AND JAUME VENTURA

WORKING PAPER Nº 1402

TIn 2007, countries in the euro periphery were enjoying stable growth, low deficits and low spreads. Then the financial crisis erupted and pushed them into deep recession, raising their deficits and debt levels. By 2010, they were facing severe debt problems. Spreads increased and, surprisingly, so did the share of the debt held by domestic creditors. Credit was reallocated from the private to the public sector, reducing investment and deepening the recession even further. To account for these facts, we propose a simple model of sovereign risk in which debt can be traded in secondary markets. The model has two key ingredients: creditor discrimination and crowding-out effects. Creditor discrimination arises because, in turbulent times, sovereign debt offers a higher expected return to domestic creditors than to foreign ones. This provides incentives for domestic purchases of debt. Crowding-out effects arise because private borrowing is limited by financial frictions. This implies that domestic debt purchases displace productive investment. The model shows that these purchases reduce growth and welfare, and may lead to self-fulfilling crises. It also shows how crowding-out effects can be transmitted to other countries in the euro zone, and how they may be addressed by policies at the European level.

THE STRUCTURE OF SUB-NATIONAL PUBLIC DEBT: LIQUIDITY VS CREDIT RISKS

JAVIER J. PÉREZ AND ROCÍO PRIETO

WORKING PAPER Nº 1403

We analyse the determinants of the structure of public debt in the case of Spain, from a sub-national perspective. The endogenous shift in the composition of debt (among short vs long-term instruments, and loans vs securities) depends on observable measures of credit and liquidity risks. To discriminate among competing potential determinants, we set out empirical models that incorporate financial, economic and institutional variables. We estimate the models by GMM and make use of a new quarterly dataset of Spanish regional governments' debt structure for the period 1995Q1-2012Q4. Our results show that the most robust determinants of regional public financial management decisions, as reflected by the structure of debt, are rollover risks and the expectation of central government support (as measured by the dynamics of transfers).

MEASURING BANK COMPETITION IN CHINA: A COMPARISON OF NEW VERSUS CONVENTIONAL APPROACHES APPLIED TO LOAN MARKETS

BING XU, ADRIAN VAN RIXTEL AND MICHIEL VAN LEUVENSTEIJN

WORKING PAPER Nº 1404

Since the 1980s, important and progressive reforms have profoundly reshaped the structure of the Chinese banking system. Many empirical studies suggest that financial reform promoted bank competition in most mature and emerging economies. However, some earlier studies that adopted conventional approaches to measure competition concluded that bank competition in China declined during the past decade, despite these reforms. In this paper, we show both empirically and theoretically that this apparent contradiction is the result of flawed measurement. Conventional indicators such as the Lerner index and Panzar-Rosse H-statistic fail to measure competition in Chinese loan markets properly due to the system of interest rate regulation. By contrast, the relatively new Profit Elasticity (PE) approach that was introduced in Boone (2008) as Relative Profit Differences (RPD) does not evidence these shortcomings. Using balance sheet information for a large sample of banks operating in China during 1996-2008, we show that competition actually increased in the past decade when the PE indicator is used. We provide additional empirical evidence that supports our results. We find that these, firstly, are in line with the process of financial reform, as measured by several indices, and secondly are robust for a large number of alternative specifications and estimation methods. All in all, our analysis suggests that bank lending markets in China have been more competitive than previously assumed.

ENTREPRENEURSHIP AND ENFORCEMENT INSTITUTIONS: DISAGGREGATED EVIDENCE FOR SPAIN

MIGUEL GARCÍA-POSADA AND JUAN S. MORA-SANGUINETTI

WORKING PAPER Nº 1405

Entry of new firms, both in the form of entrepreneurs and corporations, fosters competition and productivity. The entry of firms and productivity have both been low in the Spanish economy over recent years. This paper analyses the determinants of entry focusing on the role of the design and efficacy of enforcement institutions (the judicial system), an aspect traditionally overlooked. To do this, we exploit disaggregated data at the local level in Spain. We find that higher judicial efficacy increases the entry rate of firms, while it has no effect on the exit rate. Crucially, that impact only occurs in the case of the entry rates for entrepreneurs, defined as self-employed, but not in the case of limited liability corporations. This finding may be due to the fact that judicial (in)efficacy can be regarded as a fixed cost to be paid by the agents that litigate. Hence, the economic activity of entrepreneurs - and specifically, their entry into the market - is expected to be more affected than that of larger firms.

DO THE DRIVERS OF LOAN DOLLARISATION DIFFER BETWEEN CESEE AND LATIN AMERICA? A META-ANALYSIS

MARIYA HAKE, FERNANDO LÓPEZ-VICENTE AND LUIS MOLINA

WORKING PAPER Nº 1406

In this paper we compare the determinants of loan dollarisation in two emerging market regions, namely Central, Eastern and Southeastern Europe (CESEE) and Latin America, by means of a meta-analysis of 32 studies that provide around 1,200 estimated coefficients for six drivers of foreign currency lending. One common pattern we identify is that macroeconomic instability (as expressed by inflation volatility) and banks' funding in foreign currency play a significant role in explaining loan dollarisation in both regions. By contrast, the interest rate differential appears to be a key determinant only in Latin America, while the positive impact of exchange rate volatility on dollarisation implies a more prominent role for supply factors in the CESEE region. While the robustness of the results has been verified, our meta-analysis shows that estimates reported in the literature tend to be influenced by study characteristics such as the methodology applied and the data used.

