



# RESEARCH UPDATE

Spring-Summer  
2023

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# Welcome to the Banco de España Research Update

The Banco de España is pleased to announce the release of the Spring-Summer 2023 issue of its Research Update. The Update aims to inform both academic and policy-oriented economists and financial specialists about publications, conferences, and other research activities at the Banco de España, during the period from October 2022 to July 2023.

As usual, this issue includes several feature articles summarizing policy-relevant findings from recent Banco de España projects in diverse areas of research. First, J. Costain, G. Nuño and C. Thomas calibrate a structural model of sovereign yield curves in a heterogeneous monetary union, to shed light on the PEPP's transmission channels and to analyse how its flexible design affected its impact. Second, María Alejandra Amado analyses the unintended distributional effects of non-tradable firms in emerging economies issuing large amounts of dollar debt, exposing their balance sheets, and their lenders indirectly, to exchange rate movements and credit default risk. Third, E. Andres-Escayola, C. Ghirelli, L. Molina J. Pérez and E. Vidal shed some light on the issue of how many sources should be used to construct text-based indexes (such as real-time measures of economic activity, policy uncertainty or social unrest) and which type of press should be considered. Fourth, Adrián Carro builds an agent-based model of the Spanish housing market to explore the main drivers behind the large amplitude of the Spanish house price cycle, as well as to investigate the scope for macro-prudential policy to reduce this amplitude. Fifth, N. Fabra, A. Lacuesta, E. Gutiérrez and R. Ramos use local employment and unemployment impacts as proxies for the local economic benefits of renewable investments, exploiting variation in the timing and size of the investment projects across more than 3,200 Spanish municipalities, in order to understand the local labour market effect of renewable energy developments. Sixth, J. Gutiérrez and L. Lafuerza carry out an empirical analysis in order to quantify the involved benefits and costs of publicly disclosing bank stress test results. Finally, José-Elias Gallegos investigates the fall in persistence of US inflation during recent decades through the lens of a New Keynesian model with noisy and dispersed information about the aggregate state.

This issue also includes an interview with Enrique Alberola, Adviser at the International Economy Department, covering his experience in several international policy institutions such as the BIS and World Bank, his past and current research projects as well as his effort to launch a new Banco de España's Blog. In addition, the Update reports on other research news such as conferences and recent publications, including the Financial Stability Review, a half-year journal published by the Banco de España.

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

**Olympia Bover**  
**Ángel Estrada**  
**Ángel Gavilán**  
**Eva Ortega**  
**Carlos Thomas**

**Research Committee,  
Banco de España**

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# The term structure of interest rates in a heterogeneous monetary union

JAMES COSTAIN, GALO NUÑO,  
AND CARLOS THOMAS

Summary of Banco de España Working Paper no. 2223

Large-scale asset purchases have been a crucial monetary policy tool in recent years, when many central banks' policy rates were close to their effective lower bound, with limited space to provide further support for the economy. The ECB launched its asset purchase programme (APP) to address the risks of a prolonged period of low inflation, and its pandemic emergency purchase programme (PEPP) in response to the Covid-19 crisis. While net purchases under the APP and PEPP have now ended, it is important to draw lessons for the future from this recent experience. This note calibrates a structural model of sovereign yield curves in a heterogeneous monetary union, to shed light on the PEPP's transmission channels and to analyze how its flexible design affected its impact.<sup>1</sup>

## MODELLING DURATION RISK AND DEFAULT RISK

The model extends the term-structure model of Vayanos and Vila (2021), which underpins much recent analysis of quantitative easing programs.<sup>2</sup> Their framework assumes that financial market participants include both *preferred habitat investors*, who demand bonds of a specific maturity and/or issuer, and risk-averse arbitrageurs, who invest wealth across all bond markets, trading off expected returns versus risk. In this environment, net bond issuance by the government raises yields, while bond purchases by the central bank lower them, by expanding or shrinking the term premium, respectively.

Extending the Vayanos-Vila model to the euro area requires us to consider *default risk* as well as the term risk emphasized in US analyses. We endogenize the default probability under the

assumption that some member state governments may be hit by debt rollover crises. A government may decide to default in order to relieve the near-term fiscal pressure it faces when creditors refuse to roll over its bonds.<sup>3</sup> A higher deficit or a higher flow of bond redemptions raises fiscal pressure, increasing the default probability. However, bond redemptions to the Eurosystem generate less fiscal pressure than those of privately held bonds, since redemptions paid to a national central bank largely return to the corresponding government as dividends. In this way, Eurosystem asset purchases reduce future fiscal pressure, and thereby the default probability.

Allowing for default risk, the model implies that the yield on a bond of residual maturity  $\tau$  incorporates two familiar terms – the expected *future interest rates* component and the *term premium* – plus two additional components:

- the *expected default loss*, which is the expected loss of yield due to possible default over horizon  $\tau$ ;
- and the credit risk premium, which is the additional return required, beyond the expected default loss, to compensate arbitrageurs for the risk in realized yields due to the possibility of default over horizon  $\tau$ .

## CALIBRATION

To understand the channels of asset purchase transmission, it suffices to study a monetary union with just two member states. Here we calibrate the model to Germany and Italy, allowing for default risk on Italian but not German bonds.<sup>4</sup> Therefore the last two yield components mentioned above are zero for German bonds, which allows us to estimate arbitrageurs' risk aversion by matching the mean German term premium over the pre-pandemic period 2013-2019.

To match Italian yields we must estimate two more key parameters, namely, the level and slope of the default probability, as a function of fiscal pressure. We jointly identify

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<sup>1</sup> See J. Costain, G. Nuño, and C. Thomas (2022), "The term structure of interest rates in a heterogeneous monetary union", Documento de Trabajo 2223, Banco de España.

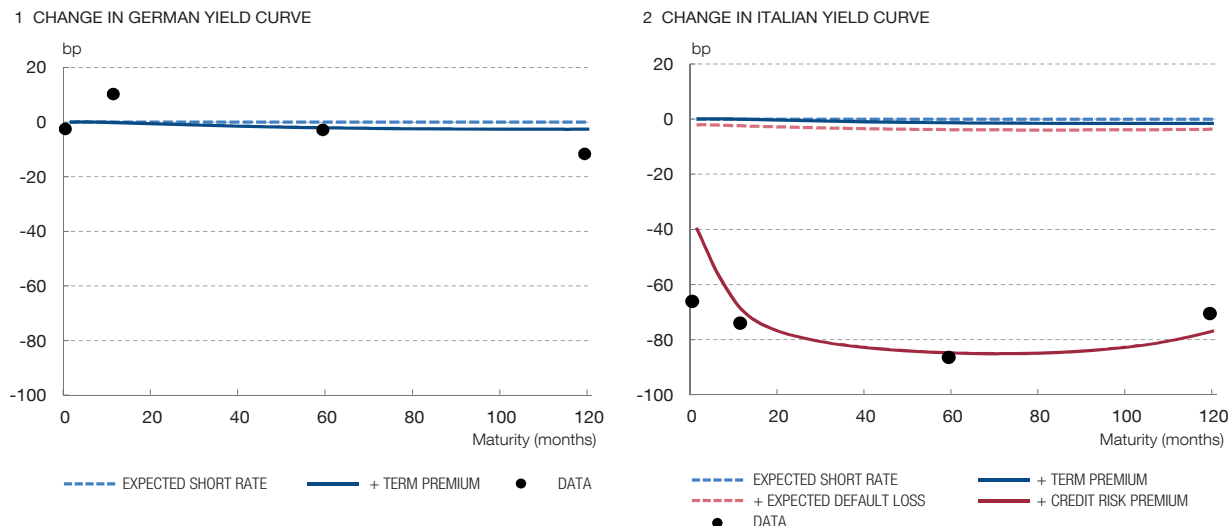
<sup>2</sup> D. Vayanos and J.-L. Vila (2021), "A preferred habitat model of the term structure of interest rates", *Econometrica*, 89 (1), pp. 77-112.

<sup>3</sup> The model implies that the government's default probability depends on its expected net outlays over the duration of a rollover crisis, which we call fiscal pressure.

<sup>4</sup> Parameter estimates and model fit are similar if the model is instead calibrated to Germany and Spain.

Figure 1

**DECOMPOSITION OF THE IMPACT OF PEPP ANNOUNCEMENT BETWEEN 18-20 MARCH**



**SOURCE:** Datastream.

**NOTES:** Change in yields after PEPP announcement, in basis points: data and model.

**DOTS:** Change in annual yields on zero-coupon bonds, from March 18 to March 20, 2020, for 1m, 1Y, 5Y and 10Y maturities.

**LINES:** Model-generated decomposition of shift in yield curves. Source: Costain et al. (2022).

these parameters by matching the average Italian yield curve over the pre-pandemic period, and the shift in Italian yields when PEPP was announced. Given these parameters, together with arbitrageurs’ risk aversion, we can then ask how much of Italy’s sovereign spread actually reflects expected losses due to default, as opposed to the market’s required compensation for the risk associated with default (the *credit risk premium*).

A central finding of this exercise is that a tiny quantity of default risk suffices to generate a large sovereign premium. The reason is that German bonds are very safe, so explaining the 50bp term premium that we find on ten-year Bunds over 2013-2019 implies that arbitrageurs are fairly risk averse. Applying our risk aversion estimate to the Italian market, an expected default loss of only 10bp on Italian ten-year bonds suffices to explain the observed 200bp sovereign premium on those bonds.

**THE DEFAULT RISK EXTRACTION CHANNEL**

With this calibration in place, we can simulate the impact of the initial PEPP announcement, on March 18, 2020, which

allocated a total envelope of €750 billion for asset purchases up until December of that year. Figure 1 shows how the model fits the impact of the PEPP announcement (the change in yields from market close on March 18 to market close on March 20). Following the announcement, the German term premium decreased slightly, and the Italian yield curve shifted downwards in a roughly parallel but slightly convex fashion, which the model matches well.

The model decomposition shows that the credit risk premium accounts for the largest share, by far, of the decline in Italian yields. Hence, term premium movements caused by duration risk extraction, emphasized in US studies, were not the main transmission channel for the PEPP announcement. The relevant channel is better described as *default risk extraction*. Under this mechanism, Eurosystem peripheral purchases reduce the quantity of defaultable bonds that private investors must absorb; at the same time, they reduce future fiscal pressure on peripheral governments, decreasing the default probability itself. These two effects reinforce each other to jointly shrink the credit risk premium.



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The tiny decrease in the expected default loss – just three basis points – is seen in the right panel of Figure 1 as the distance between the dashed and dashed-dot lines. But the expected loss from default was already small *ex ante*, and the associated risk is highly priced, so a small reduction in this component contributes materially to the much larger decrease (around 70 to 80bp) in the credit risk premium.

## **FLEXIBILITY AND EFFECTIVENESS OF ASSET PURCHASES**

Our structural model also helps assess possible changes in the design of asset purchase programmes. A novelty of the PEPP's design was that purchases were allocated flexibly over time and across jurisdictions. In contrast, the APP stipulated a constant pace of purchases, to be allocated in proportion to national central banks' shares in the ECB's capital. Simulating a hypothetical programme with the envelope of the PEPP but the design of the APP, we find that PEPP's flexibility generated an additional 15bp decrease in Italian yields, attributable both to frontloading over the first months, and reallocation towards Italy. Meanwhile, for German yields, following the PEPP design rather than the APP design is quantitatively irrelevant.

Given the quantitative importance of the default risk, extraction channel, reallocating purchases towards jurisdictions that are vulnerable to sovereign default enhances their impact, both on those jurisdictions' sovereign yields, and on average euro area yields. But this does not imply that the Eurosystem actually faces a large expected sovereign credit loss in its balance sheet. On the contrary, by absorbing a small credit risk that would otherwise remain in private hands, asset purchases improve market functioning, both by endogenously decreasing the default probability on sovereign bonds, and by reducing the large credit risk premium that risk-averse private investors would demand to hold those bonds themselves.

