Institution: London School of Economics and Political Science		
Unit of Assessment: 16 - Economics and Econometrics		
Title of case study: Supporting the development of a safer, more robust financial system for the Eurozone (Sovereign Bond Backed Securities)		
Period when the underpinning research was undertaken: 2010-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
Ricardo Reis	Professor of Economics	2015 to present
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? No		

1. Summary of the impact (indicative maximum 100 words)

LSE researchers were among a group of eight economists who developed and proposed the idea of European Safe Bonds (ESBies) in response to flaws in the Eurozone financial system exposed by the sovereign-debt crisis. Since their formulation, ESBies have been considered in virtually all European policy debates on public debt, including in response to the 2020 recession. They are familiar to every serious agent in the European bonds landscape, and almost every Member State Central Bank, Debt Office, and Ministry of Finance has engaged with them. If accepted and implemented, ESBies would create a new, EUR3 trillion market. They would make crises in the euro area less likely and severe, with benefits not only to the world's largest common market but also, given the interconnectedness of the global economy, the world at large. The idea of ESBies has been so widely influential that *any* solution taken forward on Eurozone safe assets will inevitably at least respond to the proposals co-developed at LSE. To that extent, the research will have shaped whatever safe asset solution is ultimately implemented.

2. Underpinning research (indicative maximum 500 words)

The European sovereign-debt crisis exposed serious flaws in the design of the Eurozone financial system. The system was shown to be inconsistent, imposing a "no bailout clause" whilst simultaneously encouraging banks to take on excessive exposure to their own sovereign credit risk as regulators treated sovereign debt as essentially risk-free. When the Eurozone financial crisis hit in 2009, and bond prices fell, losses in its banks' bond holdings meant that bank stocks plummeted in countries where sovereign debt was perceived as risky. Expectations of a government bailout under such circumstances further increased the perceived credit risk attached to those countries' government bonds. Combined with the resulting cut in credit and consequent constraints on public finances, this only confirmed the initial fears about sovereign solvency, creating a mutually reinforcing feedback loop. This "diabolic loop", as it was described in the research outlined here (see, for example, **[3]**), has been renamed the "debt feedback loop", or "doom loop", and has become consensual in discussions of the crisis.

A second major problem with the system's design was that it promoted excessive capital flows across borders. The lack of a symmetrically and abundantly supplied low-risk asset promoted "flight-to-safety" flows of capital across borders, rather than across asset classes, which served only to amplify macroeconomic shocks. Capital was flowing away from countries that were experiencing banking or sovereign crises and flowing into countries perceived as more safe.

Between 2010 and 2012 a group of eight economists from France, Spain, Germany, Greece, Italy, Ireland, Portugal, and the UK developed a creative proposal to tackle the root causes of the crisis and align the incentives facing buyers and sellers of bonds. Two of the eight - Professor Luis Garicano and Professor Dimitri Vayanos - were based at LSE; Professor Ricardo Reis joined the School in 2015, where he has since continued to contribute to this work. Together, this group developed and proposed the idea of European Safe Bonds (ESBies). Their research specified the objectives of the bond, the regulatory changes required,

the method of weighting different country bonds, the institutional design of a new European Debt Agency, and the necessary governance mechanisms. Specifically, the research team sought to address two key problems exposed by the crisis. First, they hoped to prevent national banks in Europe from having portfolios of assets that were heavily concentrated in sovereign bonds of their own countries. Second, they sought to develop a solution to the tendency, under conditions of heightened risk aversion, of “flight to safety” across borders.

ESBies were proposed as a response to both these problems. The proposal was first discussed in a working paper prepared for the IMF Fall meetings and posted on euronomics.princeton.edu in September 2011 **[1]**. The research team developed an extended proposal in a research paper first presented to the financial community in 2011 in an op-ed for *The Wall Street Journal* **[2]**. A VoxEU ebook chapter **[3]** aimed principally at policy audiences was published in the same year. The proposal was treated more fully in academic papers published in 2016 **[4]** and 2017 **[5]**.