PRICE-COST MARK-UPS IN THE SPANISH ECONOMY: A MICROECONOMIC PERSPECTIVE

JOSÉ MANUEL MONTERO AND ALBERTO URTASUN

WORKING PAPER Nº 1407

This paper explores the dynamics of price-cost mark-ups using firm-level data, paying particular attention to the crisis period 2008-2011. To this end, we apply the econometric framework developed by Klette (1999) to a comprehensive sample of Spanish non-financial corporations in order to estimate price-cost mark-ups for the period 1995-2011 at the aggregate and sectoral levels. The results reveal a widespread pattern of increasing price-cost mark-ups since 2008, both by industry and firm size. Moreover, with the aim of interpreting the pattern identified in our findings, we also relate the changes in our industry level estimates of price-cost margins between 2007 and 2011 to some relevant industry characteristics suggested by the literature, with an emphasis on the extent of market power and of financial pressure. We find a positive and statistically significant association between the growth rate of estimated mark-ups and both our direct measure of market power and our proxy of financial pressure.

FISCAL POLICIES IN SPAIN: MAIN STYLISED FACTS REVISITED

FRANCISCO DE CASTRO, FRANCISCO MARTÍ, ANTONIO MONTESINOS, JAVIER J. PÉREZ AND A. JESÚS SÁNCHEZ-FUENTES

WORKING PAPER Nº 1408

We provide key stylised facts on fiscal policy developments in Spain over the past three decades using quarterly data (1986Q1-2012Q2). First, we compute stylised facts on the cyclical properties of fiscal policies over that period. Next, we report updated evidence on the macroeconomic effects of non-systematic fiscal policies, including updated estimates of their macroeconomic impact (fiscal multipliers) for alternative datasets. To perform the analysis in the paper we built up a comprehensive database of seasonally adjusted quarterly fiscal variables for the period of interest.

THIRD-COUNTRY RELATIONS IN THE DIRECTIVE ESTABLISHING A FRAMEWORK FOR THE RECOVERY AND RESOLUTION OF CREDIT INSTITUTIONS

MARÍA J. NIETO

WORKING PAPER Nº 1409

This article presents a critical analysis of the principles behind the scope and forms of cooperation between EU Member States and third-country resolution authorities in the context of the 2014 Bank Recovery and Resolution Directive. The article also explores the future responsibilities of the prospective Single Resolution Authority regarding relations between the euro area and third-country resolution.

SHORT-SALE CONSTRAINTS AND FINANCIAL STABILITY: EVIDENCE FROM THE SPANISH MARKET

ÓSCAR ARCE AND SERGIO MAYORDOMO

WORKING PAPER Nº 1410

We examine the effect of the short-selling ban in 2011 on Spanish stocks on the level of risk in the banking sector. Before the ban, short positions were found to be positive and significantly related to the creditworthiness of medium-sized banks, these being generally less internationally diversified and more reliant on official support. We show that the ban helped stabilise the credit risk of medium-sized banks, especially those more exposed to short-sellers' activity, but not that of large banks and non-financial corporations. This stabilising effect came at the cost of a significantly sharp decline in liquidity, trading and price efficiency of medium-sized banks' stocks relative to other stocks.

CONSUMPTION IN THE SHADOW OF UNEMPLOYMENT

RODOLFO G. CAMPOS AND ILIANA REGGIO

WORKING PAPER Nº 1411

By how much do employed households reduce their consumption when the aggregate unemployment rate rises? In Spain during the Great Recession a 1 percentage point increase in the unemployment rate was related to a strong drop in household consumption of more than 0.7% per equivalent adult. This reduction is the response of forward-looking agents to downward revisions of their expectations on future income growth rates: the shadow of unemployment. Using consumption panel data that include information on physical quantities, we show that the drop in consumption expenditure was indeed a reduction in quantities, and not a switch to cheaper alternatives.

WHEN DOES CASH MATTER? EVIDENCE FOR PRIVATE FIRMS

PAUL EHLING AND DAVID HAUSHALTER

WORKING PAPER Nº 1412

Using a database of more than 180,000 private companies from 2000 to 2009, we find that the benefits of holding more cash vary substantially with a firm's size and the conditions it faces. Cash holdings matter most for small firms: when there are negative shocks to industry or macroeconomic conditions, a small firm's cash holdings are positively associated with changes in its sales and assets. Cash is less important for other conditions. Differences in the benefits of cash holdings between large and small firms are traced to a firm's ability – and willingness – to increase leverage when there is a cash shortfall.

CORRELATIONS

PAUL EHLING AND CHRISTIAN HEYERDAHL-LARSEN

WORKING PAPER Nº 1413

Correlations of equity securities have varied substantially over time and remain a source of continuing policy debate. This paper studies stock market correlations in an equilibrium model with heterogeneous risk aversion. In the model, preference heterogeneity causes countercyclical variations in the volatility of aggregate risk aversion. At times of high volatility of aggregate risk aversion, which is a common factor in r turns, we see high correlations. The calibrated model matches average industry return correlations and changes in correlations from business cycle peaks to troughs, and replicates the cyclical dynamics of expected excess returns and standard deviations. A proxy for model-implied aggregate risk aversion jointly explains average industry correlations, expected excess returns, standard deviations and turnover volatility in the data. We find supportive evidence for the model's prediction that industries with low dividend-consumption correlation have low average return correlation but experience disproportionate increases in return correlations in recessions.

BANKING CRISES AND SOVEREIGN DEFAULTS IN EMERGING MARKETS: EXPLORING THE LINKS

IRINA BALTEANU AND AITOR ERCE

WORKING PAPER Nº 1414

See Features section.