The default risk extraction channel implies that flexible asset purchases are more effective. Flexibility may be particularly useful to combat unwarranted fragmentation, that is, disruption to the smooth transmission of the single monetary policy to all euro area jurisdictions, as occurred in the early

stages of the pandemic crisis. This lesson may prove valuable going forward, during the unwinding of the Eurosystem's existing balance sheet.

# Macprudential FX Regulations: Sacrificing Small Firms for Stability?

MARÍA ALEJANDRA AMADO

Summary of Banco de España Working Paper no. 2236

Nontradable firms in emerging economies issue large amounts of dollar debt, exposing their balance sheets to exchange rate movements and credit default risk.<sup>1</sup> This is worrisome since by exposing their own balance sheets they are indirectly exposing the asset portfolio of banks that lend to them. Regulatory authorities have responded implementing macroprudential policies on banks' use of dollar funding as a source of bank lending, particularly to nontradable firms.<sup>2</sup>

However, the unintended distributional effects of these regulations on firms' financing are not well understood and have remained unexplored in the literature. I verify empirically that Macroprudential FX policies might increase financing disparities between small and large nontradable firms and propose a theoretical mechanism consistent with these findings.

## EFFECTS ON FIRM SIZE

I take advantage of an unexpected and aggressive intervention by the Central Bank of Peru to increase the reserve requirement rate (a tax) on banks' FX liabilities in December 2014 (see figure 1 panels a and b).

I assemble a unique dataset combining confidential data on the universe of (1) loans granted by Peruvian banks to nonfinancial firms, (2) all formally registered firms and (3) the universe of banks' FX derivative contracts. I exploit the cross-sectional variation in bank exposure to this tax to identify the lending channel on nontradable firms. Simultaneously, I test whether firms borrowing from differently exposed banks respond heterogeneously to this supply shock depending on their size.

I find that the growth rate of new loans for small firms decreases significantly more than it does for large firms. Even after accounting for a potential switch to sol loans, this differential effect persists. Figure 1, panels c and d, show the cumulative reduction in the monthly growth rate of dollar and total loans, for a given marginal increase in bank exposure to the policy. The cumulative effect on dollar and total loans for the group of firms within the smallest firm size category (micro firms) becomes statistically significant four months after the announcement. After that time, firms start switching to sol loans. For the group of firms within the largest firm size category (large firms), the cumulative effect of the policy on dollar and total loans is negative but not significantly different from zero in any of the periods after the treatment.

I replicate my empirical strategy at the firm level to account for the possibility of firms borrowing in soles also from other banks, to avoid the burden of the regulation. I find that micro firms remain significantly negatively affected by the tax, while firms in larger size categories are able to exploit their multiple relationships with differently exposed banks to increase their debt in soles and remain unaffected by the tax. Additionally, I show that firms that are mostly affected by the policy are not hedged against exchange rate risk through FX derivatives.

I then show that the policy reduces the probability of issuing new loans in a given month the year after the policy announcement. Once again, this extensive margin effect is heterogeneous across size segments, with small firms being less likely to issue new debt than large firms.

Finally, I rely on firm-level survey data to provide suggestive evidence on potential real implications of the policy. I find that the policy is associated with a significant reduction in the annual investment growth of small firms, as well as the nominal value of their production. This is not true for large firms.

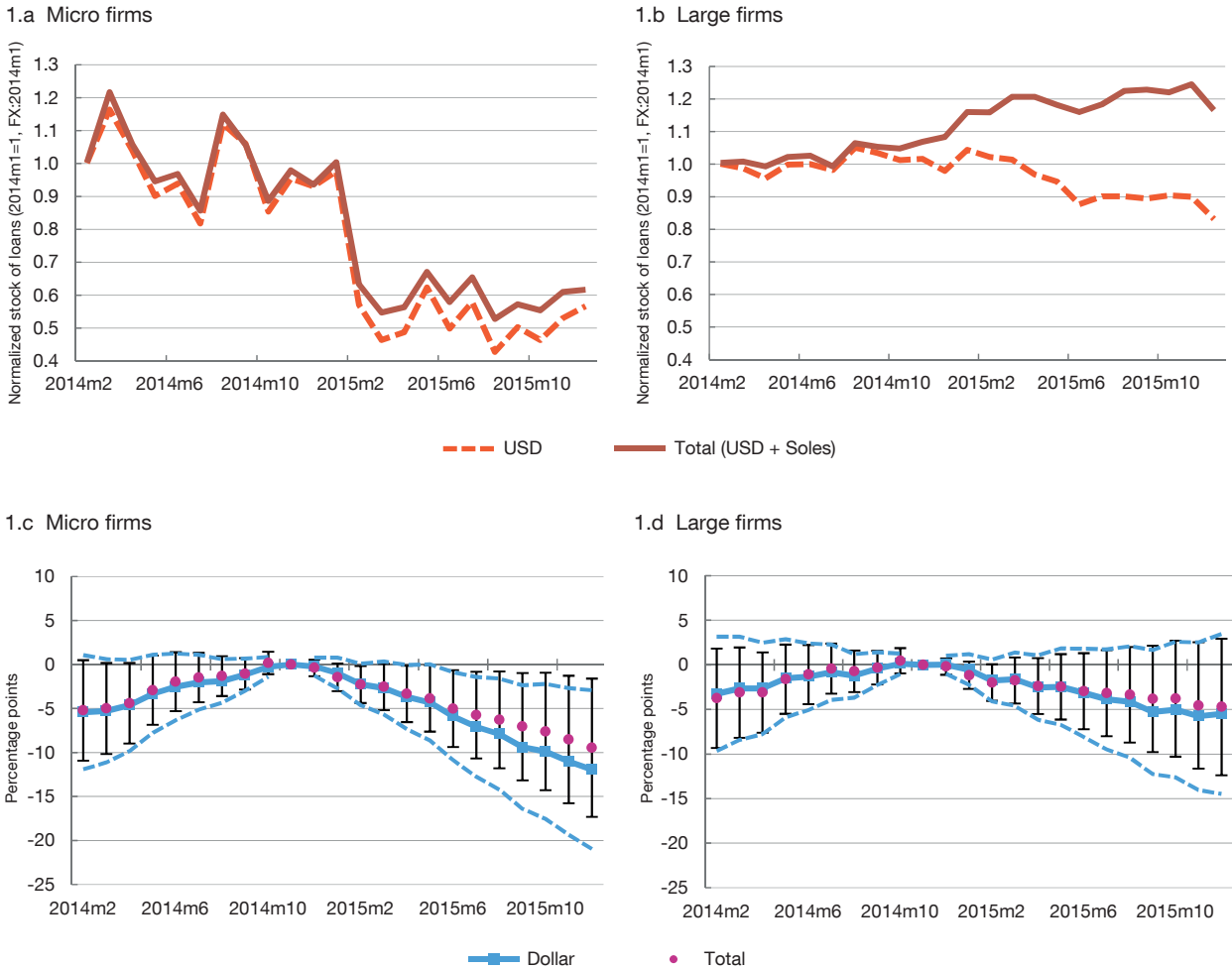
## MECHANISM

Consistent with the previous empirical findings, I propose a mechanism leading to heterogeneous responses of

<sup>1</sup> Bruno and Shin (2015); McCauley, et al. (2015).

<sup>2</sup> Peru, Bulgaria, Croatia, and Romania are four of many examples. (See the IMF 2017 MaP survey).

Figure 1  
**Evolution of dollar and total loans and cumulative treatment effect: Micro and Large firms**



NOTE: Figure 1 panels a and b show the evolution of the normalized stock of outstanding dollar loans of unhedged firms (dashed blue line) and, the evolution of the normalized stock of outstanding dollar + soles loans (red line) before and after the policy intervention. Panels c and d plot the cumulative effect of bank exposure on the growth rate of new dollar loans (blue dot) and new total loans (red dot) for micro and large firms, respectively.

nontradable firms' outcomes to a tax on banks' dollar lending. This mechanism is based on a credit market game as in Ranciere and Tornell (2016) and relies on the well documented empirical fact that dollar debt is cheaper than local currency debt, after correcting for expected exchange rate depreciation. Therefore, some firms might find it beneficial to expose their balance sheets to currency risk by issuing dollar debt.

Firm's optimal decision on debt denomination is driven by two opposing forces. If they denominate their debt in local currency, firms avoid insolvency risk. On the other hand, if firms issue

dollar debt and take currency mismatch risk, they can take advantage of the cheaper cost of borrowing in dollars. For financially constrained firms (e.g. small firms), currency mismatch allows them to relax their borrowing constraints and increase their leverage and investment possibilities. Meanwhile, for unconstrained firms (e.g. large firms), the trade-off between leverage gains and insolvency risk is irrelevant.

A tax on lender's dollar funding ultimately increases firm's cost of borrowing in dollars. If dollar debt becomes more expensive, the firm could find it optimal to switch away from

dollar debt to more expensive but risk-free local currency debt. Alternatively, if the gains of taking on mismatch risk are still high enough after the tax, the firm could find it optimal to keep on issuing dollar debt, and pay the tax. In either case, firm's cost of borrowing increases after the tax is implemented. In an equilibrium where firms are small, borrowing constraints become tighter after tax. In that case, not only might the tax affect the currency composition of firms' debt, but it may also generate real effects in the economy. By contrast, in an equilibrium with large firms, issuing dollar debt is not a means to relax borrowing constraints; the tax only generates a change in the currency composition of firm's debt.

In a nutshell, I provide evidence of a potential trade-off between small firms' growth and financial stability that has not been studied in the literature. My results taken together show that policies aimed at achieving financial stability through the restriction of the bank lending channel in foreign currency might end up disproportionately hurting small firms' financing possibilities with potential real implications.

## REFERENCES

- Bruno, V., and Shin, H. S. (2015). Capital flows and the risk-taking channel of monetary policy. *Journal of Monetary Economics*, vol 71, pp 119-32.
- DiGiovanni, J., Kalemli-Ozcan, S., Ulu, M. F., and Baskaya, Y. S. (2021). International spillovers and local credit cycles. *The Review of Economic Studies*, Volume 89, Issue 2, March 2022, Pages 733–773.
- Ivashina, V., Salomao, J., and Gutierrez, B. (2020). Why is dollar debt cheaper? Evidence from Peru. Available at SSRN: <https://ssrn.com/abstract=3599475>.
- McCauley, R., McGuire, P., and Sushko, V. (2015). Dollar credit to emerging market economies. *BIS Quarterly Review* (December), 27-41.
- Ranciere, R., and Tornell, A. (2016). Financial liberalization, debt mismatch, allocative efficiency, and growth. *American Economic Journal: Macroeconomics*, 8 (2): 1-44.
- Salomao, J., and Varela, L. (2022). Exchange Rate Exposure and Firm Dynamics. *The Review of Economic Studies*, Volume 89, Issue 1, January 2022, Pages 481-514.



