
Comment

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The euro crisis is a tragedy for Greece and its people. There are very few peace-time episodes during which a country's GDP declines by a quarter. This paper does a good job at summarizing the main macro time series and enriches the analysis by comparing it with other crisis episodes, as well as by estimating a formal DSGE model capturing important features of that crisis.

The main point of my discussion is that the analysis should also include uncertainty and, especially, political uncertainty in understanding this episode. Two absolutely crucial aspects of the crisis, the debate on the optimal speed of deleveraging and the desirability of a Grexit, were instrumental in driving uncertainty, and hence are key in understanding the depth and length of the crisis. Moreover, the combination of uncertainty with financial frictions helps explain the subsequent crisis dynamics, yet the presented DSGE model does not include a channel that helps link political uncertainty to the dynamics of the economy.

I first start my discussion by analyzing how an overly indebted and deficit-ridden economy should be delevered, ignoring political constraints. Stickiness—of wages, prices, and capital allocations—is the keyword here. Then I will add constraints back in and evaluate the Grexit option. I will argue that Grexit and its threat of economic and political contagion was strategically used to improve Greece's bargaining position, sometimes for ideological reasons. This strategy, however, led to a huge amount of uncertainty. My main critique for the DSGE then follows from that analysis: it ignores these important political uncertainty aspects and hence estimation and interpretation of the results have to be taken with a grain of salt.

Optimal Speed of Deleveraging

The paper nicely establishes that Greece built up unsustainable imbalances. Its debt level reached 120% of GDP. Its annual government budget deficit in 2009—before the outbreak of the Greek crisis—exceeded 15%. This path was clearly unsustainable, though market discipline failed in the run-up to the crisis. Indeed, financial markets financed these deficits at minimum spread over the German Bund.

Given the already high annual primary deficit in the boom phase, a fiscal stimulus would not have been able to solve Greece's dilemma. The economy had to be delevered and put on a more solid footing. The first main question to ask, then, concerns the optimal speed of delevering in a world in which financing is provided without any financial frictions and one faces no political constraints. That is, how fast can one bring the economy on a sustainable path if one assumes all financial funding constraints, political constraints, and even legacy debt away.

The adjustment path should be stretched if the capital stock of an economy cannot be easily adjusted. This is, for example, the case if the economy is specialized in industry sectors with long-run fixed investments that are difficult to reverse. Take shipping, for example, an important industry for Greece: ships cannot be easily reallocated to other activities. On the other hand, if the physical capital stock is very flexible, the adjustment can be pushed through more quickly, since it can be easily redeployed for alternative activities.

Price and wage stickiness also play an important role in considering the optimal speed of deleveraging. The higher their stickiness, the longer one should take to delever an economy. Interestingly, empirical data suggest that wages were relatively flexible, while prices seemed more rigid. This pattern holds across many countries in peripheral Europe and deserves further study, especially since the authors find in their shock decomposition that markup shocks may have played an important role in the lack of recovery.

In the real world, *financial frictions* impede countries' funding and make an orderly deleverage more difficult. Investors are reluctant to provide funding since they are afraid that the government might dilute their bonds, and governments cannot commit to implement growth-enhancing reforms that are unpopular in the short term. Hence, financiers and investors demand a premium. In theory, this was less of a concern in the case of Greece since other national governments in Europe could provide the funding—even if uncertainty remained high.

Hence, instead of facing a sudden stop like many other countries, the source of Greek funding switched to official European lending. This is a major difference in comparing Greece with other sudden stop episodes. Indeed, unlike for Ireland, whose crisis erupted earlier, various programs were set up for Greece. European funds were mobilized through various rescue packages. As a result of these funding arrangements, so far Greece did not manage to reach a primary surplus, which other countries with a sudden stop were forced to achieve.

