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The authors acknowledge comments
and suggestions from two anonymous
referees. The usual caveats apply.

Target2 Imbalances and the ECB's Asset Purchase Programme: An Alternative Account

Summary: The aim of this paper is to investigate the cause behind rising Target2 imbalances since early 2015, coinciding with the implementation of a quantitative easing program by the ECB. Two facts have captured our attention. Firstly, the official explanation of rising Target2 imbalances, offered by the ECB, is not convincing because it does not fit the empirical evidence available for Italy and Spain. Further, our alternative interpretation reveals that through quantitative easing, the ECB has helped to clean up banks' balance sheets and has indirectly funded government spending. Secondly, those who spoke out against the risks of rising Target2 imbalances in 2011-2012, now remain silent on this issue, despite the fact that some of the presumed risks during the first wave of rising imbalances still hold. We interpret this silence as an implicit acceptance that the risks put forward in 2011-2012 are offset by reform fatigue and anti-euro sentiments in the Euro Zone.

Keywords: Target2, Public sector purchase programme, Euro Zone crisis.

JEL: E42, E58, F34, F36, F45.

Since March 2015, Target2 (T2 onwards) imbalances have been growing, with Italy and Spain accumulating large debtor positions, and Germany becoming the main creditor in the payment system, as in 2011-2012. During the first wave of rising T2 imbalances, the fear of a euro breakup was the main cause. What is the reason behind the current wave and what are the implications?

Two facts have caught our attention regarding the second round of rising T2 imbalances. Firstly, the explanations of its causes provided by official institutions – e.g. European Central Bank (2011, 2016a, 2017) or Deutsche Bundesbank Eurosystem (2016) – are troublesome. And secondly, with a few exceptions and contrary to what happened in 2011-2012, academics are currently remaining silent on this issue.

According to the above-mentioned official view, T2 imbalances have been rising because central banks (mainly in Italy and Spain) have been purchasing national public debt from non-resident agents operating in international markets located in Germany and the Netherlands.

However, had this been correct, public debt held by non-residents would have fallen in a roughly similar proportion, which has not happened. The first purpose of

this paper is to investigate the residence of those who sold bonds to the central banks of Italy and Spain and what they did with the sale proceeds. If bond sellers and central banks reside in the same country, this may have an effect on domestic banks' balance sheets and on fiscal policy that cannot be detected through the official lens.

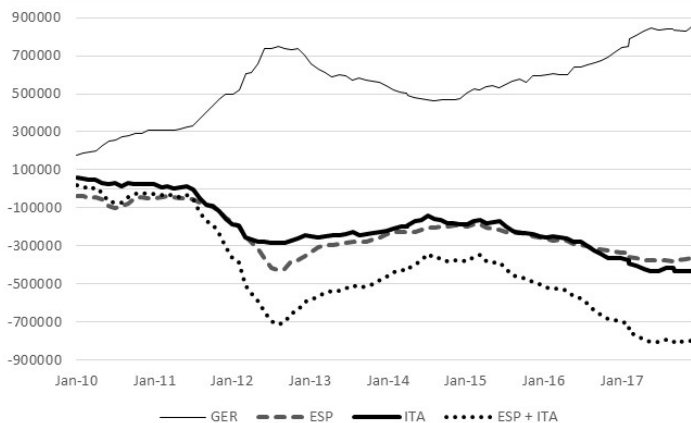
The second aim of this paper is to analyze the change in the reactions to increasing T2 imbalances since the beginning of PSPP. We agree with Helen Thompson (2015) that Germany's critical reaction to T2 imbalances over 2010-2012 was the result of a fragile balance between the situation of some of its banks, which had a high exposure to peripheral EZ countries, and the rejection by German voters to the idea of rescuing either debtors or creditors with tax payers money. The EU landscape has changed since 2015: on the one hand, German banks are in better shape than they were a few years ago; on the other hand, some peripheral EZ countries like Spain are experiencing a return to prosperity, but Italy is facing very low economic growth (since the launch of the euro) and a banking crisis, paving the way for new threats to the future of the EZ. These elements, in our view, explain the seeming lack of concern around T2 imbalances since 2015. Further, we argue here that Germany's silent reaction disproves the alleged risks in 2010-2012.