# Using Newspapers for Textual Indicators: Which and How Many?

ERIK ANDRES-ESCAIOLA, CORINNA GHIRELLI, LUIS MOLINA, JAVIER J. PÉREZ AND ELENA VIDAL

Summary of Banco de España Working Paper no. 2235

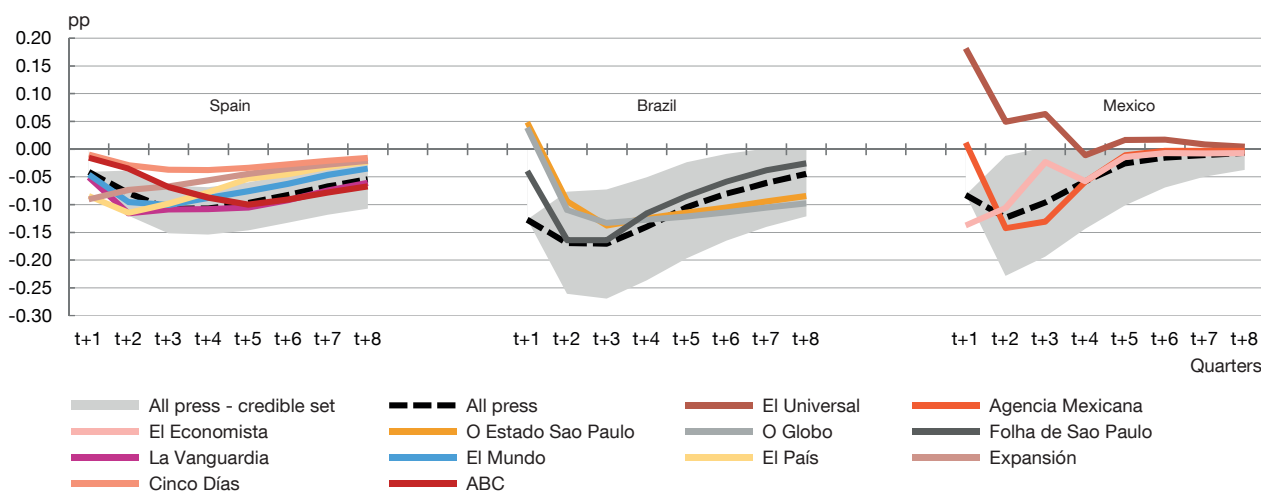
A broad and expanding literature in economics uses textual analysis to develop real-time measures of economic activity, policy uncertainty or social unrest. These measures are in turn related with economic and financial variables to show their relevance for economic and policy analysis and forecasting.

The literature typically focuses on one broad source of text: either the local press (for single-country studies) or the foreign-based press (for cross-country studies), and the results and their interpretation do not take into account

the data sources. For instance, the well-known economic policy uncertainty (EPU) index pioneered by Baker et al. (2016) is based on local newspapers. On the other hand, a very recent literature has constructed newspaper-based indicators using major international news sources (mostly leading Anglophone newspapers and networks), such as the IMF's Reported Social Unrest Index (RSUI) (Barret et al 2020).

There is no clear consensus on how many sources should be used to construct text-based indexes or which type of press should be considered. Furthermore, the literature has developed many newspaper-based economic indicators abstracting from explaining why one newspaper is selected. In our paper we tried to shed some light on this issue by answering the following questions: (i) Do sources with different levels of proximity –meaning local press versus foreign press– convey different information?; (ii) Is it better to use a broad coverage of newspapers or is it sufficient to rely on only one source? These questions are also relevant since

Figure 1  
Impulse response functions of GDP to EPU shock, by newspaper (a)



SOURCES: Andres-Escayola et al (2022).

a Each panel depicts the median impulse responses (IRF) of GDP to a rise of one standard deviation in the EPU index in Spain, Brazil and Mexico, respectively. In each panel, the dashed grey line depicts the median IRF of GDP to shocks in the EPU constructed based on all available press (pooling together local and foreign sources) and the grey area depicts its corresponding 84%–16% credible set. For Spain, we consider a set of Anglophone newspapers as foreign sources. For Mexico and Brazil, foreign sources are represented by both Anglophone and Spanish newspapers. All other lines represent the IRFs of GDP to shocks in the EPU index constructed considering only one local newspaper at a time. Filled symbols indicate statistical significance within the 84%–16% credible set, while empty symbols represent not-significant estimates. The horizontal axis measures quarters since the shock.

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newspaper repositories are usually not free of charge and the production of newspaper-based economic indicators is growing fast. Also, we prove that the interpretation of results is different according to the source used to build the text based index.

We focus on the well-known and broadly used EPU indicator by Baker et al. (2016) and construct this indicator for six Latin American countries (Brazil, Mexico, Chile, Colombia, Peru and Argentina) and for Spain on the basis of, alternatively, local and foreign newspapers –including Spanish newspapers for the six Latin American economies–, changing also slightly the words that measure uncertainty and economic policy.<sup>1</sup> Then we compare the narratives emerging from these indexes and examine their macroeconomic effects using a structural Bayesian vector autoregressive (BVAR) model.

The main result is unexpected<sup>2</sup> as it shows that the proximity of the press to the country of interest does not matter. EPU indexes based on local and foreign newspapers show very similar narratives and deliver similar macroeconomic impulse responses. This finding enables researchers to rely on foreign sources to construct EPU indexes. This option may foster the comparability of results across countries and lay the groundwork for cross-country studies of uncertainty.

Related to the second question, we show that it is often the case that macroeconomic responses to EPU indexes based on only one newspaper lie outside the credible bands of responses to the EPU index based on all sources available. Figure 1 provides some examples for the case of Spain, Mexico and Brazil. These results suggest that EPU indexes based on one single newspaper may provide biased results with respect to EPU indexes based on a broad set of newspapers, so the best option would be to rely on multiple sources. Then we advocate maximizing the breadth of the press coverage when constructing newspaper-based indicators: the larger the press coverage, the better.

## REFERENCES

- Andres-Escayola E., C. Ghirelli, L. Molina, J. J. Pérez and E. Vidal. (2022). “Using newspapers for textual indicators: which and how many?”, Bank of Spain Working Paper N. 2235.
- Baker, S. R., N. Bloom, and S. J. Davis (2016). “Measuring Economic Policy Uncertainty”, *The Quarterly Journal of Economics*, 131(4), pp. 1593-1636.
- Barrett, P., M. Appendino, K. Engullen, and J. de León Miranda (2020). “Measuring Social Unrest Using Media Reports”, IMF Working Papers 2020/129, International Monetary Fund.

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<sup>1</sup> All these indexes could be downloaded from the Banco de España web page (<https://www.bde.es/bde/en/areas/analisis-economi/enfoque/america-latina/indices-de-incertidumbre-de-la-politica-economica--epu--para-los-principales-paises-de-america-latin-dfa6ffaa8331481.html>).

<sup>2</sup> One possible hypothesis is that news with different levels of proximity convey different messages to the readers and this might affect newspaper-based indicators.

# Could Spain be less different? Exploring the effects of macroprudential policy on the house price cycle

ADRIÁN CARRO

Summary of Banco de España Working Paper no. 2230

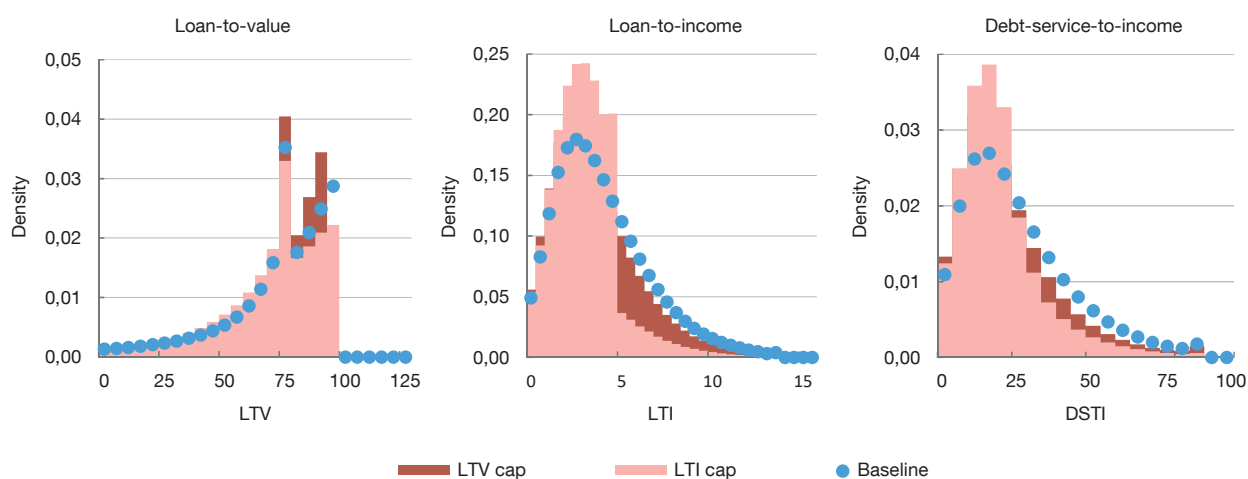
Housing prices are known to co-move with GDP, consumption, investment, hours worked, real wages and housing investment, hinting at the important role played by house price fluctuations within the business cycle (Leamer, 2015; Cerutti et al., 2017b). In fact, downturns in real housing prices have been shown to be valuable early warning signals of economic recessions (Haavio et al., 2014). In view of this, moderating house price fluctuations has become a key objective of macroprudential policy after the Global Financial Crisis (Cerutti et al., 2017a). Given the weight of the real estate sector in its economy, as well as the role this sector played during the Global Financial Crisis, Spain offers an excellent setting to examine the potential

use of macroprudential policy to moderate the house price cycle. Moreover, house price fluctuations have been considerably stronger in Spain than in most other European countries, especially during the most recent boom-bust cycle around the Global Financial Crisis. In Carro (2022), we use an agent-based model of the Spanish housing market to explore the main drivers behind the large amplitude of the Spanish house price cycle, as well as to investigate the scope for macroprudential policy to reduce this amplitude.

## MODELLING FRAMEWORK

Housing markets are characterised by a number of modelling challenges related to their highly heterogeneous nature. First, households interacting in housing markets are heterogeneous across multiple dimensions, including their income, wealth and preferences, which strongly influence their decisions. In addition, given its relevance in the cash flows of many households, housing can itself become a driver in creating further disparities. Moreover, when evaluating policy interventions, it would be difficult to determine the impact of a particular measure on the various

Figure 1  
Impact of calibrated policies on risk metric distributions



NOTES: Comparison of model results for the baseline (no-policy) scenario, a hard loan-to-value limit of 94% and a soft loan-to-income limit of 4.77, allowing for 15% of mortgages to exceed this latter limit. Note that these limits are calibrated for the amplitude of the Spanish house price cycle to match that of the UK equivalent. Moreover, they would both be binding for about 20% of mortgages in Spain, according to data from Colegio de Registradores (loan-to-price) and European Data Warehouse for 2016.

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segments of the housing market, such as renters, first-time buyers, home movers or buy-to-let investors, unless these groups are explicitly incorporated into the analysis. Second, housing is an extremely heterogeneous good, with houses differing in aspects such as their location, size, condition and dwelling type. As a result, houses are hard to assess and compare, and housing markets are rife with information asymmetries. These factors, together with high transaction costs and long investment horizons, make housing a relatively illiquid asset and allow for imbalances between supply and demand to persist for much longer than in markets for more homogeneous products. For instance, an excess in demand at a given location cannot be easily offset by an excess in supply at a faraway location.

Agent-based models are particularly well suited to meet these challenges and capture many of these features. In particular, we build upon an agent-based model of the housing market originally developed for the UK (Carro et al., 2022), which we adapt to the specificities of the Spanish housing market and fully recalibrate using a breadth of both macro- and micro-databases, including loan-level regulatory data. This model includes life cycle dynamics, large degrees of household heterogeneity across multiple dimensions (such as income, wealth, age and preferences), heuristic (boundedly rational) rules of behaviour and adaptive expectations. The model has three main classes of agents: (i) households, (ii) a bank, and (iii) a Central Bank. Households interact with each other through the sales and the rental markets by purchasing, selling, renting and letting out houses to each other (i.e., there is a dynamic buy-to-let sector). To buy houses, households can also engage with the bank by requesting a mortgage. In providing such mortgages, the bank applies its own internal lending standards in the form of loan-to-value (LTV), loan-to-income (LTI) and debt-service-to-income (DSTI) requirements. Finally, the Central Bank has the authority to further regulate those lending standards using borrower-based macroprudential policies, potentially imposing more restrictive limits. Crucially, the dynamics of the model are characterised by the emergence of fully endogenous house price cycles, derived from the actions and interactions of the agents and not requiring any external input of shocks.