Often a sudden stop not only brings funding difficulties to the government, but also to the local banking sector. Twin crises emerge and a diabolic loop between sovereign and banking risks make things worse (see Brunnermeier et al. 2016). Again, unlike a plain vanilla sudden stop, the Greek banking sector received considerable help from the ECB through Emergency Liquidity Assistance (ELA) and other support programs. Heightened Target 2 claims provided a lens about the extent of the funding support. Indeed, bank deposits proved very resilient. Unlike what traditional theory predicts, many depositors kept their money in the banks. Figure 1 shows that the bank deposits declined, but not to zero. A significant drop in bank deposits occurred when the newly elected Syriza government followed a more confrontational course, which stirred additional uncertainty in the first half of 2015.

Nevertheless, as the paper convincingly documents, the Greek economy suffered significantly more compared to other sudden stop countries. Especially the investment-to-GDP level literally collapsed. Yet, rather than a lack of funding ability, it was a rising climate of political uncertainty that inevitably contributed to this contraction. The vigorous debates about the optimal speed of deleveraging, with Greek authorities asking for slow deleveraging and the Troika requiring a faster one, created this uncertainty as policymakers were unable to settle on a stable path for deleveraging.

The optimal speed of deleveraging also depends on a country's degree of trade openness and on its exchange rate regime. Typically, exchange rate depreciation can help an open economy like Greece with its emphasis on shipping and tourism. However, within a currency union, a country's currency cannot be used to depress relative real wages via a currency devaluation. As the authors duly acknowledge by comparing the Greek case with that of countries that pegged their currencies, this creates slower deleveraging and, given frictions, is more painful for the economy.

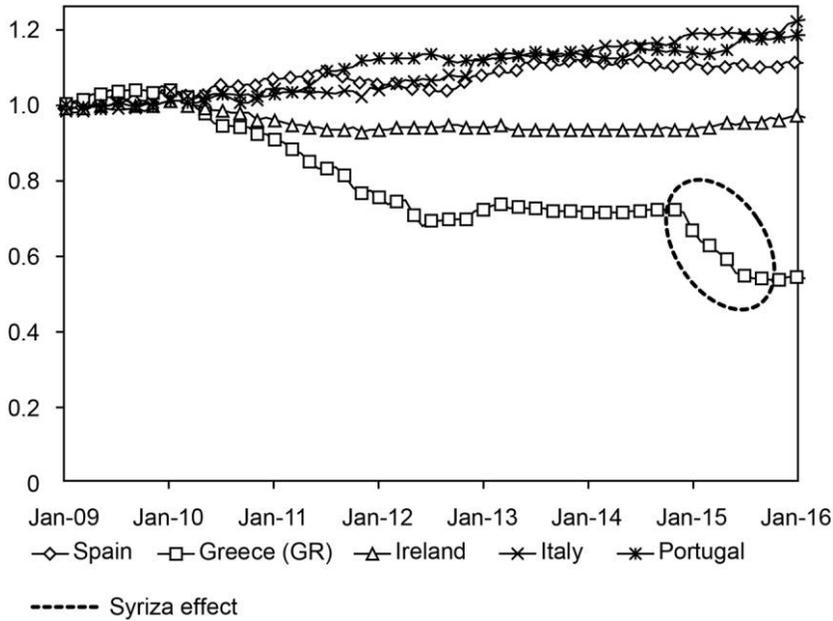


Fig. 1. Bank deposits across peripheral European countries in Spain (ES), Greece (GR), Ireland (IE), Italy (IT), and Portugal (PT).

Source: Earlier version of “The Analytics of the Greek Crisis.”

Note: The initial levels are normalized to 1.

Of course, an exit from the European Monetary Union, a Grexit, would have allowed a devaluation. I will discuss the Grexit option and threats next.