This paper is organized as follows. In Section 1, we give an account of what happened around T2 imbalances in 2011-2012. Section 2 focuses on the relationship between T2 imbalances and the PSPP since March 2015, including both the official explanation and an alternative view. Section 3 contains a discussion on the relevance of the residence of bond sellers. In Section 4 we explore whether creditors to the T2 system should be worried now, with the implementation of QE. Section 5 investigates the arguments that justify a negative answer to that question. And finally, the conclusion is outlined in Section 6.

1. T2 Imbalances during the Sovereign-Bank Doom-Loop of 2011-2012: Some Empirical Evidence and an Overview of the Literature

T2 imbalances increased in two waves. The first of these took place in 2011-2012, during the so-called sovereign-bank doom loop, with Italy and Spain accumulating liabilities against the ECB and Germany piling up claims. The second one has taken place from March 2015 to the present, with the same actors playing similar roles. In this section we deal with the first wave, leaving the second one for Section 2 and afterward.

In this figure, we can easily see that the sum of Italy's and Spain's debtor balances roughly mirrors Germany's creditor balance from 2010 to 2017. In order to provide an account of this phenomenon, firstly we briefly deal with the mechanics of the T2 system (for a more detailed account, see Tom Kokkola 2010; Ulrich Bindseil and Philip König 2012; Eladio Febrero and Jorge Uxó 2013 amongst others); secondly, we provide an interpretation of the facts that occurred over 2011-2012; and finally, we review the presumed risks attached to T2 imbalances.



Source: Euro Crisis Monitor (2018)¹ and authors' elaboration.

Figure 1 T2 Balances: Million Euros, January 2010-December 2017

1.1 The Mechanics of the T2

When a client of a bank in Spain, e.g. Banco Santander, orders a deposit transfer to a bank in Germany, e.g. Deutsche Bank (DB), Banco Santander orders the central bank of Spain, the Banco de España, to transfer its reserves to DB. Next, generally speaking, the Banco de España acquires a liability to the T2 system as it wipes out the reserves held by Banco Santander, and at the same time these reserves are re-created on the balance sheet of Germany's central bank (commonly known as Buba). By doing so, Buba acquires a claim against the T2 system as it annotates the newly created reserves in DB's account at Buba. Once DB has the reserves in its account at Buba, it informs the client that the deposit is in Germany.

The cross-border transfer of the bank deposit leads to an excess reserve in the country where the recipient bank is located, whilst there is a shortage in the country where the deposit is withdrawn. Under certain conditions, reserves make a return trip through the interbank money market. However, if this market does not function well, that reflux mechanism does not work, with consequences in the overnight interest rate. In order to prevent such outcomes, in a second stage, the Banco de España lends more reserves to Banco Santander, in 2011-2012 through a refinancing loan (technically, a main or long-term refinancing operation: MRO, LTRO, respectively).

1.2 What Caused T2 Imbalances from Mid-2011 to Mid-2012?

In mid-2011, Italy and Spain began to pile up T2 liabilities, coinciding with increasing bond yield spreads with the German *bund* and capital flight to core EZ countries (Stephan Cecchetti, Robert N. McCauley, and Patrick McGuire 2012; Silvia Merler and Jean Pisani-Ferry 2012). Although the symptoms were rather similar, each country had its own problems. As Lucia Quaglia and Sebastián Royo (2015) state, the troubles

¹ Euro Crisis Monitor. 2018. www.eurocrisismonitor.com (accessed March 20, 2018).

in Spain began with a large volume of bank credit to fund real estate activities that banks (particularly the *cajas*) had refinanced in international markets. With the Great Financial Crisis (GFC) in 2008, the construction sector – the engine of growth, which had already started to slow down in 2005 – came to a halt. This gave rise to two main problems: GDP and employment plummeted, and non-performing loans rose causing serious problems for banks. The Spanish government stepped in implementing expansive fiscal policies – mostly through automatic stabilizers – and providing financial assistance to banks (from late 2008 to early 2010, when governments believed that banks were experiencing a liquidity problem), making the public budget balance shift from a 2% GDP surplus in 2007 to a nearly 11% GDP deficit in 2009, and the public debt, which was 35% of the GDP in 2007, doubled in 4 years.