## RESULTS AND SIGNIFICANCE

In our analysis, we exploit the fact that this methodology has already been applied to the UK housing market. In fact, the UK is an ideal benchmark for our experiments, as it is characterised by cycles with a frequency and general shape similar to their Spanish equivalent, but milder. Moreover, the availability of data for model calibration is better in the UK than in many other European countries.

Noting the significantly smaller amplitude of the UK house price cycle as compared to the Spanish equivalent, we first exploit the availability of both calibrations to explore which aspects of the Spanish calibration are behind the increased amplitude of its house price cycle. To this end, we build hybrid parameterisations, that is, simulations mixing parameter values from our two available calibrations in order to assess the impact of specific parameters and mechanisms on the resulting cycles. In this way, we find that parameters and mechanisms related to lending standards and desired down-payments are key in generating the stronger Spanish cycles. Second, we use the model to calibrate both a hard LTV limit and a soft LTI limit (allowing for a small fraction of new mortgages over it) to smooth the Spanish house price cycle and match the amplitude of the UK equivalent. Interestingly, our calibrated limits are less restrictive than the corresponding UK distributions of lending standards would suggest.

Finally, we characterise the effects of these calibrated policies over the cycle. Our results indicate that both instruments reduce credit and price growth during the expansionary phase, as well as mitigate their decline during the contractionary phase. We also observe that policies targeting a given risk metric can also have an important impact on other risk metrics (see Figure 1). For instance, our calibrated LTI policy has a strong effect on the LTV distribution, even stronger than the LTV cap itself. As a further example, both policies have an impact on the (untargeted) DSTI distribution. Importantly, both instruments lead to a compositional shift in lending towards buy-to-let investing: with the LTV policy, credit shifts mostly from first-time buyers to buy-to-let investors, while with the LTI policy, credit shifts from both first-time buyers and home-movers

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towards buy-to-let investors. This shift is due to the generally higher wealth and income of buy-to-let investors, who are thereby less constrained by these policies. Furthermore, both policies make buy-to-let investing more attractive by reducing purchase prices while increasing the demand for rental accommodation. From a policy perspective, it is of paramount importance that these distributional effects and spillovers are taken into account in the design and calibration of macroprudential policies.

## REFERENCES

- Carro, A. (2022). Could Spain be less different? Exploring the effects of macroprudential policy on the house price cycle. Banco de España Working Paper Series, No 2230.
- Carro, A., Hinterschweiger, M., Uluc, A., and Farmer, J. D. (2022). Heterogeneous effects and spillovers of macroprudential policy in an agent-based model of the UK housing market. *Industrial and Corporate Change*, dtac030, <https://doi.org/10.1093/icc/dtac030>.
- Cerutti, E., Claessens, S., and Laeven, L. (2017a). The use and effectiveness of macroprudential policies: New evidence. *Journal of Financial Stability*, 28, 203-224.
- Cerutti, E., Dagher, J., and Dell'Ariccia, G. (2017b). Housing finance and real-estate booms: A cross-country perspective. *Journal of Housing Economics*, 38, 1-13.
- Haavio, M., Mendicino, C., and Punzi, M. T. (2014). Financial and economic downturns in oecd countries. *Applied Economics Letters*, 21 (6), 407-412.
- Leamer, E. E. (2015). Housing really is the business cycle: what survives the lessons of 2008–09? *Journal of Money, Credit and Banking*, 47 (S1), 43-50.



# Do Renewables Create Local Jobs?

NATALIA FABRA, AITOR LACUESTA, EDUARDO GUTIÉRREZ AND ROBERTO RAMOS

Summary of Banco de España Working Paper no. 2307

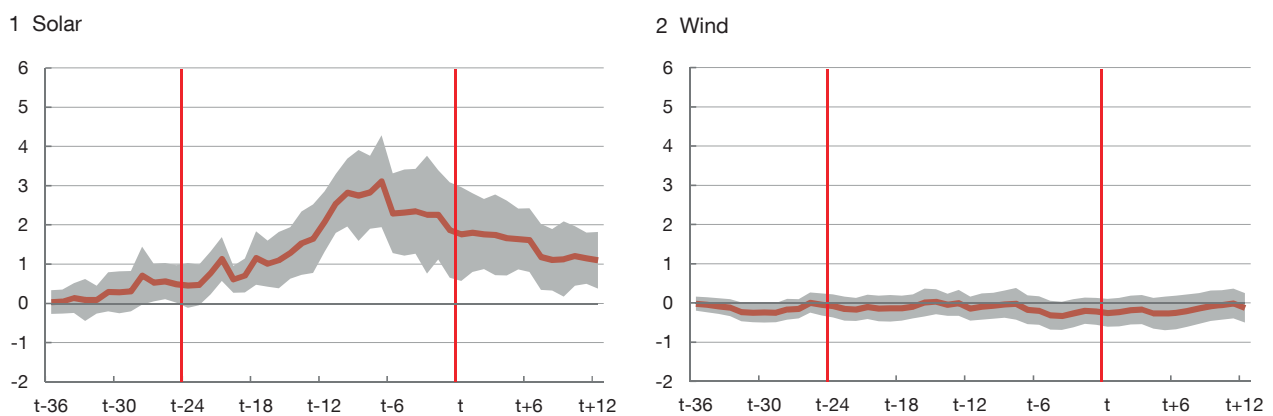
A technological revolution has driven the costs of investing in renewable energies to record lows. For instance, over the last decade, the costs of investing in solar photovoltaics and onshore wind have fallen by 88% and 68%, respectively (IRENA, 2022; Newberry, 2018). Together with the need to reduce fossil fuel consumption for environmental and security of supply reasons, these cost reductions have fostered a massive roll-out of renewable energy investments around the globe. However, a new, unexpected obstacle has emerged: the opposition of the local communities where the investments are located. This movement, known as NIMBY (Not in My Backyard), is responsible for blocking solar and wind developments globally.

Several papers have analyzed the costs imposed by renewable energy projects on local communities; e.g., their adverse effects on land conservation, biodiversity, and

some economic activities such as agriculture or tourism (see for instance, Germeshausen et al., 2022). However, little attention has been devoted to understanding the other side of the equation: the local benefits. Do hosting communities oppose renewable investments because of the local costs or because they do not benefit enough to offset those costs? It is widely recognized that renewable energies bring about socio-economic benefits. Indeed, the post-pandemic recovery plans rely on green investments as a lever for economic growth and employment. If those benefits are present but local residents do not perceive them as such, does it mean that the local benefits are not enough to compensate for the costs?

In recent work (Fabra et al, 2022), we use local employment and unemployment impacts as proxies for the local economic benefits of renewable investments. We exploit variation in the timing and size of the investment projects across more than 3,200 Spanish municipalities using 13 years of monthly data (from 2007 to 2020) that witnessed two major investment waves. As far as we know, our work is the first application of Dube et al. (2022), who propose a new estimator for staggered Differences-in-Differences analysis that extends the local projections approach (Jordá, 2005) with clean controls.

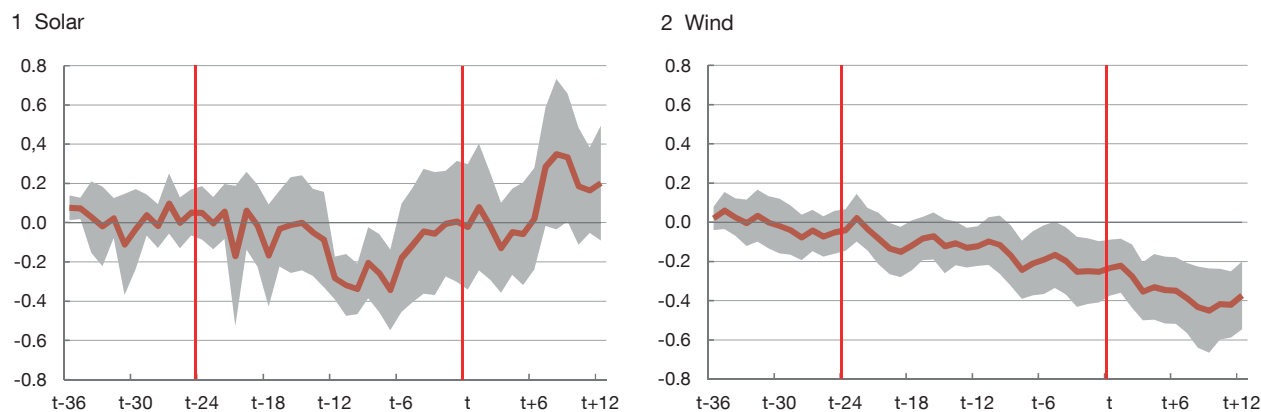
Figure 1  
Local employment effects of solar and wind investments



NOTES: These figures show the effects of investing 1 MW on employment by firms located at the municipalities where the investment occurs in the period February 2006-January 2018, h months before or after the start-up date (marked with a vertical red line). Panel 1 shows the results for solar investments and panel 2 for wind investments. Error bonds depict the 95% confidence interval. Standard errors are clustered at the municipality level.

Figure 2

**Local unemployment effects of solar and wind investments**



NOTES: These figures show the effects of investing 1 MW on unemployment by residents in the municipality where the investment occurs in the period June 2008-January 2018, h months before or after the start-up date (marked with a vertical red line). Panel 1 shows the results for solar investments and panel 2 for wind investments. Error bonds depict the 95% confidence interval. Standard errors are clustered at the municipality level.

Our analysis uses highly detailed data on individual renewable projects, including their location, technology, and start-up date. These data are combined with employment and unemployment data at the municipality level: whereas employment data capture the number of jobs by local firms, unemployment data reflect the number of local residents without a job. Combining these data sources with the local-projections approach provides a rich picture of the heterogeneous local labor market effects caused by renewable investments.

Importantly, we find big differences in the local job multipliers across renewable technologies. Whereas investment in solar photovoltaics has sizeable multipliers, investment in wind triggers no statistically or economically significant local job creation. This finding aligns with IRENA's (2021) assessment: "The integration of local content and local employment remains a challenge, particularly in wind energy." Indeed, in the case of wind, investments are front-loaded and not necessarily local as high-skilled workers are required to carry out the projects, which they often do from elsewhere. Solar investments require less specialized skills, allowing the project developers to hire workers locally. Furthermore, the

construction of solar farms, which has a strong local component, bears a higher weight in the project's total cost. Consistently with this, we also find that the labor market effects of solar investments concentrate primarily during the construction phase and become milder during the maintenance phase.

Figure 1 illustrates the employment effects across technologies and periods. The x-axis reflects the number of months before or after the start-up date (marked by a solid red line). By then, the plant must be ready to produce electricity, so treatment must have started approximately 24 months before (marked by a dashed red line), consistently with the normal duration of the construction phase. The precise month when the construction starts, even if unobserved, can be inferred from when the multipliers become positive. The y-axis shows the value of the job multipliers per MW invested (a similar pattern is found per Million€ invested).

In the case of solar investments, multipliers become positive and significant approximately 22 months before the start-up date, and peak at around 7 months before that date, which is when all the major construction work is done. Later

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multipliers become lower but do not fully vanish, reflecting the labor needs during the maintenance phase. The average local multiplier one year before the end of the construction is 2.5 workers/MW (or 0.8 workers/Million€ invested) and 1.5 workers/MW during the maintenance phase (or 0.2 workers/Million€). In the case of wind, the local employment multipliers are not different from zero, both during the construction and maintenance phases. Using a more standard event-study design delivers broadly similar results.