HOUSEHOLD DEBT AND UNCERTAINTY: PRIVATE CONSUMPTION AFTER THE GREAT RECESSION

ÁNGEL ESTRADA, DANIEL GARROTE, EVA VALDEOLIVAS AND JAVIER VALLÉS

WORKING PAPER Nº 1415

Household debt in many advanced economies has increased significantly since the 1980s and accelerated in the years prior to the Great Recession, resulting in an aggregate reduction of saving rates in the developed economies. Some of those economies are now deleveraging, which may be affecting their recovery. We try to disentangle how these financial developments influence private consumption in a panel of OECD countries, after controlling for the traditional determinants (income, net financial and non-financial wealth, and interest rates). Consistent with the changes in the distribution of financial constraints, we find that aggregate consumption is also driven by the dynamics of housing debt accumulation and deleveraging. Precautionary savings, due to labour income uncertainty, have also influenced household decisions especially, during the 2007-2009 period.

A TOOLKIT TO STRENGTHEN GOVERNMENT BUDGET SURVEILLANCE

DIEGO J. PEDREGAL, JAVIER J. PÉREZ AND A. JESÚS SÁNCHEZ-FUENTES

WORKING PAPER Nº 1416

In this paper we develop a comprehensive short-term fiscal forecasting system of use for the real-time monitoring of the Spanish government's borrowing requirement. Spain has been at the centre of the recent European sovereign debt crisis, not least because of sizeable failures in meeting public deficit targets. The system comprises a suite of models, with different levels of disaggregation (bottom-up vs top-down; general government vs sub-sectors), which are suitable for the automatic processing of the large amount of monthly/quarterly fiscal data currently published by the Spanish statistical authorities. Our tools are instrumental in the ex-ante detection of risks to official projections, and can thus help reduce the ex-post reputational costs of budgetary slippage. On the basis of our results, we discuss how official monitoring bodies could expand, on one hand, their toolkit to evaluate regular adherence to targets (moving beyond a legalistic approach) and, on the other, their communication policies as regards sources of risks to (ex-ante) compliance with budgetary targets.

FROM BISMARCK TO BEVERIDGE: THE OTHER PENSION REFORM IN SPAIN

J. IGNACIO CONDE-RUIZ AND CLARA I. GONZÁLEZ

WORKING PAPER Nº 1417

Aging is an unstoppable process and it remains a major challenge for the sustainability of the PAYG pension system in most developed countries, including in Spain. Many countries need to introduce reforms of their pension systems in order to control their expenditure, and in some cases this has already begun. However, there are other sorts of changes to certain parameters that are perceived as secondary, e.g. the different path of minimum and maximum pensions, and the upper and lower caps on contributions. This has significant implications for the distributive structure of the social security system that cannot be readily perceived by the population. That is why some economists in Spain refer to it as the "Silent Reform". The aim of this paper is to analyse the consequences this type of reform would have in Spain; indeed, it is the first paper to actually quantify and evaluate the potential impact it would have on the country. We have used an accounting model with heterogeneous agents and overlapping generations in order to project pension expenditures up until 2070. The results show that this kind of reform could potentially contain future expenditure and could also change the nature of the pension system from a contributory or Bismarckian-type system into an assistential or Beveridgean-type one. This change could have significant consequences as both systems have different objectives. The paper also shows that the institutional characteristics that make this kind of reform in Spain feasible are also present in most developed countries with Bismarckian pension systems. Therefore, we believe that the lessons learned in this paper on this kind of reform could well prove useful to other countries.

SIGNALLING FISCAL STRESS IN THE EURO AREA: A COUNTRY-SPECIFIC EARLY WARNING SYSTEM

PABLO HERNÁNDEZ DE COS, GERRIT B. KOESTER, ENRIQUE MORAL-BENITO AND CHRISTIANE NICKEL

WORKING PAPER Nº 1418

The sovereign debt crisis in the euro area has raised interest in early warning indicators, aimed at signalling the build-up of fiscal stress in advance and helping prevent crises by means of a timely counteraction of fiscal and macroeconomic policies. This paper presents possible improvements to enhance existing early warning indicators for fiscal stress, especially for the euro area. We show that a country-specific approach could strongly increase the signalling power of early warning systems. Finally, we draw policy conclusions for the setting-up and application of a system of early warning indicators for fiscal stress.

HETEROGENEOUS RESPONSES TO EFFECTIVE TAX ENFORCEMENT: EVIDENCE FROM SPANISH FIRMS

MIGUEL ALMUNIA AND DAVID LÓPEZ-RODRÍGUEZ

WORKING PAPER Nº 1419

This paper investigates the effects of monitoring the information trails generated by firms' activities in order to improve tax compliance. We use quasi-experimental variation provided by a Large Taxpayers Unit (LTU) in Spain to empirically test the theoretical predictions on firms' responses to an increase in monitoring effort. Firms with more than €6 million in reported revenue are monitored by the LTU, which devotes more resources to verifying the transactions reported by those firms. Using financial statements from practically the entire universe of Spanish firms for the period 1999-2007, we find substantial bunching of firms just below the LTU threshold. On average, we estimate that bunchers reduce their reported revenue by €101,000 (1.7% of total revenue) to avoid falling in the high enforcement regime. Adjusting for resource costs of evasion faced by firms, we estimate that the marginal bunching firm reduces its reported revenue by up to €593,000 (9.9%). The response is weak in sectors where most sales are made to final consumers (retail, restaurants) and strong in sectors where firms sell intermediate goods to other businesses (wholesale, manufacturing). This result suggests that the monitoring effort by the tax authorities and the traceability of the information reported by firms are complements, and both are necessary for effective tax enforcement. Finally, we provide suggestive evidence that firms under low monitoring effort also misreport their material and labour expenditures to evade taxes, even in the presence of third-party reporting.