Conversely, the problem in Italy was a combination of a high volume of public debt that already existed before the launch of the euro, with a long decade of very low economic growth. Unlike Spain, Italy had not developed a real estate bubble, its external sector was balanced, with a large exporting sector and a relatively strong manufacturing base, and its banks had been refinancing their loans in domestic financial and money markets.

Although both countries sorted out relatively well the effects of the GFC in 2008, the second Greek sovereign debt crisis, in 2011, which proved clearly that a sovereign state could default, was the ignition mechanism that unleashed a sudden stop and a capital reversal that was reflected in large T2 imbalances.

The risk of sovereign default encouraged investors, who had accumulated a large volume of financial investments in peripheral countries, to get rid of Italian and Spanish public debt; and the falling price of bonds negatively affected their respective banks' balance sheets. These had accumulated large amounts of national public debt, leading to the so-called doom-loop linking the sovereign and banking crises.

That capital outflow was monetized through the injection of more than a trillion euros by the ECB in two large LTROs in December 2011 and February 2012 to Spanish and Italian banks.

T2 imbalances only stopped growing once Draghi pronounced his famous words in mid-2012, before announcing the Outright Monetary Transactions, OMT, a program to purchase unlimited amounts of public debt from impaired economies, subjected to some conditionality, with which the ECB broke the doom-loop. The financial assistance to the Spanish government by the European Stability Mechanism in mid-2012, to recapitalize some impaired banks, also contributed to the fall of T2 imbalances. This *threat* to markets by the ECB was highly credible and bond yield spreads with respect to the German *bund* declined sharply without the ECB having to spend a single euro.

1.3 What Are the Risks of T2 Imbalances?

Although Peter Garber (1998, 2010) and John Whittaker (2011) had written about the T2 system earlier, Sinn has probably been the most adamant critic of T2 imbalances, in the media and also in academic journals. His arguments about the risks of T2 imbalances can be found in Hans Werner Sinn and Timo Wollmershäuser (2012); Sinn, in turn, published several short articles in the media, developing separate claims that

were contained in that joint paper. In Sinn (2011a), we find three relatively minor arguments that raised strong rejections and another central one, that has become rather influential. The former arguments are: (i) the Target2 mechanism, combined with refinancing loans provided by central banks in peripheral EZ troubled countries, monetized large current account imbalances, for a long period of time, in GIPS countries (acronym for Greece, Ireland, Portugal and Spain); (ii) there was a crowding-out problem in Germany because banks in peripheral EZ countries were borrowing large amounts of official reserves; if the amount of reserves to be lent in refinancing operations by the European System of Central Banks is given, there were less reserves available to be lent to German banks to fund investment projects there (the reader should note that the loanable funds theory and the conventional money multiplier are behind this reasoning); and (iii) a solution to avoid increasing T2 imbalances was that these imbalances had to be repaid annually with gold, international reserves or marketable assets (Sinn 2012a). These arguments raised strong and persuasive criticisms by Bindseil and König (2011), Willem Buiter, Ebrahim Rabhari, and Jurgen Michels (2011a, b), Paul De Grauwe (2011a, b), Karl Whelan (2011a, b), Bindseil, Philippine Cour Thimann, and König (2012) and Jens Ulbrich and Alexander Lipponen (2012) amongst others. Sinn's contributions gave rise also to some reactions by the European Central Bank (2011) and the Deutsche Bundesbank Eurosystem (2011). A reply can be found in Sinn (2011b).

The reasoning with a larger impact is the following. GIPS countries had accumulated a huge volume of external debt during the decade that preceded the Financial Crisis, through large current account deficits that they were able to refinance in international markets; with the crisis, these countries experienced a sudden stop (Cecchetti, McCauley, and McGuire 2012; Merler and Pisani-Ferry 2012); however, contrary to emerging market economies facing similar problems during the 1990s, GIPS (and Italy) counted on the T2 system and the European Central Bank providing large amounts of reserves through refinancing loans (through the T2 system the Deutsche Bundesbank Eurosystem was creating the reserves that GIPS' central banks were lending to their national banking industries), which allowed debtor countries to delay the adoption of painful measures with the purpose of rebalancing their external sector. Without an external surplus, cross-border debts could not be completely paid back and this could result in a euro breakup. Sinn (2011c) considers the situation in the EZ a balance-of-payments crisis, where Germany was forced to export capital from the Deutsche Bundesbank Eurosystem. The balance-of-payments view is shared by Sergio Cesaratto (2013, 2018) and discussed by Febrero, Uxó, and Fernando Bermejo (2018).