As can be seen in Figure 2, the effects on employment tend to be larger than those on unemployment, suggesting that local firms tend to hire workers living in other municipalities or counties. This is consistent with difficulties in finding skilled workers in the rural municipalities where most of the projects are located. The weak unemployment multipliers also reflect that the labor market effects are mostly confined to sectors directly linked to the construction or maintenance of the plants, in line with our sector-level analysis. Interestingly, in the case of solar, after the start-up date, there is a slight surge in unemployment of previously employed workers in the construction sector, even relative to the pre-construction period. This finding is consistent with the project attracting new residents to work on the plant's construction, who become unemployed once it ends.

The relatively small magnitude of the local effects, particularly in wind investments, does not mean that renewable investments do not create jobs on a broader scale. Indeed, it is plausible that a significant fraction of the employment benefits accrue away from the municipalities where the investments occur. However, since the opposition of the local communities may become a bottleneck for the broader deployment of renewable energies, it is fair and efficient to distribute the gains from the renewable investments with the hosting municipalities. Promoting local energy communities for residents to have stakes in the new projects, reducing the electricity price for local residents, increasing the local taxes paid by renewable investors, and prioritizing grid access to those projects that promise greater local benefits... These and other options should be considered to obtain greater social acceptability of renewable projects by the local communities.

## REFERENCES

- Dube, A., D. Girardi, O. Jordà, and A. M. Taylor (2022), A local projection approach to difference-in-difference event studies, NBER Working Paper.
- Fabra, N., E. Gutiérrez, A. Lacuesta, and R. Ramos (2022) Do Renewables Create Local Jobs?, CEPR Working Paper 17206.
- Germeshausen, R., S. Heim, and U. J. Wagner (2022), Support for renewable energy: The case of wind power, CEPR Discussion Paper No. 17603.
- Jordà, O. (2005), Estimation and inference of impulse responses by local projections, *American Economic Review* 95.
- IRENA, (2022) Renewable Power Generation Costs in 2020, Discussion paper.
- IRENA, (2021) Renewable Energy and Jobs - Annual Review 2021, Discussion paper.
- Newberry, D. (2018) Evaluating the case for supporting renewable electricity, *VoxEU Column*.

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# Credit line runs and bank risk management: evidence from the disclosure of stress test results

JOSÉ E. GUTIÉRREZ AND LUIS FERNÁNDEZ LAFUERZA

Summary of Banco de España Working Paper no. 2245

Stress testing of banks has become a key element of the bank supervisory toolkit. Yet, the benefits and costs of publicly disclosing stress test results remain only partially understood. By providing valuable information to all market participants, publishing individual stress test results can reduce uncertainty and improve market functioning. However, their public disclosure can also have negative financial consequences on the banks that perform poorly in such exercises (e. g. worsening their funding conditions and limiting their capacity to perform intermediation functions), potentially beyond what is justified by fundamentals if a run dynamic is triggered. Thus, a comprehensive understanding of the involved benefits and costs is central for designing regulatory stress tests and potential complementary measures.

In this work, we firstly uncover a new cost of publicly disclosing individual stress test results in the form of credit line runs. In particular, we find that, following the publication of individual stress test results, firms run on credit lines granted by banks with poor performance in the test.

Our analysis focuses on Spanish banks and firms during the implementation of the EBA 2011 stress test. In particular, we examine whether, after the announcement of the results (July 15, 2011), firms precautionarily drew down credit lines out of concern that banks facing a negative information shock (stress test underperformance) may tighten future credit access. Answering this question requires us to control for firm liquidity demand, which we achieve by adding firm fixed effects in our regressions, following Khwaja and Mian (2008). Then, using a difference-in-differences approach, we analyse whether a firm uses differently its credit lines in response to the news about banks' performance in the stress test.

Additionally, we examine banks' mitigating actions before (and after) the results became public. In particular, banks that can potentially face extraordinary drawdowns will prefer to save on capital and liquidity buffers by tightening their lending standards. Thus, we explore whether worse-performing banks were more likely to not renew expiring lines or reduce their available funds. In addition, we analyse the effect on term credit (where the entire amount of funds is granted up front, as opposed to credit lines where funds are drawn down as needed) to firms that did not have credit lines, and examine whether worse-performing banks with more significant credit line balances cut term loans more often.

We find evidence of precautionary drawdowns after the disclosure of the 2011 EBA stress test results. Specifically, firms chose to use 9.5 pp more of undrawn funds (or 1.2 pp more of granted, undrawn plus drawn) between June and July from lines extended by banks performing worse in the stress test, see Table 1. Moreover, we find no evidence, prior to the disclosure of the results, that credit lines extended by worse-performing banks were used more intensively than lines granted by other banks. In addition, we show that firms that precautionarily drew down funds after the disclosure of the results decided to pay back drawn funds a few months later, explaining the lower usage of credit lines granted by worse-performing banks vis-à-vis lines granted by better-performing banks in September. Thus, after the initial worries dissipated, precautionary drawdowns were restored to credit lines, supporting the interpretation of a precautionary motive instead of a genuine liquidity need. Our results remain robust to excluding from our sample banks with high exposure to home sovereigns, banks that received public funds or were part of a merging process, or public banks. In addition, we find that firms did not use credit lines more intensively due to a fall in other lending sources before the disclosure of the results.

Affected banks tightened their lending standards. Since banks could have predicted their performance in the stress test after knowing the assumptions in the exercise, they were able to take mitigating actions. We find that worse-performing banks were approximately 10 pp more

Table 1

**Effect of the 2011 Stress Test on Credit Line Usage**

	Change in Drawn June / July 2011	
	Over Drawn + Undrawn	Over Undrawn
	(1)	(2)
Underperforming in the test	0.012*** (0.003)	0.095** (0.044)
Controls	Y	Y
Firm FE	Y	Y
Observations	93,010	90,375
R-squared	0.5468	0.4460

NOTES: The table presents a set of regressions of the change in drawn funds from credit lines over the period June / July 2011, which includes the announcement date of the stress results (July 15, 2011), on a stress test performance variable, bank and credit line controls. In column 1, the change in drawn funds is measured relative to drawn and undrawn amounts. Column 2 measures the change in drawn funds relative to undrawn funds in June 2011. ST-Underperforming is a dummy variable that takes value one if the bank had a CT1R below 6% under the adverse scenario of the 2011 stress test exercise. The sample only includes firms that have at least two outstanding and not fully used credit lines in June from two different banks. To avoid extreme negative values of the dependent variable, column 2 does not include credit lines whose initial usage is above 99%. All regressions include firm fixed effects. Standard errors are double clustered at the bank and firm levels and reported in parentheses.

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

likely to decrease the total amount of a credit line a quarter before the disclosure date. Moreover, such different behaviour was not observed in the previous quarter (before the exercise's assumptions were known) and the following (after the results became public). Additionally, banks with a worse performance in the test and more significant undrawn credit line balances cut term lending more to firms without credit lines. In particular, for banks performing worse in the test, larger levels in undrawn credit line-to-assets were linked to higher probability of decreasing lending during the second and third quarter of 2011. These results can be explained by the impact of drawdowns on bank liquidity and capital buffers. Moreover, our second finding suggests that banks cannot fully mitigate their exposure to undrawn credit lines by just downsizing them. As a result, banks may find it necessary to adjust their credit policy along other dimensions, such as reducing term lending to other types of firms.

The study bears important implications for the design of stress tests, prudential policy, and the regulation of credit lines. From a prudential point of view, acknowledging this

cost of disclosing stress test results is important, and points out the relevance of designing and communicating adequately remedial actions for worse performing banks in this type of exercises. Finally, our study suggests that stricter liquidity and capital requirements on the unused part of credit lines can be useful, as relatively large drawdowns can be expected when negative news about banks are published.

## REFERENCE

Khwaja, A. I. and Mian, A. (2008). Tracing the impact of bank liquidity shocks: Evidence from an emerging market. *American Economic Review*, 98(4):1413–42.



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# Inflation Persistence, Noisy Information and the Phillips Curve

JOSÉ-ELÍAS GALLEGOS

Summary of Banco de España Working Paper no. 2309

For many decades, understanding expectations has been a central question in macroeconomics. However, most macroeconomic studies focus on the starkly simplified benchmark case of *full information rational expectations* (FIRE), in which agents are perfectly and homogeneously aware of the state of nature and of others' actions. In this paper, I consider instead a theory of expectation formation that incorporates significant heterogeneity and sluggishness in agents' forecasts, thus relaxing the standard FIRE benchmark. I build this expectation formation process into an otherwise standard New Keynesian macroeconomic model by introducing noisy and dispersed information, rationally processed individually by each agent. I set the information-related parameters in the model so that expectations in the model are consistent with the observed sluggishness of forecasts<sup>1</sup> I use this framework to shed light on two empirical phenomena that have been much discussed in the literature: the fall in inflation persistence and the change in the dynamic relationship between output and inflation (the Phillips curve).

As for the first point, evidence suggests that the dynamics of US inflation have changed over time. In particular, inflation in the post-war period exhibits a high degree of persistence up until the mid-1980s, falling significantly since then. This fall in inflation persistence is not easily understood through the lens of monetary models, and has been called the "inflation persistence puzzle" (Fuhrer 2010).<sup>2</sup> This change in inflation dynamics coincides with a change in the US Federal Reserve's communication policy. Since the late 1960s, there

has been a gradual improvement in the Fed's public disclosure and transparency, sending clearer signals of the Fed's actions and future intentions to the market.<sup>3</sup> Using survey data on US firms' inflation expectations, I document a significant sluggishness in responses to new information until the mid-1980s, but no evidence of sluggishness afterward, by regressing the ex-ante average forecast error on the average forecast revision before and after 1984 (see figure 1).<sup>4</sup> The theoretical framework I build is consistent with this evidence. I argue that the change in the Fed communication makes firms' information less sluggish, and I use the model to show that firms can then adjust their prices in a more agile way, explaining the fall in inflation persistence.

Diving into the details, the model explains the fall in inflation persistence through a decrease in firms' uncertainty about central bank actions. I assume that firms can observe their individual conditions —such as the output they produce given their price— but they do not have perfect information about aggregate macroeconomic variables like inflation, output, or interest rates. Instead, they observe a noisy signal that provides information on the state of the economy, and in particular about changes in monetary policy. Using this information, firms form expectations about inflation, aggregate output, and interest rates. I show that in this framework, inflation is more persistent in periods of greater forecast sluggishness. Noisiness implies that firms underreact to new information, because they distrust their signals and rely more on their prior beliefs. This endogenous anchoring of forecasts causes firms to set prices closer to their prior expectation, thus slowing the adjustment of the aggregate price level. Because the persistence of inflation depends on the speed of price adjustments, the Fed's improved communications policy endogenously reduces inflation persistence. I find that this change in firms' forecasting behavior can explain around 90% of the fall in inflation persistence since the mid-1980s.

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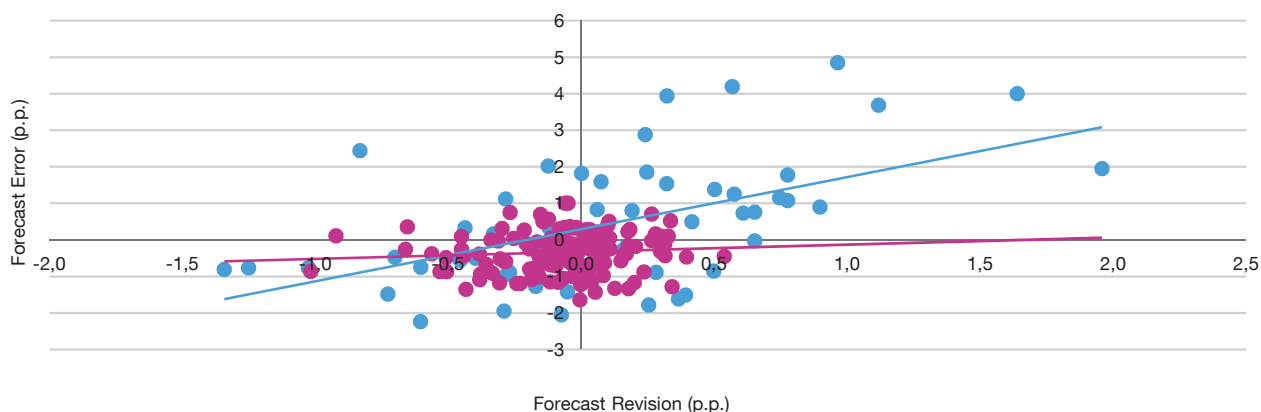
<sup>1</sup> By sluggishness, I mean that agents do not immediately correct errors in their expectations. Following Coibion and Gorodnichenko (2015), I measure sluggishness as a positive correlation between average forecast errors at the beginning of any given period and forecast revisions in the following period.