THE AUTOMATIC ADJUSTMENT OF PENSION EXPENDITURES IN SPAIN: AN EVALUATION OF THE 2013 PENSION REFORM

ALFONSO R. SÁNCHEZ

WORKING PAPER Nº 1420

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STRUCTURAL REFORMS IN A DEBT OVERHANG

JAVIER ANDRÉS, ÓSCAR ARCE AND CARLOS THOMAS

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THE PUBLIC SECTOR WAGE PREMIUM IN SPAIN: EVIDENCE FROM LONGITUDINAL ADMINISTRATIVE DATA

LAURA HOSPIDO AND ENRIQUE MORAL-BENITO

WORKING PAPER Nº 1422

This paper studies the public sector wage gap in Spain by gender, skill level and type of contract, using recent administrative data from tax records. We estimate wage distributions in the presence of covariates separately for men and women in the public and in the private sectors, and we take advantage of the longitudinal structure of the data to control for selection. We find a positive public wage premium for men and women even after accounting for characteristics and endogenous selection; the observed average gap in hourly wages of 35 log points is reduced to 20 when accounting for observed characteristics, and to 10 once endogenous selection is also taken into consideration. We also find substantial variation in the public premium along the wage distribution once observed characteristics are accounted for. This variation, however, is offset by opposite patterns of selection into the public sector: while we observe positive selection into the public sector at the bottom of the wage distribution, workers at the top of the distribution select negatively into the public sector.

THE TWO GREATEST. GREAT RECESSION VS. GREAT MODERATION

MARÍA DOLORES GADEA-RIVAS, ANA GÓMEZ-LOSCOS AND GABRIEL PÉREZ-QUIRÓS

WORKING PAPER Nº 1423

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THE IMPACT OF FINANCIAL (DE)REGULATION ON CURRENT ACCOUNT BALANCES

ENRIQUE MORAL-BENITO AND OLIVER ROEHN

WORKING PAPER Nº 1424

Global imbalances and financial market (de)regulation both feature prominently among the potential causes of the global financial crisis, but they have been generally discussed separately. In this paper, we take a different angle and investigate the relationship between financial market regulation and current account balances, an area for which there is limited empirical evidence. We use a panel of countries over the period 1980-2010 and employ a novel empirical approach which allows us to simultaneously account for model uncertainty, current account persistence and unobserved heterogeneity. We find robust evidence that financial market regulations affect current account balances and that different aspects of these regulations can have opposing effects on the current account. In particular we find that lowering bank entry barriers is negatively associated with the current account balance. In contrast, bank privatisation and securities market deregulation tend to raise current account balances. Our results also highlight the need to control for persistence and unobserved heterogeneity. Once we control for these factors, we find robust evidence for a wide range of current account theories in contrast to previous studies.

FINANCIAL STABILITY JOURNAL

The Financial Stability Journal (Revista de Estabilidad Financiera) is published biannually by the Banco de España, with the aim of disseminating and participating in discussions on issues related to financial stability, with special emphasis on regulation and prudential supervision. Its board of editors comprises internal and external professionals. All articles appearing in the journal, which may be authored by Banco de España staff or researchers from other institutions, are refereed by at least one member of the board of editors.

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EUROPEAN SUMMER SYMPOSIUM IN INTERNATIONAL MACROECONOMICS (ESSIM 2014)

RODA DE BARÁ, TARRAGONA; 27-30 MAY 2014

Towards the end of May, 2014, the Banco de España hosted the twenty-second edition of ESSIM (the European Summer Symposium in International Macroeconomics) in its facilities at Roda de Bará, in the province of Tarragona. The conference is an annual event of the CEPR (Centre for Economic Policy Research), and has been organized jointly with the Banco de España every other year for two decades. The conference is intended as an opportunity for macroeconomists from European countries, especially younger researchers, to get to know each other and to meet key economists from the rest of the world, and to establish collaborative research projects.

The papers presented at the conferences addressed a variety of macroeconomic questions, from theoretical, empirical and policy-oriented perspectives. Issues receiving special attention in 2014 included fiscal policy, international trade, unemployment and inequality, financial market imperfections, and the recent financial and sovereign debt crises. Two presentations of particular relevance in the current economic situation included a talk by Fridrik Mar Baldursson (Univ. of Reykjavik) and Richard Portes (London Business School) describing the collapse of the Icelandic banking system, and a talk by Javier Suárez (CEMFI) on a macroeconomic model, developed by a team of Eurosystem economists, designed to analyze the effects of leverage and defaults in different parts of the economy.

The ESSIM conference is also an opportunity for interaction between Banco de España staff, economists from other central banks, and academic researchers. The conference programme included presentations by Ernesto Villanueva (Banco de España, Dept. of Monetary and Financial Studies) on European household debt, and by Carlos Thomas (Banco de España, Dept. of Economic Analysis and Forecasting) on structural reforms in an economy that is undergoing deleveraging.

Papers presented at the conference can be downloaded from the Banco de España website here.

THIRD JOINT WORKSHOP ON INTERNATIONAL FINANCIAL MARKETS

MADRID, 9-10 JUNE 2014

In June 2014, the Banco de España hosted the third edition of a workshop, jointly organized with the Bank of Canada, on international financial markets. The workshop provides a forum for researchers from academia and central banks to discuss topics such as international asset pricing, exchange rates, and capital flows; international monetary policy spillovers; and the impact of regulation and policy on international financial markets.