The financial architecture in the EZ allowed GIPS to borrow official reserves without any limit from their respective central banks that next flowed to Germany through the T2 system. This mechanism meant a threat for creditor countries, those piling up large T2 claims, because their respective central banks (e.g. the Deutsche Bundesbank Eurosystem) would suffer a loss if NCBs in debtor countries did not repay their T2 liabilities (and the refinancing loans that logically preceded them). This might happen in the event of a euro breakup. Also, the revenues from the interest on these debts would be lost by creditors in such an event. This is developed in Sinn (2012b),

partly as a response to Buiters and Rabhari (2012a, b) and De Grauwe and Yuemei Ji (2012).

In hindsight, we find three arguments that sufficiently challenge Sinn's frightening view on T2 imbalances. Firstly, as Bindseil, Thimann, and König (2012) have reminded us, the risk of T2 imbalances is the risk of refinancing loans provided by NCBs to banks in their respective jurisdictions. And since William Bagehot (1873), we have known that the risk of doing nothing (i.e. the central bank rejecting the provision of large amounts of liquidity to solvent but illiquid banks, against good collateral at higher than *normal* interest rates) is higher for the economic system – including the central bank – than if the central bank were the lender of last resort.

Secondly, the so-called doom-loop problem affecting Italy and Spain in 2011–2012, which was the root-cause of T2 imbalances at that time, was, in the last instance, the consequence of governments borrowing capital in a foreign currency (Stephanie Kelton and Randall Wray 2009; De Grauwe 2013). Once it became clear that sovereign states could default, after the second Greek sovereign debt crisis in early 2011, investors began to move their investments from Spain and Italy to Germany. This situation came to an end once Draghi pronounced his famous words “whatever it takes ...” in mid-2012, before announcing the details of a program to purchase unlimited amounts of public debt, the so-called Outright Monetary Transactions, OMT.

And finally, the provision of reserves to debtor economies that were then transferred to banks in the core through the T2 system allowed creditors – very often large banks in France and Germany, as Arturo O'Connell (2015) writes – to cash in their risky investments in the periphery (Sebastian Dullien and Martin Shieritz 2012; Thompson 2015), whilst the stock of non-performing loans that Spanish banks had refinanced in international markets still remained on their balance sheets. Thus, it is rather ironic that Germany is described as a victim and peripheral countries as villains when creditors in core EZ countries were transforming highly risky assets into official reserves and claims against the ECB, an agency that cannot default in its own currency (De Grauwe and Ji op. cit. and Whelan 2013). Thompson (2015) argues rather aptly in our view, that acting in this way (simultaneously complaining about the risks of debt mutualization through the T2 system and approving – with reluctance – the refinancing of loans to peripheral countries) Germany forced debtor countries to bear the burden of adjustment against German – and French – creditors.

All in all, despite the difficulties with Sinn's views, the problem in the EZ was (and still is) that it is an incomplete currency union: it has a single Central Bank but it misses a supra-national fiscal authority (Aldo Barba and Giancarlo De Vivo 2013; Helge Berger, Giovanni Dell'Ariccia, and Maurice Obstfeld 2018). In the EZ, a confidence shock may transform cross-border debts between private parties into debts between NCBs that are part of the ECB (through the European System of Central Banks, ESCB), through the T2 system. And we remind the reader that that these NCBs are owned by the Treasuries of their respective countries so that those debts (i.e. T2 imbalances) are ultimately national debts that have to be guaranteed by governments.

In these situations, which often coincide with a period of crisis, governments run up large deficits and investors may fear that they will incur a problem of default.

In that event, a liquidity problem may arise that can become a solvency problem (De Grauwe 2013).

Although T2 balances have no ceiling and the corresponding debts can be rolled over without any limit, creditor countries see here a moral hazard problem if public debt soars in debtor countries, because citizens in countries with increasingly indebted governments are perceived as enjoying the benefits of public spending whilst the burden of the corresponding public debt is, ultimately, shared by all members of the currency union. Those creditor countries prefer debtors to adopt deflationary measures to shift their external sector to surplus, in order to generate the proceeds needed to cancel debts.