<sup>2</sup> Persistence determines both the strength of the effect of past shocks on today's outcome and the unconditional volatility of an autoregressive dynamic process. See Fuhrer (2010) for a literature review.

<sup>3</sup> Before 1967 the Federal Open Market Committee (FOMC), the decision-making body of the US Federal Reserve, only announced policy decisions once a year in its Annual Report. Since January 2000 there has been an immediate announcement and press conference after each meeting, regardless of the decision taken.

<sup>4</sup> Coibion and Gorodnichenko (2015) find evidence for an increase in the level of information frictions since the 1980s, and explain the increase from a rational inattention perspective. Using their data, I provide evidence of the decrease in information frictions *related to inflation*. I argue that this improved fidelity of expectations, about inflation in particular, is driven by changes in the Fed's communication policy.

Figure 1



NOTES: Scatter plot of ex-ante average forecast error (vertical axis) and average forecast revisions (horizontal axis). Red dots correspond to 1968-1984 observations (which show a significant positive correlation), and blue dots correspond to observations after 1984 (after which the correlation is not significantly different from zero).

Regarding the second empirical issue, recent literature documents that the dynamic relationship between output and inflation has changed in recent decades. This relationship —the Phillips curve— takes the form  $\pi_t = \kappa y_t + \beta E_t \pi_{t+1}$  in many New Keynesian macroeconomic models. The literature suggests that the coefficient  $\kappa$  that links the output gap  $y_t$  with the inflation rate  $\pi_t$  has decreased in recent decades (Andrés et al. 2021, Costain et al., 2022 2021) —a flatter Phillips curve. Indirectly, this suggests implies that nominal interest rate changes by the central bank have become less effective in affecting inflation. In contrast, I estimate only a modest decline in the slope of the Phillips curve since the mid-1980s, once I control for the decrease in information frictions. Instead, I argue that noisy and dispersed information offers an alternative explanation for the change in the form of the Phillips curve. Under information frictions, the Phillips curve is enhanced with intrinsic persistence and myopia:  $\pi_t = \omega \pi_{t-1} + \kappa y_t + \delta \beta E_t \pi_{t+1}$ . I find evidence of intrinsic persistence ( $\omega > 0$ ) and myopia ( $\delta < 1$ ) before the mid-1980s, but not afterwards. In other words, from the perspective of the model, the change in the dynamics of the Phillips curve can be explained by a reduction in backward-lookingness (lower  $\omega$ ) and an increase in forward-lookingness ( $\delta$  closer to one) after the mid-1980s.

This paper has only considered data up until the second quarter of 2020. The evidence provided suggests less sluggish expectations and a fall in inflation persistence since the mid-1980s. These results might lead the reader to conclude that the current inflationary episode will only be temporary (or, at least, less persistent than inflation was before the mid-1980s). However, a preliminary look at data from late 2020 to early 2022 suggests that sluggishness and inflation persistence may be coming back. Although admittedly speculative, these findings suggest that central banks should strive to be extremely clear in their communication over the coming quarters if they want to avoid a return of inflation persistence. This argument is only suggestive, however, since it abstracts from cost-push shocks and the bottlenecks arising from the economy's input-output network. This suggests avenues for follow-up research, in which belief formation frictions interact with the input-output structure of the economy.

## REFERENCES

- Andrés, Javier, Óscar Arce and Pablo Burriel, "Market Polarization and the Phillips Curve," Banco de España Working Paper, 2021.
- Coibion, Olivier and Yuriy Gorodnichenko, "Information rigidity and the expectations formation process: A simple framework and new facts," American Economic Review, 2015.

---

Costain, James, Anton Nakov and Borja Petit, “Flattening of the Phillips Curve with State-Dependent Prices and Wages,” *The Economic Journal*, Volume 132, Issue 642, February 2022, Pages 546-581.

Fuhrer, Jeffrey C., “Chapter 9 - Inflation Persistence,” in Benjamin M. Friedman and Michael Woodford, eds., Benjamin M. Friedman and Michael Woodford, eds., Vol. 3 of *Handbook of Monetary Economics*, Elsevier, 2010, pp. 423–486.

Rubbo, Elisa, “Networks, Phillips Curves, and Monetary Policy,” Working Paper, 2019.

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BEATRIZ GONZÁLEZ LÓPEZ, GABRIEL JIMÉNEZ,  
PEDRO JAVIER MARTÍNEZ-VALERO, SERGIO  
MAYORDOMO, ÁLVARO MENÉNDEZ PUJADAS,  
LOLA MORALES, MYROSLAV PIDKUYKO  
AND ÁNGEL VALENTÍN

Occasional Paper no. 2313

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## Financial Stability Review

The **Financial Stability Review** is a half-yearly journal published by the Banco de España that aims to act as a platform for communication and dialogue on issues related to financial stability, with a focus on macroprudential policy, regulation and supervision. Its editorial board comprises internal and external professionals. All articles appearing in the Review, which may be authored by Banco de España staff or researchers from other institutions, is subject to an anonymous refereeing process. The Autumn 2022 Issue of the Financial Stability Review contains the following articles:

**IMPACT OF PAYOUT RESTRICTIONS IN THE WAKE OF THE COVID-19 PANDEMIC ON EUROPEAN AND US BANKS' MARKET VALUATION**

IRENE PABLOS NUEVO AND CARLOS PÉREZ MONTES

Financial Stability Review, Autumn 2022, 9 – 32

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**STRUCTURAL RISK INDICATORS FOR THE SPANISH BANKING SECTOR**

CARMEN BROTO AND MARIYA MELNYCHUK

Financial Stability Review, Autumn 2022, 33 – 54

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**DIGITAL RESILIENCE AND FINANCIAL STABILITY. THE QUEST FOR POLICY TOOLS IN THE FINANCIAL SECTOR**

JOSÉ RAMÓN MARTÍNEZ RESANO

Financial Stability Review, Autumn 2022, 55 – 82

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**UNWRAPPING BLACK BOX MODELS A CASE STUDY IN CREDIT RISK**

JORGE TEJERO

Financial Stability Review, Autumn 2022, 83 – 110

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## Recent publications in refereed journals

### LAS CUATROCIENTAS MIL NORMAS DE LA DEMOCRACIA ESPAÑOLA. CUANTIFICACIÓN E IMPACTO DE LA COMPLEJIDAD NORMATIVA DE ESPAÑA

JUAN S. MORA-SANGUINETTI

*Revista de las Cortes Generales*

Issue 114, 2º Semestre 2022, pp 231-253

<https://doi.org/10.33426/rcg/2022/114/1722>

Accepted: 30 Dic 2022

### SHOCKS VS MENU COSTS: PATTERNS OF PRICE RIGIDITY IN AN ESTIMATED MULTI-SECTOR MENU-COST MODEL

ERWAN GAUTIER AND HERVÉ LE BIHAN

*The Review of Economics and Statistics*

Volume 104, Issue 4, July 2022, pp 668-685

[https://doi.org/10.1162/rest\\_a\\_00968](https://doi.org/10.1162/rest_a_00968)

Accepted: 24 Sept 2020

### INTERNATIONAL BANK CREDIT, NONBANK LENDERS, AND ACCESS TO EXTERNAL FINANCING

JOSÉ M<sup>a</sup> SERENA, SERAFEIM TSOUKAS AND MARINA ELIZA SPALIARA

*Economic Inquiry*

Volume 60, Issue 3, July 2022, pp 1214-1232

<https://onlinelibrary.wiley.com/doi/full/10.1111/ecin.13078>

Published online: 20 May 2022. Accepted: 21 Jan 2022

### THE CAUSAL IMPACT OF REMOVING CHILDREN FROM ABUSIVE AND NEGLECTFUL HOMES

ANTHONY BALD, ERIC CHYN, JUSTINE HASTINGS AND MARGARITA MACHELETT

*Journal of Political Economy*

Volume 130, Issue 7, July 2022, pp 1919-1962

<https://www.journals.uchicago.edu/doi/full/10.1086/719856>

Related DT: 2126. Accepted: 23 Nov 2021

### THE GENDER PROMOTION GAP: EVIDENCE FROM CENTRAL BANKING

LAURA HOSPIDO, LUC LAEVEN AND ANA LAMO

*Review of Economics and Statistics*

Volume 104, Issue 5, September 2022, pp 981-996

[https://doi.org/10.1162/rest\\_a\\_00988](https://doi.org/10.1162/rest_a_00988)

Related DT: 1915. Accepted: 8 Oct 2020

### MULTIDIMENSIONAL MEDIA SLANT: COMPLEMENTARITIES IN NEWS REPORTING BY US NEWSPAPERS

SANDRA GARCÍA-URIBE

*Information Economics and Policy*

Volume 61, December 2022, Art. 101006

<https://doi.org/10.1016/j.infoecopol.2022.101006>

Related DT: 1817. Accepted: 16 Oct 2022

### IS DIRTY TRADE CONCENTRATING IN MORE POLLUTING COUNTRIES? EVIDENCE FROM AFRICA

MARTA SUÁREZ-VARELA MACIÁ AND ERNESTO RODRÍGUEZ CRESPO

*Economic Analysis and Policy*

Vol. 76, December 2022, pp 728-744

<https://www.sciencedirect.com/science/article/pii/S0313592622001515>

Accepted: 13 Sep 2022

### THE CHINA SYNDROME AFFECTS BANKS: THE CREDIT SUPPLY CHANNEL OF FOREIGN IMPORT COMPETITION

SERGIO MAYORDOMO AND OMAR RACHEDI

*Journal of Financial and Quantitative Analysis*

Vol. 57, Issue 8, December 2022, pp. 3114-3144

<https://www.doi.org/10.1017/S002210902200028X>

Related DT: 1908. Accepted: May 2021

### UNCERTAINTY AND FIRMS' LABOUR DECISIONS. EVIDENCE FROM EUROPEAN COUNTRIES

MARTA MARTÍNEZ MATUTE AND ALBERTO URTASUN

*Journal of Applied Economics*

Vol. 25, Issue 1, 2022, pp. 220-241

<https://doi.org/10.1080/15140326.2021.2007724>

Accepted: 24 Sept 2020

## THE IMPACT OF COVID-19 ON ANALYSTS' SENTIMENT ABOUT THE BANKING SECTOR

ALICIA AGUILAR AND DIEGO TORRES

*Studies of Applied Economics*

Vol. 41 No. 1 (2023)

<https://ojs.ual.es/ojs/index.php/eea/article/view/9064>

Accepted: 19 Jan 2023

## A RAISE FOR GRANDMA: PENSIONS AND HOUSEHOLD EXPENDITURE

SUSANA PÁRRAGA RODRÍGUEZ

*Economic Journal*

Vol. 133, Issue 649, January 2023, pp. 390-419

<https://doi.org/10.1093/ej/ueac061>

Related DT: 1913. Accepted: 30 Dic 2021

## ENDOGENOUS TIME VARIATION IN VECTOR AUTOREGRESSIONS

DANILO LEIVA-LEÓN AND LUIS UZEDA

*The Review of Economics and Statistics*

Volume 105, Issue 1, January 2023, pp 125-142

[https://doi.org/10.1162/rest\\_a\\_01038](https://doi.org/10.1162/rest_a_01038)