The workshop included sessions on unconventional monetary policy, flight to safer and more liquid assets, asset pricing, commodities markets, bank regulation reforms, and sovereign risk. Conference organizers included Antonio Diez de los Ríos and Jean Sebastiene Fontaine of the Bank of Canada, and José Manuel Marqués, Ricardo Gimeno, and José María Serena of the Banco de España.

THIRD JOINT WORLD BANK – BANCO DE ESPAÑA RESEARCH CONFERENCE

MADRID, 23-24 JUNE 2014

On June 23-24, the Banco de España hosted a conference entitled “Financing growth: Levers, Boosters and Brakes” at its headquarters in Madrid. The conference, which is the third in a series jointly organized with the World Bank, brought together academics and policy makers to discuss the nexus between finance and growth. In particular, it addressed the conditions under which finance is more likely to support investment, innovation and productivity growth, and the role of monetary, macroprudential and regulatory policies in achieving these goals.

The workshop included sessions on foreign investment; credit markets, institutions and growth; macroprudential and regulatory policy; banks, innovation and growth; and the growth implications of financial disequilibria. The keynote speech was delivered by Prof. Luigi Zingales of the University of Chicago Booth School of Business. The conference was organized by Tito Cordella and Tatiana Didier on behalf of the World Bank, and Enrique Alberola and Ignacio Hernando on behalf of the Banco de España.

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GABRIEL JIMÉNEZ ZAMBRANO

Unit Head, Banking Analysis Unit
Banking Analysis and Regulatory Policy Division
Financial Stability Department
DG Banking Regulation and Financial Stability

Gabriel Jiménez Zimbrano heads the Banking Analysis Unit in the Financial Stability Department of the Banco de España. His team has performed extensive analyses of microdata from the Spanish banking system, to monitor the impact of monetary and bank regulatory policy on the Spanish economy.

RU: Recently you and your coauthors have published several very prominent empirical papers. Tell us about them.

Yes, our papers on the credit channel of monetary policy came out in *American Economic Review* in 2012, and in *Econometrica* this year. We have been publishing in finance and banking journals for many years, but it was a pleasant surprise to get accepted in those top general interest journals. The fact is you try to do as well as you can, but at the end of the day it is a mystery what impact a research paper will have until you send it off for publication.

The two papers are actually closely related – we started them in parallel around seven years ago...

RU: The main difference is that one paper studied how monetary policy affects the quantity of credit, while the other looked at its impact on the quality of credit. Is that right?

Yes. Specifically, both papers looked at the bank balance-sheet channel of monetary policy transmission. Theory suggests that changes in monetary policy can affect the credit supplied by banks, especially in the case of weaker banks. Many previous studies have offered some empirical support for the theory, but our AER paper was able to distinguish between the effects of credit supply and credit demand in an especially clear way. That is difficult, because an increase in the policy rate affects both the supply and demand sides, raising the cost of funds both for lenders and for borrowers simultaneously.

RU: Your results supported the theory, no?

Yes. The first paper showed that adverse macroeconomic conditions, like a fall in output or a monetary tightening, can lead to a contraction of credit if the banking system is short of capital. The second paper tested a more recent extension of the theory, the so-called “risk-taking channel” of monetary policy. That theory suggests that when the policy rate is low, banks are likely to search for yield by taking more risks, relaxing their lending criteria and granting loans to weaker borrowers. And indeed, we found evidence that low short term interest rates induce less-capitalized banks to extend more loans to riskier firms. We also found that those loans were larger and required less guarantees, all of which made them more vulnerable to subsequent defaults.

RU: Concretely, which years were you looking at?

We were looking at the pre-crisis period – from 2002 to 2008.

Again, the main challenge we faced was separating out the effects of monetary policy on the overall supply of credit from those on the composition of credit supply and from changes in the composition of demand. Our strategy was similar to that from the AER paper, but improved, controlling not only for the quantity of demand, but also for selection bias.

So in addition to the extensive margin – meaning the probability of conceding a loan – we also looked at the intensive margin – meaning the quantity lent, as well as the conditions of the loan. So we were looking at a lot of effects simultaneously.

RU: So, could you explain, in a non-technical way, how you controlled for demand?

The idea is actually quite simple. First of all, what is necessary is adequate data. The crucial thing is that we not only have information on individual loans, but we also have a database of individual loan applications. In and of itself that is already a way of controlling for demand, because you are literally observing the demand for loans that is coming to the banks. But in addition, the data show that usually when firms are looking for a loan, they apply at various banks simultaneously. Or when they are looking for multiple loans, they apply to more than one bank. This gave us a clean and straightforward way to control for all observable and unobservable characteristics of each firm: we simply included fixed effects for each firm, at each time, in our estimation. That allowed us to control for variation in loan demand, so any remaining variation in lending could be interpreted as changes in loan supply. Without a database of loan requests we would not have been able to pursue that strategy.

RU: So obviously that is a really exceptional database. You not only have data on loans granted in Spain, but also data on loan applications by specific firms to specific banks.

Our main source of information is the *Central de Información de Riesgos* (CIR) database maintained by the Banco de España, which contains detailed information on all bank loans of €6000 or more granted in Spain. It includes loans to firms and to individuals, but we have focused our study on firms. The data include the type of operation, the quantity, the maturity of the loan, the collateral, defaults, and importantly, we know which bank made the loan and we have a code that identifies the borrower. Since we know the bank, we can control for its balance sheet and other characteristics using Banco de España supervisory data. Using the code that identifies the firms, we can also cross-reference our CIR data with other economic and financial data on Spanish firms.