The Grexit Option

The paper does not evaluate the impact of a looming Grexit and the uncertainty associated with it. At least twice Grexit was at the doorsteps: The first time in the summer of 2012, when many peripheral European countries suffered from high interest rates and a banking crisis. Economic contagion forces to other peripheral countries were very powerful at that time. This allowed Greece to extract some additional funding from its European partners. The second time was in the summer of 2015, when the newly elected Syriza government tried to shift the economic policy across all of Europe from a consolidation-based (austerity) approach to a Keynesian stimulus approach. A battle of ideas emerged

between proponents of the Keynesian school, which contended that structural reforms are counterproductive when the economy hits the zero lower bound, and those of the German school, which asserted that structural reforms are overdue in Greece and for political reasons can only be pushed through in times of crisis. However, the Greek government made a strategic miscalculation. By then economic contagion was under control—thanks also to ECB’s Quantitative Easing program—and political contagion worked against the Greek government. Political leaders in other countries were more concerned by the fact that if Greeks were to receive further concessions, political parties in analogous situations would ask for the same concessions (for details, see Brunnermeier, James, and Landau [2016]).

A Grexit would have been accompanied with significant debt restructuring. This would have solved the stock problem, but still left the flow problem of ongoing annual primary deficit (which by 2015 was much smaller). In addition, a Grexit would have led to a sharp devaluation of the new national currency, not only melting the stock of debt but also making industry, especially the tourist and shipping industries, more competitive. On the other hand, it would reduce the need to improve the institutional framework in Greece, for example, such as implementing a better legal structure, a more systematic land registry, and many supply reforms that can have a growth enhancing impact in the long run.

Both in 2012 and 2015, the possible Grexit was used as a threat to obtain concessions. Hence, political considerations played an important role. Brinkmanship and war of attrition games led policymakers to “kick the can down the road.” Resolutions were delayed. Things became worse over time and the outcome became a negative sum game. Importantly, the gaming created immense uncertainty. Given this uncertainty, it is not surprising that investment came to an unprecedented halt. Recall that at the height of the Grexit 2015 debate, banks were shut and economic activity literally collapsed. I will discuss in the next section the analysis and the estimated DSGE model abstracts from these political uncertainty considerations.

Missing Politics and Uncertainty in the Model

After the authors have pinpointed the main stylized facts of the Greek crisis and compared them to other sudden stop crises, they design a DSGE model aimed at capturing the main aspects of the Greek episode.

In their model a small open economy interacts with a larger country within a currency union, without exchange rate adjustments to shocks. Wages are assumed to be sticky in order to trigger an output gap after shocks, in a New Keynesian fashion. Financial frictions are also present in the model, as firms are forced to borrow in order to finance their activities; patient lenders guarantee a source of funding. Tractability and data availability forces the authors to introduce financial intermediation in a reduced-form way. They assume that banks simply lever deposits at a given funding cost, and (competitively) redistribute funds to borrowers at the same rate. The funding cost depends on three factors: the real interest rate, an exogenous autoregressive shock, as well as expected losses on private credit portfolios, adjusted for leverage. This is sufficient to yield a credit supply channel to the economy and produce some diabolic loops, as higher funding costs eventually feed back. However, as discussed, the assumptions of (1) the exogeneity of the default processes, and particularly the absence of a political uncertainty shock, and (2) a reduced-form decision rule that neglects, in particular, volatility aspects have important potential implications. The assumption of a constant pass-through of banks' credit supply conditions to credit demand can be seen as problematic as well.

These omissions affect the estimation of the model, as well as the exercises that are done using it. Of course, my remarks will remain grounded on an intuitive level—Bayesian DSGE estimations have their own challenges and can be obscure. This makes it difficult to interpret the robustness of the findings, at least in the way they are presented here.

No parts of the model capture the political economy aspects of the crisis in an explicit way. Perhaps one could argue that it is too difficult, for now, to introduce the kind of war of attrition games with political economy forces I've been describing earlier. But this creates identification problems for the shocks currently introduced in the model. Too many of them have a potentially common "political" root that would need to be accounted for as such. Moreover, and worse, it is likely that the political economy shock itself is endogenous to economic conditions—at least to some extent—reflecting the evolution of the political economy game.