According to the proposal set out in **[3]**, a European debt agency would buy on the secondary market approximately EUR5.5 trillion of sovereign debt - the equivalent of around 60% of the Eurozone’s GDP. The weight of each member country’s debt would be equal to its contribution to the Eurozone’s GDP. Each marginal euro of sovereign debt beyond 60% of GDP would need to be traded on a single bond market where prices would reflect true sovereign risk, thereby sending the right message to a country’s government. The European debt agency would pool these bonds and issue two tranches with cashflows backed by that pool. The first, the ESBies, would be senior on interest and principal repayments of bonds held by the agency. The second, the European Junior Bonds (EJBies), would receive the rest; as such, they would be the riskier security and the one that would take the hit if one or more sovereigns defaulted. The new system would require adjustments to European banking regulations and ECB policy to incentivise banks to invest in safe ESBies, rather than risky sovereign debt. The revised proposal in **[5]** sketches out ways in which pooling and tranching could, alternatively, be performed by the private sector.

The combination of ESBies and the regulatory adjustments required to support them would ensure that Eurozone banks hold a well-diversified portfolio of sovereign bonds and hence are not vulnerable to the diabolic loop. Regulation would require banks to hold capital against bonds by riskier Eurozone countries. This would incentivise banks to hold safer bonds. But instead of steering banks to chase after the relatively small supply of bonds by the safest Eurozone countries, such as Germany and the Netherlands, ESBies would create a large enough supply of safe bonds to ensure that the regulation-induced demand for safety is met. The creation of ESBies would also ensure that flight to safety would take place across tranches - from the junior to the senior tranche - rather than across national borders.

In **[4]**, the research team developed one of the first formal models of the diabolic loop and examined the effect of ESBies in mitigating its damaging effects. The model made it possible to also examine how the loop could be mitigated by alternative securities. A key result of the model was that, as per the ESBies’ design, both pooling and tranching were required to maximise the amount of safe assets that could be issued.

In **[5]**, the research team undertook a detailed exploration of various aspects of the ESBies proposal. It developed and estimated a model of sovereign defaults across the Eurozone to evaluate the default probabilities and expected losses for the ESBies and the EJBies. The team calculated that the system would allow the debt agency to issue some EUR3.8 trillion of extremely safe (AAA-rated) ESBies, which they estimated would default just once every 600 years. The junior tranche, some EUR1.7 trillion, would be considered investment-grade, making them sufficiently attractive for institutional investors as well as mutual funds and hedge funds. The pool of safe assets created through this process would be roughly half the size of US Treasuries. Paper **[5]** also addressed various important implementation issues, such as regulatory reform, standardisation, and transition.

Note: the research was conducted jointly by Reis, LSE colleagues Vayanos and Garicano, and five others elsewhere. All eight partners contributed equally to the work.

3. References to the research (indicative maximum of six references)

[1] Brunnermeier, M., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). *European Safe Bonds*. Working paper, 30 September 2011. Available at: https://personal.lse.ac.uk/vayanos/Euronomics/ESBies.pdf

[2] Brunnermeier, M., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). Making Europe Safer. *Wall Street Journal*, 27 September 2011. Available at: https://personal.lse.ac.uk/vayanos/Press/WSJ_Sep11.pdf

[3] Brunnermeier, M., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). ESBies: A Realistic Reform of Europe's Financial Architecture. In Beck, T. (Ed.) *The Future of Banking* (pp. 15-20). VoxEU. ISBN (eBook): 9781907142468. Available at: https://voxeu.org/sites/default/files/file/the_future_of_banking.pdf

[4] Brunnermeier, M., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). The Sovereign-Bank Diabolic Loop and ESBies. *American Economic Review,* 106(5), pp. 508-512. DOI: 10.1257/aer.p20161107.

[5] Brunnermeier, M., Langfield, S., Pagano, M., Reis, R., Van Nieuwerburgh, S., and Vayanos, D. (2017). ESBies: Safety in the Tranches. *Economic Policy,* 32(90), pp. 175-220. DOI: 10.1093/epolic/eix004.