But as I was saying, while we were writing these papers we discovered another data source that had not yet been explored, with information on loan applications. Spanish banks are required to report information on their loans to the CIR; in exchange, the Banco de España provides them with information on aggregate credit of current borrowers but also on potential borrowers. That is, when a firm comes into a bank to a request a loan, the bank can automatically obtain information from the Banco de España on that firm's total outstanding debt to the Spanish banking system. So those data requests indicate to the Banco de España that a loan application is underway. Then we can then keep track of new loans in the CIR to check whether that loan was granted or not.

RU: But, in principle, a bank could receive an application, without requesting information about the borrower?

Yes, it's possible. No dataset is perfect. But that seems unlikely, because it is quick and costless for the bank to request that information electronically. So it's logical to assume that most loan applications entailed a data request to the Banco de España, especially for new borrowers. So we assembled the database from the records of loan requests, which was a substantial improvement over the data we had before.

RU: Are there any other institutions or countries that have data of this sort?

Before our work, no. In some countries there were studies of loan applications at individual banks. But no one had assembled a database on loan applications, over multiple years, throughout the whole banking system. Since we circulated our papers, a number of other central banks, including the Bank of Italy, have begun to create similar datasets.

RU: Obviously these data are extremely confidential. How does the Banco de España protect them?

The Banco de España does not release these data to outside researchers. When we work with economists from other institutions, we always make clear that we will analyze the data ourselves. Outside economists can propose research projects to us, which we evaluate. But, consistent with the data protection law, they can never have the data on their computers. The statistical analysis is always performed at the Banco de España, on our own computers, by Banco de España staff. The data have never been released to third parties.

RU: Considering your results, should the Banco de España have done anything differently during the boom years, to avoid the crisis that followed?

Of course, with hindsight things could have been done differently in Spain and elsewhere. But everything is clearer with hindsight. In fact, the Banco de España was a pioneer in macroprudential policy. Already in 2000 it introduced its system of dynamic provisioning, in order to build up a stock of provisions to offset the impact of any future credit crisis. That was more than ten years before the Basel negotiations began to consider countercyclical capital buffers. And indeed, in a paper that we currently have under revision at the *Journal of Political Economy,* we show that the institutions that built up a larger buffer prior to the crisis subsequently cut credit less than the others. So that mechanism was a step in the right direction. That same paper finds further results with clear policy implications. We find that raising capital requirements after a crisis starts only serves to restrict credit further, and forces renegotiation of the lowest-quality loans. So while increasing capital in boom years is a good idea from a macroprudential point of view, tightening capital requirements in bad times is much more contractive for credit and real output.

RU: Seven years to publish a paper is a bit of an odyssey, no? What kind of hoops did you have to jump through?

Yes, if we had anticipated that it would take seven years maybe we would never have started – though if we had known the final result I suppose we would have forged ahead. But every researcher understands that you can devote years to a project without obtaining the result you hope for. Our second paper was rejected twice, and then it was under revision for three years at another top journal where it was nonetheless rejected. It changed a lot over that time, though we kept the title. We started with a duration model, where we showed that loans made initially at a low interest rate faced a greater risk of default when the rate subsequently rose. We were continually modifying the paper in response to referees' suggestions, and we stayed optimistic because we felt that the results were increasingly solid and very meaningful from a policy point of view. We finally submitted it to *Econometrica,* where it evolved again over four years of revisions, but we are very pleased with how it turned out.

RU: In your current work you are studying how lack of credit is affecting employment in Spain. Could you tell us about that project?

Yes. What we are doing in our latest work is to compare how employment changed, during the first years of the crisis, depending on whether the employer was financed at the beginning of the crisis by a weaker bank or by a healthier bank. By weaker banks we simply mean those that were eventually rescued or acquired. We show, with a difference-in-differences analysis, that employment fell far more at firms that were primarily financed in 2006 by one of those weaker banks, as compared with similar firms financed by one of the stronger banks.

RU: Of course, one might expect that if firms are denied credit at one bank, they would simply apply for a loan elsewhere.

Yes, so what we are finding indicates that it is not so easy to shift from a relationship with one bank to another, especially during a crisis. And therefore that preexisting relationship has an impact on firms' survival and the employment they can sustain. And in fact we find that much of the loss of employment takes place in the most inefficient way possible, due to firm closure, which implies an even slower recovery than the job loss itself would imply.

RU: On a personal and professional level, here at the Banco de España some research staff come from academic backgrounds, but we also have researchers, like you, who picked up many of their skills from on-the-job experience. How did you gain the expertise to do the kind of research you do?

My undergraduate training was in mathematics, and then I got introduced to finance and econometrics at CEMFI. But yes, much of my training has been my day-to-day work at the Bank. And as you can see, my research has always been empirical. I have been looking at theoretical ideas that are central to exciting policy debates. The issue is then to be able to apply the most appropriate statistical techniques for each type of empirical question, and I've built up that kind of knowledge first at CEMFI, then over the course of my career at the Banco de España, as well as by collaboration with my coauthors, especially with José Luis Peydró. I would also like to thank the colleagues at CEMFI who have always been willing to provide methodological advice when we needed it.

RU: Could you tell us something about your current or future research plans?

We have lots of projects in mind, but one that is further along is looking at how the crisis has affected innovation at Spanish firms. It's a very relevant question, which is related to the persistence of credit shocks over time.

RESEARCH PAGE:
http://www.bde.es/investigador/staff/62.htm

NEW FACES

PATRICIA GÓMEZ GONZÁLEZ

Staff economist
Economic Analysis and Forecasting Department
DG Economics, Statistics and Research

PATRICIA GÓMEZ GONZÁLEZ joined the Economic Analysis and Forecasting Department of the Banco de España in September 2014. Patricia obtained her Ph.D. in Economics from the Massachusetts Institute of Technology in June 2014. She also holds undergraduate degrees in Law and Economics from Universitat Pompeu Fabra (UPF) and an M.Sc. in Economics from UPF-Barcelona Graduate School of Economics. During her graduate studies she obtained fellowships from the Banco de España, the Caja Madrid Foundation, and the La Caixa Foundation.