Related DT: 2108. Accepted: 12 Jan 2021

## MONETARY POLICY AND SOVEREIGN DEBT SUSTAINABILITY

SAMUEL HURTADO, GALO NUÑO AND CARLOS THOMAS

*Journal of the European Economic Association*

Vol. 21, Issue 1, February 2023, pp 293-325

<https://academic.oup.com/jeea/advance-article/doi/10.1093/jeea/jvac035/6615462>

Related DT: 1517. Accepted: May 2022

Published online: 23 Jun 2022

## THE EFFECTS OF TAX CHANGES ON ECONOMIC ACTIVITY: A NARRATIVE APPROACH TO FREQUENT ANTICIPATIONS

SANDRA GARCÍA-URIBE

*The Economic Journal*

Vol. 133, Issue 650, February 2023, pp 706-727

<https://doi.org/10.1093/ej/ueac064>

Related DT: 1828. Accepted: 31 Aug 2022

## TASK SPECIALIZATION AND COGNITIVE SKILLS: EVIDENCE FROM PIAAC AND IALS

MARTA MARTÍNEZ-MATUTE AND ERNESTO VILLANUEVA

*Review of Economics of the Household*

Volume 21, Issue 1, March 2023, pp 59-93

<https://doi.org/10.1007/s11150-021-09587-2>

Related DT: 1635. Accepted: 6 Sep 2021

Published online: 23 Oct 2021

## A BVAR TOOLKIT TO ASSESS MACROFINANCIAL RISKS IN BRAZIL AND MEXICO

ERIK ANDRES-ESCAIOLA, JUAN CARLOS BERGANZA, RODOLFO G. CAMPOS AND LUIS MOLINA SÁNCHEZ

*Latin American Journal of Central Banking*

Volume 4, Issue 1, March 2023, Art 100079

<https://doi.org/10.1016/j.latcb.2022.100079>

Related DT: 2114. Accepted: 5 Dec 2022

## INTERNATIONAL TRADE AND INNOVATION DYNAMICS WITH ENDOGENOUS MARKUPS

LAURENT CAVENAILE, PAU ROLDAN-BLANCO AND TOM SCHMITZ

*Economic Journal*

Volume 133, Issue 651, April 2023, pp 971-1004

<https://academic.oup.com/ej/article/133/651/971/6847211>

Accepted: 25 Nov 2022

## HETEROGENEOUS EFFECTS AND SPILLOVERS OF MACROPRUDENTIAL POLICY IN AN AGENT-BASED MODEL OF THE UK HOUSING MARKET

ADRIÁN CARRO, MARC HINTERSCHWEIGER, ARZU ULUC AND J. DOYNE FARMER

*Industrial and Corporate Change*

Volume 32, Issue 2, April 2023, pp 386-432

<https://doi.org/10.1093/icc/dtac030>

Related DT: 2217. Accepted: 8 July 2022

## SOVEREIGN PORTFOLIO COMPOSITION AND BANK RISK: THE CASE OF EUROPEAN BANKS

SELVA B. BAZIKI, MARÍA J NIETO AND RIMA TURK-ARISS

*Journal of Financial Stability*

Vol. 65, April 2023 Art: 101108

<https://doi.org/10.1016/j.jfs.2023.101108>

Related DT: 2217. Accepted: Jan 2023

**DISTRESSED FIRMS, ZOMBIE FIRMS AND ZOMBIE LENDING: A TAXONOMY**

LAURA ÁLVAREZ, MIGUEL GARCÍA-POSADA AND SERGIO MAYORDOMO

*Journal of Banking & Finance*

Volume 149, April 2023, 106762

<https://www.sciencedirect.com/science/article/pii/S0378426623000067>

Related DT: 2219. Accepted: 08 Jan 2023

**Forthcoming articles  
in refereed journals****THE BENEFITS ARE AT THE TAIL: UNCOVERING THE IMPACT OF MACROPRUDENTIAL POLICY ON GROWTH-AT-RISK**

JORGE GALÁN

*Journal of Financial Stability*

Volume 66, June 2023

<https://doi.org/10.1016/j.jfs.2020.100831>

Related DT: 2007. Accepted: 29 Oct 2020

Published online: 23 Nov 2020

**THE ECONOMIC IMPACT OF CONFLICT-RELATED AND POLICY UNCERTAINTY SHOCKS: THE CASE OF RUSSIA**

MARINA DIAKONOVA, CORINNA GHIRELLI, LUIS MOLINA AND JAVIER J. PÉREZ

*International Economics*

Volume 174, August 2023, pp 69-90

<https://doi.org/10.1016/j.inteco.2023.03.002>

Related DT: 2242. Accepted: Nov 2022

Published online: 16 Mar 2023

**DEBT-MATURITY MANAGEMENT WITH LIQUIDITY COSTS**

SAKI BIGIO, GALO NUÑO AND JUAN PASSADORE

*Journal of Political Economy: Macroeconomics*<https://www.journals.uchicago.edu/doi/10.1086/723392>

Accepted: 7 Nov 2022

**ARE CHILDREN'S SOCIO-EMOTIONAL SKILLS SHAPED BY PARENTAL HEALTH SHOCKS?**

ESTEBAN GARCÍA-MIRALLES AND MIRIAM GENSOWSKI

*Journal of Human Resources*<https://doi.org/10.3368/jhr.0820-11091R2>

Published online: 09 Jan 2023. Accepted: 20 Nov 2022

**THE UNEQUAL CONSEQUENCES OF JOB LOSS ACROSS COUNTRIES**

ANTOINE BERTHEAU, EDOARDO MARIA ACABBI, CRISTINA BARCELÓ, ANDREAS GULYAS, STEFANO LOMBARDI AND RAFFAELE SAGGIO

*American Economic Review: Insights*<https://www.aeaweb.org/articles?id=10.1257/aeri.20220006>

Related DT: 2224. Accepted: 19 Dec 2022

**FISCAL TARGETS. A GUIDE TO FORECASTERS?**

JOAN PAREDES, JAVIER J. PÉREZ AND GABRIEL PÉREZ-QUIRÓS

*Journal of Applied Econometrics*<https://doi.org/10.1002/jae.2968>

Related DT: 1508. Accepted: 2 Jan 2023

Published online: 13 Feb 2023

**THE AGGREGATE EFFECTS OF GOVERNMENT INCOME TRANSFER SHOCKS: EU EVIDENCE**

SUSANA PÁRRAGA RODRÍGUEZ

*SERIEs*

Volume 66, June 2023

<https://doi.org/10.1007/s13209-022-00271-x>

Related DT: 1629. Accepted: 07 Jan 2023

Published online: 07 Jan 2023

**PRIVATE EQUITY BUYOUTS AND EXPORTS: THE IMPACT OF BREXIT ON UK FIRMS**

PAUL LAVERY, JOSE MARIA SERENA, MARINA SPALIARA Y SERAFEIM TSOUKAS

*British Journal of Management*<https://dx.doi.org/10.2139/ssrn.4351573>

Published online: 20 Feb 2023. Accepted: 28 Jan 2023

**DO ANALYSTS FORECAST DIFFERENTLY IN PERIODS OF UNCERTAINTY? AN EMPIRICAL ANALYSIS OF TARGET PRICES FOR SPANISH BANKS**

ROBERTO PASCUAL GONZÁLEZ

*International Review of Economic Policy*

Related DT: 2144. Accepted: 1 Feb 2023

Published online: 25 Dic 2022

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**HOUSING PRICES IN SPAIN: CONVERGENCE OR DECOUPLING?**

CORINNA GHIRELLI, DANILO LEIVA-LEON AND ALBERTO URTASUN

*SERIEs-Journal of the Spanish Economic Association*

Related DT: 2205. Accepted: 14 Feb 2023

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**COMPUTING THE EU'S SURE INTEREST SAVINGS USING AN EXTENDED DEBT SUSTAINABILITY ASSESSMENT TOOL**

PABLO BURRIEL, IVÁN KATARYNIUK AND JAVIER J. PÉREZ

*Hacienda Pública Española / Review of Public Economics*

[https://hpe-rpe.org/wpfd\\_file/computing-the-eus-sure-interest-savings-using-an-extended-debt-sustainability-assessment-tool/](https://hpe-rpe.org/wpfd_file/computing-the-eus-sure-interest-savings-using-an-extended-debt-sustainability-assessment-tool/)

Related DT: 2210. Accepted: 20 Mar 2023

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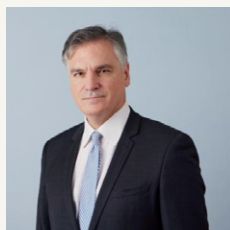
**PUBLIC PENSIONS AND PRIVATE SAVINGS**

ESTEBAN GARCÍA-MIRALLES AND JONATHAN M. LEGANZA

*American Economic Journal: Economic Policy*

<https://www.aeaweb.org/articles?id=10.1257/pol.20220019&from=f>

Accepted: 24 Mar 2023



## ENRIQUE ALBEROLA

Adviser, International Economy and the Euro Area Department

### **Enrique, you are back in Madrid after 8 years abroad. What are the main changes you have noticed at the Banco de España?**

The Bank has changed thoroughly and, mostly for the better. A very positive development is that there is now less hierarchy and more horizontal interaction. The culture of silos is slowly receding and information flows better. This comes at a cost as new types of interaction require time, effort and resources to properly manage and take the best of them.

The management is now younger and more dynamic. Most including the Governor are younger than me!. The bank also is more diverse now, with many nationalities, from Europe and Latin America working as researchers and analysts and more types of professional profiles, such as data scientists.

All these elements bring fresh air and ideas. Overall I have found a more modern and reinvigorated bank.

### **You spent several years at the Bank for International Settlements (BIS), an institution created during the 1920s with the original role of facilitating reparations imposed on Germany by the Treaty of Versailles after World War I. What's the institution like today, and what were your main tasks over there?**

The institution has completely changed in the last 10 years. There is much more weight of emerging market economies (EMEs) in the analysis. But also in the high management which is dominated by nationals from EMEs. Research has risen in importance, after acknowledging that policy prescriptions have to be backed by top-level in-house research.

I was happy to contribute to these two developments as Chief of the BIS Americas Office. The Office, based in Mexico City, built up research networks with the American Central Banks, including the Fed and Bank of Canada. Their output was published in strong economic journals (as the Journal of International Money and Finance or the Journal of Financial Intermediation). This cooperation helped to strengthen research in each individual central bank. When I moved to the headquarters in Basel, I took up the roles of coordination and outreach. The expansion of cooperative activities to Sub-Saharan Africa, a region heavily underrepresented at the BIS was a very interesting and rewarding endeavour.

More recently, the BIS has increased its efforts to lead financial innovation in the central bank community through the BIS Innovation Hub and to become more influential in the overall policy debate

through more communication. This has redirected to some extent the focus away from research, if only because resources have been redirected and refocused. In any case, the BIS keeps its original spirit: a hub for the exchange of knowledge and policy discussion in a cooperative framework. This soft-power, think-tank features make of the BIS a key source of policy ideas for central bankers, rendering the BIS a very influential institution. It was a very gratifying experience.

### **Your career has been a continuous back and forth between policy-oriented work and applied research. What is your main lesson learned that you think could help those facing a similar path?**

I started at the Banco as a fresh PhD with a portfolio of empirical research in international economics and finance. Soon, the steps progressively took me towards policy issues, while keeping up the research agenda. When I took up management responsibilities, I made an effort to continue doing research and publishing, usually with more junior co-authors. I believe that the Doctorate provides you with a good mental framework to analyze the economic issues and think of policy options. But coming from the academia to the central bank, leaves large gap in our knowledge of the real economy. I learned the importance of keeping your mind open to bridge that gap.