To be concrete, consider the probability of a Grexit. Certainly, through its effects on different risk premia, as well as future economic outcomes, the Grexit probability affects credit demand as well as supply. Investment decisions, funding costs (the sudden stop shock), sovereign risk, and so forth are all affected by the Grexit risk. Through these shock

channels, the Grexit probability affects the accounting of the sources of the Greek slump. There is likely to be an endogenous feedback: when these shocks hit, the conditions of the political economy game change itself, as the players' outside options change. This seems particularly important in the case of government spending: fiscal rules. In reality, they are likely to be more endogenous than the one suggested in the paper, and were certainly heavily affected not only by Greek economic conditions but also the decision-making processes of the Troika (consisting of the IMF, the European Commission, and the European Central Bank).

This is not to say that the model does not provide a useful lens through which one can analyze the Greek crisis, an objective it certainly achieves. Yet caution must be taken before inferring from its results because it seems that political economy issues were extremely important in that particular episode. The "Syriza shock" is a particular example. It cannot be neglected when analyzing Greece's economy in the last two years.

Volatility Dynamics and Nonlinearities

The model attempts, as well as it can, to capture variables affecting banks' as well as fiscal authorities' decisions given current economic conditions. The model is, however, linearized. Hence, it cannot—beyond the exogenous shock rules—price in the rise in market volatility nor political uncertainty. Indeed, even if agents have precautionary motives, second-moment considerations drop out after log linearizations.

Indicators such as the volatility index VIX certainly priced uncertainty during the crisis. As far as the interpretation is concerned, it seems that the rise in risk premia in the presence of increased uncertainty was an important reason why banks increased lending costs. This is despite the fact that their effective borrowing costs objectively remained low. This rise in spread is at the source of the investment slump that the model has a hard time explaining. Of course, DSGE models that are solvable up to second moments and go beyond a local approximation around the steady state remain a nascent and evolving area of research.

The absence of a volatility channel also matters because my recent work with Yuliy Sannikov has shown that endogenous volatility can play an important role in explaining the length of a slump.¹ After an adverse shock, volatility rises endogenously, reinforcing the precautionary motive and leading to more cutbacks. Overall, it makes the amplification mechanism even more powerful. In addition, the fear of further (even more amplified) shocks can be a source of a prolong slump.

Given this persistence and amplification, one should find a way to clearly account the contribution of not only shocks, but also their transmission mechanisms. Indeed, in the recent literature that has managed to introduce nonlinearity in DSGE models of financial frictions, transmission mechanisms play an important amplifying role. Indeed, it could be that the credit supply/sudden stop shock, which as the authors note is curiously absent in explaining the absence of a strong recovery—at the expense of a markup shock—takes a much more prominent role once an amplification channel is added to the model.

Conclusion

I highly recommend reading this paper. It documents well the evolution of the main macrovariables prior and during the Greek malaise and contrasts it nicely with other sudden stop episodes. The paper does not directly address the important question of what the optimal speed of deleveraging an overly indebted country with a large primary deficit is. Second, political concerns should not be ignored. Brinkmanship, games of chicken, and so forth introduce additional uncertainty that played an important role in the Greek crisis. They affect the shock structure and hence should be part of any structural model.

Endnotes

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1. See Brunnermeier and Sannikov (2014).

References

- Brunnermeier, Markus K., Luis Garicano, Philip Lane, Marco Pagano, Ricardo Reis, Tano Santos, David Thesmar, Stijn Van Nieuwerburgh, and Dimitri Vayanos. 2016. "The Sovereign-Banking Diabolic Loop and ESBies." *American Economic Review Papers and Proceedings* 106 (5): 508–12.
- Brunnermeier, Markus K., Harold James, and Jean-Pierre Landau. 2016. *The Euro and the Battle of Ideas*. Princeton, NJ: Princeton University Press.
- Brunnermeier, Markus K., and Yuliy Sannikov. 2014. "A Macroeconomic Model with a Financial Sector." *American Economic Review* 104 (2): 379–421.