Her research interests are focused on macro-economics and international economics. In particular, she works on sovereign debt and its interactions with financial markets. Her latest research studies financial innovation in sovereign debt markets. In economies where public debt has a liquidity purpose for the productive domestic sector and is demanded by international investors, innovations can increase investment and welfare. The main result is that a government can achieve this by introducing public assets that lower the cost of liquidity hoarding for the productive domestic sector. This project also explores, using a dataset on public debt ownership, the relationship between the investor base composition of public debt and other key variables in the model.

Patricia has also explored the connections between banking and sovereign debt crises, and has focused on bailouts as a transmission mechanism between the two. Finally, she has worked on the effects of terms of trade volatility shocks in small open economies.

RESEARCH PAGE:
http://www.bde.es/investigador/staff/121.htm

JUAN DE LUCIO

Staff economist
ADG International Affairs

JUAN DE LUCIO joined the ADG International Affairs in September 2014. He studied economics at Universidad Complutense de Madrid, then received a Master's degree in Industrial Organization from Universidad Carlos III de Madrid. He obtained his Ph.D. in Economics in 1997 from Universidad Alcalá de Henares, where his dissertation was awarded the university's extraordinary prize. He has been Professor of Economics at Universidad Alcalá de Henares and at the Instituto de Empresa (Madrid). Meanwhile, he also worked for five years at FEDEA and for sixteen years at the High Council of Spanish Chambers of Commerce, where he headed the economics and research department. He has also had various responsibilities at the National Statistical Institute, including acting as a member of the High Council of Statistics and as a member of the Advisory Committee for national statistical plans.

His research interests relate mainly to applied economics, with emphasis on the following areas: regional economics, international economics, business, political economy, and analysis of the economic outlook.

JAIME MARTÍNEZ-MARTÍN

Staff economist
ADG International Affairs

JAIME MARTÍNEZ-MARTÍN returned to the Banco de España in July 2014, joining the International Economics Division. He obtained his B.A. in Economics from the Univ. of Barcelona, and he continued his studies in 2005 at the Catholic University of Leuven in Belgium, where he earned an MSc in international economics. During his doctoral work, he visited the Economics Department at the University of Southern California in 2009; subsequently he completed his Ph.D. with Honours at the Univ. of Barcelona in 2011. He has worked as a Senior Economist at BBVA Research for the past 5 years, and previously as an economist in the DG Economics, Statistics and Research at the Banco de España.

His doctoral research analyzed the interaction of spatial linkages in Spanish capital outflows, the estimation of export and import demand functions under a macroeconometric model, and the dynamics of Spanish exports and FDI. His current work focuses on international macroeconomics and applied econometrics, with particular emphasis on global business cycles. Other research interests include international trade, economic modeling, and forecasting.

VISITING FELLOWS

OURANIA DIMAKOU

Lecturer in Economics
SOAS
University of London

OURANIA DIMAKOU obtained her bachelor's degree from Athens University of Economics and Business in 2001, and completed her Ph.D. in Economics at Birkbeck, University of London in 2010. She has worked as a Senior Teaching Fellow and is a Lecturer in Economics at the School of Oriental and African Studies (SOAS), University of London, since 2011.

Ourania visited the ADG International Affairs from April until August 2014. Her latest research project focuses on formal and informal labor markets in Latin American countries. In particular, her research at the Banco de España investigates the impact of a goods market institutional reform (the SIMPLES program) on employment formalization in Brazil. Other research interests include monetary and fiscal institutional design and bureaucratic corruption.

EDDIE GERBA

LSE Research Fellow in Macroeconomics
London School of Economics

EDDIE GERBA is visiting the Bank of Spain from September 2014 to August 2015. During his time at the Bank, Eddie will work on incorporating endogenous risks and financial innovation in a financial friction model with asset price bubbles, in order to study the impact of risk and credit cycles on the business cycle. Time permitting, he will use this framework to examine the joint stabilizing role of monetary and macro-prudential policies, and to derive the optimal policy combination. Other projects Eddie is currently involved in include an examination of the impact of stock market bubbles on the supply side constraints of firms, an empirical study of the effects of US social security reforms on household finances and household leverage, and a (re)examination of the joint importance of cognitive skills and physical capital for macroeconomic growth and development.

Eddie holds an undergraduate degree in Quantitative Economics from Universitat Pompeu Fabra, an MSc in Quantitative Finance from the Swiss Finance Institute at ETH Zurich, and a Ph.D. in Economics from University of Kent. Between 2013 and 2014, he worked as a Post-Doctoral Fellow at the LSE. In April this year, he took a new post as an LSE Research Fellow in Macroeconomics and is working with Professor Paul de Grauwe on developing heterogeneous agent models where agents are boundedly rational.

Eddie's research interests lie in the areas of theoretical macroeconomics, quantitative finance, and macroeconomic policies. He has previously worked on projects such as asset price cycles in a DSGE model, optimal monetary policy, monetary transmission in the Eurozone since the 1970´s, monetary-fiscal interactions in a time-varying parameter VAR framework, and US macro-financial linkages.