In order to solve that moral hazard problem during the sovereign debt crisis that took place in the EZ in 2011-2012, creditor core EZ countries imposed a political halt (Cesaratto 2013, p. 378) on debtors in the periphery, in the form of austerity measures and structural reforms in exchange for the external provision of financial assistance and the acceptance – with some reluctance from Germany – that the ECB would purchase unlimited amounts of public debt in secondary markets (the OMT, which required fiscal consolidation and wage devaluation).

The drama in the EZ was that, without the institutional factors present in a fully-fledged currency union, expansionary fiscal policies by a supranational treasury (or coordinated national treasuries) backed by a central bank playing the role of its lender of last resort, and which would cooperate in the restructuring of an impaired banking industry, simply could not be implemented. The only alternative economic policy for fighting the crisis in the framework set up by the European institutions was fiscal consolidation and wage devaluation, particularly when surplus countries forego the implementation of sizeable expansionary fiscal policies. However, with (private and public) indebtedness at very high levels, and an export sector that was not sufficiently big to boost those impaired economies, deflationary measures could not ensure a sound and relatively quick return to prosperity, and without them default would be quite likely as well (Cesaratto 2013; Bill Lucarelli 2017).

2. T2 Imbalances and the Public Sector Purchase Programme: Official and Alternative Narratives

According to the official version provided by the European Central Bank (2017), there is a connection between T2 imbalances and the Public Sector Purchase Programme (PSPP), which is part of the Expanded Asset Purchase Program, implemented since March 2015.

The argument goes as follows. In March 2015, the ECB began to purchase public debt at a rate of 60 billion euros per month. From April 2016 to March 2017, the amount was raised to 80 billion, and then dropped to 30 billion starting in January 2018. The PSPP is the largest component of the expanded Asset Purchase Programme. Roughly 90% of the PSPP is implemented by the national central banks, NCBs, which make up the European System of Central Banks. Each NCB is purchasing in secondary markets public debt issued by its respective government in proportion to its share of the ECB's capital ownership, whilst the ECB is directly purchasing a certain amount

of public debt (between 8% and 10% of the total amount). NCBs thus create reserves *ex nihilo* at their own initiative to fund the purchase of national public debt in secondary markets. The purpose of this program is to increase inflation up to 2%.

Officially, countries like Italy or Spain would have purchased large amounts of their respective sovereign debt in international markets, located in Germany and, to a lesser extent in the Netherlands, from non-resident counterparties (mostly investment funds) whose residence is outside of the EZ. And when the payment was made, there would have been a transfer of reserves that caused T2 imbalances: more T2 liabilities in Italy and Spain, and more T2 claims in Germany.

Nevertheless, a simple arithmetic exercise reveals that, in Spain, the official view does not hold. From March 2015 to the end of 2017, according to the excessive deficit protocol criteria, the Spanish government increased its gross outstanding liabilities by 86 billion euros, as shown in Table 1 below. The Banco de España (BdE) purchased 144 billion euros of public debt. This figure is similar to the reduction of public debt held by other resident agents (ORS), 131 billion euros.

Non-resident agents increased their holding of Spanish public debt by 51 billion euros, something that stands in contradiction with the official version: if the BdE had purchased 144 billion euros abroad and the government issued new debt by 86 billion, Spanish public debt held by non-residents should have decreased by 58 billion (144 minus 86), even though all newly issued debt had been sold to non-resident counterparties.

Table 1 Public Debt - Excessive Debt Protocol - Increases and Creditors (Million Euros)

2015:Q2-2017:Q4	Gov. total	Residents			Non-residents	
		Total	OMFI	Central Bank		ORS
		1 = 2+3 2 = a to c	(a)	(b)		(c)
Spain	85,997	35,438	22,503	144,060	-131,124	50,559
Italy	56,525	100,050	-77,695	236,486	-58,741	-43,525

Notes: N.B. According to the ECB, through the PSPP the Central Bank of Spain has accumulated 224,814 million euros of public debt, and the Italian one 319,118 million.