The knowledge of the economy of those at the Bank who are closely in touch with the conjuncture is something to envy. They have a different set of skills and their work is less focused on research, but they know much better than fresh PhDs (or even seasoned researchers) how things actually work. Valuing those skills and learning from them is an important lesson I learnt. And this is the advice I can give.

### **What research and policy project(s) are you currently involved in?**

On research, I am completing a project that analyzes the impact of asset purchases by Central Banks on debt sustainability. We applied this work to the ECB purchases during the pandemic (see BIS WP) and then to the Japanese case. More interesting in the current context is the impact of the unwinding of the purchases, which we also address in those papers.

On policy, I am completing as editor a book on fiscal policy in turbulent times that will be published at the end of this year. The volume analyses the deep changes of fiscal policy since the Global Financial Crisis from different perspectives. The bottom line is that fiscal policy has gained relevance and it is now perceived as more effective and purposeful than before. How to accommodate this

enhanced role in a context of much higher public debt is a daunting economic challenge that merits more research efforts.

**Last, but certainly not least, you will be leading the new Banco de España's Blog. What is the gap that this tool comes to fill?**

The blog is an exciting project because it is ground-breaking within the institution. The blog adds a layer of communication to the diffusion of the work by the Banco de España. The gap to bridge is between the analysis we produce and the external audience interested in economic and financial topics, but who are not

experts. Many of them are refractory to our publications because they struggle to follow their content of our publications, too technical and arid.

The actual bridge is the language. It has to be simple, fresh and clear to make it attractive and understandable for this wider audience. The contents of the blog will be diverse, but research posts will surely have space in the blog. Consequently, there is also a big gap to bridge for researchers to translate their academic jargon into something quite different. This is challenging, but also rewarding in the context of the path noted above, where communicating effectively has an ever greater value.



## Recent conferences

[Link to conferences page](#)

### IE UNIVERSITY – BANCO DE ESPAÑA – FEDERAL RESERVE BANK OF SAINT LOUIS CONFERENCE: CURRENT CHALLENGES IN ECONOMICS & FINANCE

11 May, 2023

### REUNIÓN GRUPO DE SEGUIMIENTO DE COYUNTURA DEL GACE

12 May, 2023

### 12TH WORKSHOP BDE-CEMFI

19 May, 2023

### 30TH CEPR EUROPEAN SUMMER SYMPOSIUM IN INTERNATIONAL MACROECONOMICS

In partnership with Banco de España. Roda de Bará, Tarragona, 29th – 31st May 2023.

### BANCO DE ESPAÑA-WORLD BANK WORKSHOP: HOW TO IMPROVE PUBLIC SPENDING? VIEWS FROM LATIN AMERICA AND EUROPE

Madrid, 5 June 2023

### PRESENTACIÓN DEL INFORME GASTO PÚBLICO EN AMÉRICA LATINA: CUANDO LA CICLICIDAD CHOCA CON LA RIGIDEZ DEL GASTO

Madrid, 5 June 2023

### WORKSHOP ON EU'S OPEN STRATEGIC AUTONOMY. BANCO DE ESPAÑA - REINVENTING BRETTON WOODS COMMITTEE

Madrid, 16 June 2023

### 4TH CONFERENCE ON FINANCIAL STABILITY BANCO DE ESPAÑA-CEMFI

Madrid, 29-30 June 2023

### BANCO DE ESPAÑA-CEMFI-UIMP CONFERENCE ON THE SPANISH ECONOMY

6 - 7 July, 2023

## Recent economic research seminars

[Link to seminars page](#)

### THE LONG-RUN EFFECTS OF MONETARY POLICY

ÒSCAR JORDÀ (UC DAVIS)

01/02/2023

### EXPECTATION FORMATION AND FORWARD INFORMATION

NATHAN GOLDSTEIN (BAL-ILAN UNIVERSITY)

22/02/2023

### CLIMATE REGULATION, FIRM EMISSIONS AND GREEN TAKEOVERS

GLENN SCHEPENS (ECB)

01/03/2023

### FRAMES, INCENTIVES, AND EDUCATION: EFFECTIVENESS OF INTERVENTIONS TO DELAY PUBLIC PENSION CLAIMING

PIERRE-CARL MICHAUD (HEC MONTRÉAL)

08/03/2023

### SOFT NEGOTIATORS OR MODEST BUILDERS? WHY WOMEN EARN LOWER REAL ESTATE RETURNS

PAOLO SODINI (SSE)

15/03/2023

### OPTIMAL MONETARY POLICY DURING A COST OF LIVING CRISIS

VICENT STERK (UCL)

22/03/2023

**ASSORTATIVE MATING AND WEALTH  
INEQUALITY**

ANDREAS FAGERENG (BI NORWEGIAN BUSINESS  
SCHOOL)

30/03/2023

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**THE COVID-19 SHOCK AND FIRM FINANCING:  
GOVERNMENT OR MARKET OR BOTH?**

MIGUEL ACOSTA-HENAO (CENTRAL BANK OF CHILE)

12/04/2023

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**RELAXING STRICT EXOGENEITY IN NONLINEAR  
PANEL DATA MODELS**

STÉPHANE BONHOMME (UNIVERSITY OF CHICAGO)

19/04/2023

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**A PREFERRED-HABITAT MODEL OF TERM  
PREMIA, EXCHANGE RATES, AND MONETARY  
POLICY SPILLOVERS**

WALKER RAY (LSE)

26/04/2023

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**SUPPLY CHAIN CONSTRAINTS AND INFLATION**

DIEGO COMIN (DARTMOUTH)

10/05/2023

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**BEWLEY BANKS**

TOMMASO MONACELLI (BOCCONI UNIVERSITY)

16/05/2023

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**OPTIMAL MONETARY POLICY WITH  $R^* < 0$**

ANTON NAKOV (ECB)

24/05/2023

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**EFFICIENCY AND EFFECTIVENESS OF SCHOOL  
CAPITAL INVESTMENTS ACROSS THE US**

BARBARA BIASI (YALE SCHOOL OF MANAGEMENT AND  
EINAUDI INSTITUTE FOR ECONOMICS AND FINANCE)

29/05/2023

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**THE INCOME AND LABOR EFFECTS OF  
INDIVIDUAL INCOME TAX CHANGES IN LATIN  
AMERICA: EVIDENCE FROM A NEW MEASURE  
OF TAX SHOCKS**

GUILLERMO VULETIN (WORLD BANK)

02/06/2023

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**RISK MITIGATING VERSUS RISK SHIFTING:  
EVIDENCE FROM BANKS SECURITY TRADING  
IN CRISES**

ENRICO SETTE (BANCA D' ITALIA)

07/06/2023

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**A MONETARY POLICY ASSET PRICING MODEL**

RICARDO CABALLERO (MIT)

13/06/2023

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**GENDER BIAS IN PERFORMANCE  
EVALUATIONS: EVIDENCE FROM A FIELD  
EXPERIMENT**

PERIHAN SAYGIN (UNIVERSITY OF FLORIDA)

14/06/2023

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**THE EFFECTIVENESS OF ECONOMIC  
SANCTIONS IN THE LIGHT OF THE RECENT  
EXPERIENCE**

ELINA RIBAKOVA (PIIE, PETERSON INSTITUTE FOR  
INTERNATIONAL ECONOMICS, BRUEGEL, KYIV  
SCHOOL OF ECONOMICS)

19/06/2023

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**DISSECTING INSOLVENCY: A MODEL OF FIRM  
DISTRESS IN ITALY**

GUZMÁN GONZÁLEZ-TORRES (ECB)

21/06/2023

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**THE CASE FOR ISSUING A RETIREMENT  
SECURITY BOND - A WIN-WIN-WIN FOR SPAIN,  
ITS CITIZENS AND THE FINANCIAL SERVICES  
INDUSTRY**

ARUN MURALIDHAR

26/06/2023

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**A PREFERRED-HABITAT MODEL OF TERM  
PREMIA, EXCHANGE RATES, AND MONETARY  
POLICY SPILLOVERS**

DIMITRI VAYANOS (LSE)

28/06/2023

## Upcoming conferences

### JOINT CEPR AND 9TH BANCO DE ESPAÑA ECONOMIC HISTORY SEMINAR

Madrid, 29 September 2023

The seminar aims to bring together leading researchers in the field. Papers are being sought on topics including, but not necessarily limited to:

- Macroeconomic and financial history
- Economic growth in the very long run
- Institutions and economic development
- The history of the international economy

### CONFERENCE ON REAL-TIME DATA ANALYSIS, METHODS, AND APPLICATIONS - HOSTED BY THE BANCO DE ESPAÑA

19 - 20 October, 2023

Banco de España is sponsoring the Annual Conference on Real-Time Data Analysis, Methods, and Applications in Macroeconomics and Finance to be held in Madrid, Spain, at Banco de España on Thursday and Friday, October 19 – 20, 2023. The conference will bring together leading researchers who specialize in real-time analysis of economic data and will cover topics such as real-time macro- and financial econometrics, forecasting, and macroeconomic policy analysis, among others.

The organizers invite the submission of articles on any of the topics listed in the call for papers. Both theoretical and applied studies are welcome. Papers of potential interest to statistical agencies and policymakers are encouraged. Deadline for submission: 12pm (Pacific Standard Time) June 1, 2023.

#### Call for papers

### EXTERNAL STATISTICS AFTER THE PANDEMIC: ADDRESSING NOVEL ANALYTICAL CHALLENGES - IRVING FISHER COMMITTEE ON CENTRAL BANK STATISTICS, EUROPEAN CENTRAL BANK, BANCO DE ESPAÑA

Madrid, 12-13 February 2024

This conference on External Statistics brings together users and compilers of external statistics. It is organised jointly by the Irving Fisher Committee on Central Bank Statistics (IFC) of the Bank for International Settlements, the European Central Bank (ECB) and the Banco de España (BdE). The event aims to foster regular discussions and sharing of experiences within the central banking community as well as with other interested stakeholders and users to identify the main analytical needs, prioritise data collections and address upcoming challenges in external statistics. To this end, the agenda will include keynote speeches from influential policymakers and academics, round table discussions and thematic sessions, with inputs both from analysts and compilers.

This year's conference will include academic sessions on the labour market, productivity, monetary policy and public finances. It will also feature a closing speech by Pablo Hernández de Cos, Governor of the Banco de España, and a panel discussion on energy markets chaired by Ángel Gavilán, Director General of Economics, Statistics and Research.

Please note that attendance is by invitation only.

#### Call for papers

### CONFERENCE ON DIVERSITY, EQUITY AND INCLUSION IN ECONOMICS, FINANCE, AND CENTRAL BANKING - BANCO DE ESPAÑA, BANK OF CANADA, BANK OF ENGLAND, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, AND EUROPEAN CENTRAL BANK

7 March, 2024

The Bank of Canada, Bank of England, Bank of Spain, Board of Governors of the Federal Reserve System, and European Central Bank are organizing the 5th conference on Diversity, Equity and Inclusion in Economics, Finance, and Central Banking to be held in person on March 7,

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2024. The conference is hosted by the Bank of Spain in Madrid and it is the fifth in a series of conferences.

We invite pieces of research focused on cutting edge methods, measurement, and analyses related to diversity, equity and inclusion. Submissions from groups which are traditionally under-represented in economics and finance are especially encouraged.

Areas of particular interest on the fields of economics and finance include, but are not limited to: diversity and inclusivity at central banks and how they relate to research and decision making, the existence of gender, racial, or other demographic biases that may affect households' and firms' financial decisions and influence the efficacy of monetary policy, the implications of monetary policy for income, wealth and consumption inequality, as well as the heterogeneous impacts of the recent inflation surge and other macroeconomic shocks for different demographic groups.

Completed manuscripts or extended abstracts should be submitted by email to [DEIconference@bde.es](mailto:DEIconference@bde.es) (subject line: "Submission for Diversity, Equity and Inclusion Conference 2024"). The deadline for submission is October 17, 2023.

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