RESEARCH PAGE:
http://www.lse.ac.uk/europeanInstitute/staff/academicStaff/gerba/home.aspx

ALFREDO IBÁÑEZ

Quantitative Analyst
Bankia (on leave)

ALFREDO IBÁÑEZ is visiting the ADG International Affairs from September 2014 to March 2015. Alfredo has an Engineering degree in Computation from the Universidad de Valladolid and a Ph.D. in Economics from Universidad Carlos III de Madrid with specialization in Financial Economics. He has been an Associate Finance Professor at ITAM (Mexico City) for seven years, a visiting scholar at UCLA (California), and Visiting Professor at the Business Departments of Universidad Carlos III, UPF (Barcelona), and ESADE Business School (Barcelona). He also spent four years working in the financial industry, developing and implementing option-pricing models for equity and fixed-income derivatives at CajaMadrid/Bankia (Madrid).

His main area of research is financial economics – from American option pricing, hedging, risk management, and volatility, to term-structure models and credit risk. Right now, he is involved in two main research projects: a) option pricing in high dimensional problems by Monte Carlo simulation, and b) default risk, viewed as the optimal exercise of an American-style option.

RESEARCH PAGE:
https://sites.google.com/site/alfreibanez

CARLOS J. SERRANO

Assistant Professor
Department of Economics and Business
Universitat Pompeu Fabra

Carlos J. Serrano is an Assistant Professor of Economics and Business at Universitat Pompeu Fabra in Barcelona and an Affiliated Professor at the Barcelona GSE, where he teaches business economics, economic institutions and markets, and technology strategy. He has also taught at the Univ. of Toronto (2005-2012) and the Univ. of Minnesota (2002-2004), and worked as a Research Analyst at the Federal Reserve Bank of Minneapolis (2002-2005). Carlos received his doctoral degree from the Univ. of Minnesota in 2006, and has been a Faculty Research Fellow at the National Bureau of Economic Research (NBER) since 2006, and a Research Associate at the Research Institute for International Business (RIIB) of the Univ. of Toronto since 2012.

Carlos' research focuses on innovation and technological change, entrepreneurship, and entrepreneurial finance. While at the Banco de España, from Oct. 2014 to June 2015, he plans to undertake two research projects. The first aims to document the role of patents as collateral. While some financial institutions accept patents as collateral for loans, they do not generally count towards regulatory capital requirements because they are too difficult to value. However, intangible assets, such as patents, account for a rising share of corporate value. This study aims to shed light on which technology sectors and what types of firms offer a lien on their patents, and when they do so over the business cycle, and to describe which types of lenders choose to hold them. This descriptive study points towards important policy-related questions. How much would the financing opportunities for firms expand if banking regulation were more flexible towards valuing intangible assets? What firms and technology sectors would benefit the most from such policies?

The second project investigates the use of formal external debt to finance early-stage science and technology startups (i.e., 'the market for venture lending'). It explores two potential mechanisms to facilitate trade in this market: increased liquidity in the secondary market for patents assets, which could alter lender expectations of salvage value, and the ability of an intermediary (here, the venture capitalist) to credibly convey to lenders that he/she will support the fledging company. If the development of an intermediary market for valuing and exchanging patents facilitates lending by increasing the collateral value of patent-based assets, it would make sense for regulators to examine mechanisms that would allow banks to count patent collateral towards regulatory capital requirements. If venture capitalist commitment is crucial for venture lending, policies designed to stimulate entrepreneurial-firm innovation through debt financing will be muted absent a well-developed infrastructure of venture capitalists and institutional investors.

RESEARCH PAGE:
http://www.econ.upf.edu/~cserrano

ANNOUNCEMENTS

RESEARCH JOB VACANCIES
LINK TO JOB OPENINGS PAGE

JOB OPENINGS FOR PH.D. ECONOMISTS

The Banco de España, the Spanish central bank, is interested in hiring experienced or newly qualified Ph.D.s in economics or related fields for its headquarters in Madrid. The areas of interest include monetary policy, international economics and macro-finance, banking and finance, industrial organisation, and applied micro- and macroeconomics. The main tasks of the potential candidates would be to conduct high-quality policy-oriented research, to produce reports for the Bank's senior management and to write for the Bank's publications. Applicants would be expected to travel and participate in meetings organised by international institutions. Permanent or fixed-term full-time contracts could be offered. A sound command of written and spoken Spanish will be highly valued. The Banco de España provides an excellent working and research environment. Salary and benefits are competitive.

Applicants should e-mail a CV, a sample of recent research and at least three references to the Head of the Training and Recruitment Division by 25 November 2014. The actual letters of reference may be posted by ordinary mail.

E-mail for information and applications: rho.investigacion-becas@bde.es.

View our announcement at Job Openings for Economists.

View our announcement at Econ Job Market.

UPCOMING CONFERENCES
LINK TO CONFERENCES PAGE

23RD CEPR EUROPEAN SUMMER SYMPOSIUM IN INTERNATIONAL MACROECONOMICS (ESSIM) RODA DE BARÁ, TARRAGONA

TARRAGONA, 26-29 MAY, 2015

HOST: BANCO DE ESPAÑA

The 23rd CEPR European Summer Symposium in International Macroeconomics (ESSIM) will take place 26-29 May 2015 at the Banco de España facilities in Tarragona, Spain.

ESSIM is an annual meeting that brings together about 75 economists from across Europe and key researchers from outside the region to focus on international economics and other areas of macroeconomics. It provides a unique opportunity for macroeconomists from different institutions and countries to discuss research, and for young researchers to meet and discuss their work with senior economists. The programme combines workshop sessions with time for collaboration and consultation; participants are asked to stay for the whole week (arriving the evening of Monday, 25 May, and leaving the morning of Saturday, 30 May).

Submissions to the conference must be received no later than January 5, 2015 via the CEPR Forthcoming Events Page.

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