Source: Authors' calculations based on data from Banco de España and Banca d'Italia.

In the case of Italy, public debt held by non-residents falls. Eric Dor (2016) notes this, which is in contradiction with information provided by the Balance of Payments (see also Marcelo Minenna 2017). Dor (2016) points out that this may be because of the discrepancies between data measured as flows (the balance of payments) or as stocks (financial accounts). In any event, this author argues that the Italian Central Bank buys a rather large volume of public debt from residents: even if the Italian Treasury had sold all its newly issued debt to non-residents the Banca d'Italia would have purchased 136 billion euros from residents (236 – 43 – 56). Further, transactions between the Italian Central Bank and non-residents involving public debt alone cannot explain Italian T2 imbalances (270 billion euros). This view is also shared by Whelan (2017).

If we shift to gross external debt and the corresponding creditors, we find differences of magnitude but coherence in the sign of changes, with respect to information contained in Balance of Payments. As Dor (2016) points out for Italy, there is a marked

difference between flows (balance of payments) and stocks (financial accounts) in Spain, regarding the external sector.

Table 2 Gross External Debt - Increases and Debtors (Million Euros)

2015:Q2-2017:Q4	Total 1=2 to 6	Gov. (2)	OMFI (3)	Central Bank (4)	ORS (5)	FDI (6)
Spain	117,337	24,864	-24,249	175,612	-55,705	-3,184
Italy	42,121	-63,210	-63,652	253,194	-81,622	-2,589

Notes: According to Euro Crisis Monitor, the Central Bank of Spain has accumulated T2 liabilities by 170,207 million euros, and the Italian one 252,201 million.

Source: Authors' calculations based on data from Banco de España and Banca d'Italia.

In Spain, gross external debt increases by 117 billion euros. The main party responsible for this is the BdE (176 billion: this roughly coincides with accumulated T2 imbalances), and this allows banks (OMFI, acronym for Other Monetary and Financial Institutions) and other resident sectors (ORS) to reduce their cross-border indebtedness by 80 billion (OMFI, 24 billion; ORS, 56 billion). In Table 3 below, we can see that OMFI's liabilities to the rest of the world fall by 13 billion (OMFI, portfolio plus other investment, net change of liabilities), which is not very different from the figure in the table above, though for ORS liabilities fall by 2 billion (ORS, portfolio and other investment, net change of liabilities), and sale proceeds are used to purchase international assets. With regard to external governmental debt, it increases by 25 billion whilst in Table 1 it increased by 51 billion.

Table 3 Balance of Payments, Spain, 2015:Q2-2017:Q4 (Million Euros)

	Net change of assets (outflows)	Net change of liabilities (inflows)	Net
Current account			57,893
Capital account			11,747
Financial account			-73,712
FDI			-60,316
Portfolio investment	138,798	88,609	-50,189
OMFI	-4,141	31,144	35,285
Gov.	-2,449	63,071	65,520
ORS	145,387	-5,607	-150,994
Other investment	25,400	-52,511	-77,911
OMFI	21,125	-44,196	-65,321
Gov.	355	-11,637	-11,992
ORS	3,918	3,323	-595
BdE	71,862	194,134	122,272
Portfolio investment	31,897		
Other investment	39,965	194,134	
Reserves			-12,293
(T2)		170,207	
(PSPP)		224,814	
Derivatives			4,729
Errors			4,073

Notes: N. B. BdE has been singled out from the portfolio (PI) and other investment (OI) balances. Reserves and derivatives are included in the financial account. T2 and PSPP below BdE, and in parentheses, are informative items.

Source: Authors' calculations based on data from Banco de España.

As for Italy, we can see in the table above that the increase in external debt corresponding to the Banca d'Italia is partly matched with falling gross external debt for banks and other resident sectors (257 billion from the BdI against 145 billion from banks plus ORS). Unlike Spain, the Italian Government's gross external debt falls. However, the increase of external debt at the Banca d'Italia is much larger than the fall of cross-border governmental debt, so that the Italian central bank provides other resident agents with reserves which they then invest abroad.

A closer inspection of the Spanish balance of payments from the second quarter of 2015 to the second quarter of 2017 gives us a more detailed view of the relationship between T2 imbalances, the PSPP and capital flows.