4. Details of the impact (indicative maximum 750 words)

The research described here has had profound impacts on international thinking, debate, and policy formulation to improve the security of the Eurozone financial system.

Presenting a politically feasible alternative to Eurobonds

At the time that ESBies were first proposed, many analysts and policymakers favoured Eurobonds as a solution to the Eurozone's financial system problems. Eurobonds would be issued by a Eurozone-wide authority and would involve mutual guarantees across countries. That is, if a country were to be unable to service its bonds, other countries would make the payments. However, in **[2]**, **[3]**, and **[5]**, the research team pointed out that because they made all Member States jointly and severally liable, Eurobonds required a common (supranational) fiscal policy. This, they argued, made Eurobonds politically infeasible, given the lack of willingness for fiscal and political integration, and possibly undesirable given the large moral hazard they would create across sovereigns.

The researchers presented ESBies as an alternative to Eurobonds that would yield similar economic benefits but that would be politically feasible since they did not require a fiscal or political union. These advantages have allowed the idea of ESBies to gain significant traction in the policy debate. In 2015-16, there was a surge of interest in ESBies, particularly from the European Central Bank, when it became clear that Eurobonds would not be politically acceptable without a fiscal or political union, and that the latter would not be on the cards for the foreseeable future.

Underpinning preparatory work by European bodies for the creation of SBBS

In October 2016, the Executive Board of the European Central Bank established a High-Level Task Force (HLTF) within the European Systemic Risk Board (ESRB) to investigate the potential creation of "sovereign bond-backed securities" (SBBS). SBBS would comprise senior and junior claims on a diversified portfolio of sovereign bonds. SBBS (pronounced in the same way as ESBies) are, in all significant senses, the European Safe Bonds first proposed in **[1]** and developed further in **[2]-[5]**. The HLTF was headed by Philip Lane, the Governor of the Bank of Ireland, and one of the eight economists who put forward the original ESBies proposal. The task force brought together some 100 members of the Eurosystem and entailed several rounds of public consultations with market participants, including a workshop at the Banque de France (9 December 2016).

The task force produced a thorough report, published in **[A]** and **[B]** (these comprise 40 pages of main findings and 250 pages of technical appendices). The report's main conclusion was that a gradual development of the SBBS market could be feasible, provided that regulatory changes were made to remove existing distortions against securitised products (such as

SBBS). Under these proposed regulatory changes, SBBS would be treated equally to other non-securitised bonds with the same level of risk. Some of the proposed regulatory changes would apply to banks, as envisioned in the ESBies proposals set out in **[3]** and **[5]**. Additional changes would apply to other types of financial institutions that could be buyers of ESBies, such as insurance companies and investment funds. The ESRB Task Force report was made public in January 2018.

A second task force was formed at the European Commission to assess what changes in financial regulation would be required to make an ESBies-style system work. This second task force produced a detailed and comprehensive proposal on how to regulate SBBS **[C]**. That report was made public in May 2018.

Members of both task forces studied the research (**[1]-[5]**) and associated documents in forensic detail, using them as the basis for extensive discussion and debate. Between them, the ESBies co-authors have since 2014 provided invited talks and specialist advice based on their research to (almost) every central bank and every Minister of Finance in Europe. The ESRB task force report (**[A]** and **[B]**) makes prominent references to the ESBies research published in **[1]**, **[4]**, and **[5]**, which it acknowledges as the origin of SBBS. It states, for example: "*Also known as 'European safe bonds' (ESBies), senior SBBS are proposed by Brunnermeier et al. (2011) and elaborated in Brunnermeier et al. (2016, 2017). These papers provide the intellectual foundation for this report*" **[A**, p. 9**]**. The report of the Commission task force makes extensive reference to the ESRB report and hence indirectly also to the original research on ESBies.