At present, the Spanish current account balance is in a surplus. If we add up the capital account, the surplus roughly amounts to 70 billion euros. This is matched by a deficit in the financial account (a capital outflow, as assets increase more than liabilities). If we identify the financial account balance with foreign direct investment, FDI, plus reserves, then the rest of this balance broadly averages out to zero.

Let's focus on the following facts. Firstly, according to information provided by the ECB regarding the implementation of the PSPP, the BdE purchases 225 billion euros of public debt (PSPP). The BdE's inflows (other investment, inflows) amount to 194 billion euros. T2 liabilities – an item on the other investment balance – are 170 billion.

Secondly, other resident agents (investment funds and financial auxiliaries, ORS) invest abroad roughly 145 billion euros (see ORS, portfolio investment, outflows in the table above). Most of this outflow has been made by non-monetary financial institutions (i.e. investment funds): 118 billion euros; 82% of this amount has been used to purchase shares. As to other monetary and financial institutions (banks, OMFI), non-residents reduce their deposits in Spanish banks by 44 billion (OMFI, other investment, inflows), undoing interbank money market positions (Javier Martínez Pagés 2016), whilst Spanish banks grant loans to non-residents by 21 billion (OMFI, other investment, outflows); in the same period of time, OMFI experience an inflow of 31 billion through proceeds from the sale of shares and investment funds (OMFI, portfolio investment, inflows). This amounts to 179 billion euros ($145 - (-44) + 21 - 31$).

And thirdly, the government sells abroad 63 billion euros (Gov, portfolio investment, inflows) and at the same time it reduces its external debt by 12 billion (Gov, other investment, inflows).

The T2 imbalance is mostly explained by the outflow caused by ORS and OMFI, despite the CA surplus.

Summing up, in the official version held by the ECB, among others, central banks in the peripheral EZ countries had been purchasing the public debt of their respective treasuries in international markets and the corresponding cross border settlement with newly created reserves was behind rising T2 imbalances. However, contrary to that official version, we have seen that the Banco de España and the Banca d'Italia have purchased public debt from resident agents through the PSPP, and sellers have used the proceeds to purchase international assets abroad or to reduce their cross-border debt. And, as we shall state further below, this alternative account reveals that

central banks have cleaned up the balance sheets of banks in their jurisdictions and funded their respective governments, despite the well-known prohibition to do so.

3. The Residence of Those Who Sell Bonds to NCBs and the Fiscal Consequences of PSPP

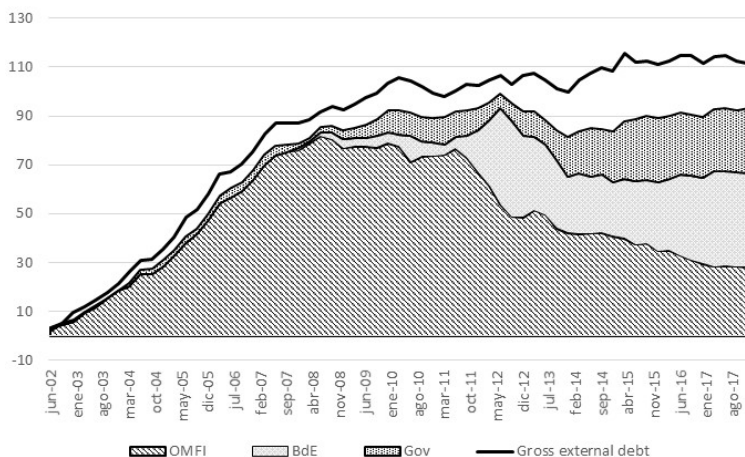
PSPP is not only an unconventional monetary policy: it has fiscal and other consequences. And these consequences are affected by the residence of bond holders. Firstly, it is easier for a treasury to fund an expansionary fiscal policy if bond holders are residents. As noted by Garber (2010), a treasury can borrow from banks in its jurisdiction giving bonds in exchange, and banks can then use these bonds as collateral in open market operations (Bill Mitchell 2016 shares this point). The notion of endogenous money (e.g. Michael McLeay, Amar Radia, and Rydley Thomas 2014) is behind this statement. Of course, purchasing bonds in secondary markets and requiring some conditionality on treasuries whose debt is going to be purchased can soften the fiscal consequences of these open market operations. Notwithstanding, with PSPP, central banks provide an indirect way of funding governments.