Informing regulatory change
SBBS feature prominently in other European Commission documents, besides those produced by the task force. These include a May 2017 reflection paper on the deepening of the Economic and Monetary Union **[D]**, which advocated for the creation of a market for SBBS. Valdis Dombrovskis, Vice-President of the European Commission responsible for the euro, noted that the move would require regulatory changes to make the securities attractive to banks and other investors. One idea was to give them the same "zero-risk weighting" currently applied to government debt in the EU, which would exempt them from capital requirements. The proposal was part of a move to restart integration within the Eurozone, which has largely stalled since the creation of the EU banking union in 2014.

The idea was endorsed by the European Parliament, whose Economics Committee had discussed SBBS and produced a "rapporteur" report in October 2018 **[E]**. This provided suggested amendments to the Commission's regulation proposal **[C]**. The amendments were approved by the Economics Committee in March 2019, and the amended legislation was approved by the European Parliament the following month **[F]**.

In October 2020, the European Parliament's Committee on Economic and Monetary Affairs proposed further amendments to regulation on securitisation. These make it possible to issue an SBBS without at first tranching, mandating the ESRB to monitor and later propose the tranching of these securities.

Influencing economic thinking
SBBS have also been the focus of a fairly lively debate among policy-oriented economists. In 2018, a group of 14 leading French and German economists included SBBS as part of a package of broader reforms to improve the workings of monetary union **[G]**. In the summer of 2018, the Centre for Economic Policy Research devoted its annual "Sintra eurozone meeting" at the margin of the ECB annual forum to discussing ESBies and their alternatives. One of three sessions at the inaugural meeting of its Research and Policy Network on European Economic Architecture, held in April 2019, was also devoted to ESBies and other safe assets. This included a large report on ESBies and the several variants of them that were by then under consideration **[H] [I]**.

Informing the development of a new safe asset solution in the Eurozone
More generally, the ESBies proposal has prompted and informed a huge amount of non-academic discussion and debate among policymakers (as well as banks, regulators, and consumers) across Europe. There is now no serious agent operating in the European bonds

landscape who has not heard of ESBies, and almost every Member State Central Bank, Debt Office, or Ministry of Finance has engaged with the idea.

There are still significant barriers to the implementation of ESBies. However, their influence on policy discussion and debate has been such that any solution that *is* taken forward will inevitably be at least responding to, and therefore influenced by, the ESBies proposal and the research behind it (**[1]-[5]**, above). To that extent, the ESBies research will have shaped whatever safe asset solution is implemented across the Eurozone.

5. Sources to corroborate the impact (indicative maximum of 10 references)

[A] ESRB High-Level Task Force on Safe Assets, "Sovereign bond-backed securities: a feasibility study. Volume I: Main Findings", January 2018. See p. 8 for reference to ESBies and for **[1]**, **[4]**, and **[5]** as providing the intellectual foundation for the task force's report.

[B] ESRB High-Level Task Force on Safe Assets, "Sovereign bond-backed securities: a feasibility study. Volume II: Technical Analysis", January 2018.

[C] Relevant outputs of the European Commission taskforce are an overview of SSBS ("Sovereign Bond-Backed Securities") and proposal for their regulation ("Sovereign bond-back securities product regulation").

[D] European Commission, "Reflection Paper on the deepening of the economic and monetary union", May 2017. See p. 21 for discussion of SBBSs.

[E] European Parliament Committee of Economic and Monetary Affairs. "Draft Report on the proposal for a regulation by the European Parliament and of the Council on SBBSs", 19 October 2018.

[F] European Parliament, "Legislative Resolution on the proposal for a regulation of the European Parliament and of the Council on SBBSs", 16 April 2019.

[G] Centre for Economic Policy Research, "Reconciling risk sharing with market disciplines: A constructive approach to euro area reform", Policy Insight 91, January 2018.

[H] Zettlemyer, J. and Leandro, A. (2018). The Search for a Euro Area Safe Assets. Peterson Institute for International Economics working paper 18-3, March 2018, updated February 2019.

[I] J Zettlemyer, J. and Leandro, A. (2018). Europe's Search for a Safe Asset. Peterson Institute for International Economics Policy brief 18-20, October 2018.