Although this possibility also exists when central banks purchase public debt from non-residents, things become a little more complicated in that case (e.g. the government may persuade domestic banks to purchase public debt in exchange for tax allowances or certain monopolistic benefits, or through financial repression; yet, this is more difficult when dealing with non-resident agents).

Additionally, when a central bank purchases bonds from banks, it helps to *clean* their balance sheet thus breaking the doom-loop linking sovereign states and banks, something that is also pursued with the banking union. It is no secret that during the sovereign debt crisis in 2011-2012, banks were hit especially hard because of the large amounts of public debt that they held on their balance sheets, leading to the so-called doom-loop crisis (see for instance Daniel Gros 2013). With the PSPP, central banks have contributed to breaking this connection, especially in Italy and to a lesser extent in Spain.

The second reasoning that makes the residence of bond sellers relevant for the consequences of the PSPP rests on how they end up using sale proceeds, especially when the rate on the deposit facility is in negative territory. There are two possibilities: recipients may use the proceeds to repay outstanding debt (Spanish banks were heavily cross-border indebted to other EZ residents in core countries and they used the central bank reserves to repay part of this debt) or to purchase other assets (as mutual funds have done in Spain and in Italy). When bond sellers are residents, these *second-round effects* would be felt in the country where the PSPP is in place. When banks use the reserves to repay cross-border debt, in principle the net change in gross external debt would add up to zero, because the falling debt of private banks would be offset by the increasing T2 liabilities acquired by the central bank. However, the quality of gross external debt would improve substantially: central bank reserves are not only much safer than bank debt, but T2 imbalances can be refinanced *ad infinitum*. And less indebted banks would have a much easier time regaining access to funding in international markets.

The following figure may help to explain this argument regarding Spanish external debt.



Notes: N. B. the gap between "Gov" and gross external debt stands for other resident sector's external debt.

Source: Authors' calculations based on data from Banco de España and Instituto Nacional de Estadística.

Figure 2 Gross External Debt as a % of GDP, Accumulated since 2002, Spain

From 2002 to the first quarter of 2011, the Spanish economy had accumulated a gross external debt of 1.06 trillion euros, and the external debt of banks (OMFI) had reached 799 billion euros (roughly 75%). It is quite evident from Figure 2 above that during the sovereign and banking crisis (from mid-2011 to mid-2012) banks' external debt (and also governmental external debt) declined at the expense of increasing T2 liabilities acquired by the Banco de España. T2 imbalances peaked in mid-2012, just before Draghi's famous defense of the euro, the announcement of the OMT and the financial assistance provided by the European Financial Stability Facility to the Spanish government for the recapitalization of impaired banks. From that point until late 2013, joint banks and BdE's external debt declines at the expense of the increasing external debt of the government and of non-financial corporations. From the beginning of the PSPP in early 2015 to the present, the external debt of both banks and the BdE increases from 672 to 774 billion, reaching a level that is quite similar to banks' external debt in mid-2011, but in late 2017 banks' external debt has fallen by 83 billion to 326 billion euros (a reduction of almost 60% from March 2011). With the launch of the PSPP, the government's external debt has increased by 63 billion euros as of late 2017. Total external debt has increased by 91 billion euros since the beginning of the PSPP, to 1.3 quadrillion euros.

In short, under the PSPP, the composition of Spanish gross external debt has changed, with an increase in BdE and governmental external debt and a decrease in that of OMFI.

Regarding the purchase, with the sale proceeds, of financial assets either in domestic markets or abroad, the residence of those who sell bonds to the central bank is less relevant because both residents and non-residents can purchase domestic and/or international assets. Further, it is not possible *a priori* to conclude whether the purchase of international assets by residents reflects domestic problems or it is simply because, for instance, interest rates are rising elsewhere. The magnitude of the ensuing wealth effect that would be felt by domestic agents depends on the extent to which the proceeds from the sale of bonds circulate in domestic (financial) markets, causing the price of assets to rise.

What cannot be accepted as a source of concern is that the excess reserve does not lead to increasing bank credit because it is being transferred abroad, as for instance in Sonsoles Castillo and Cristina Varela (2017, p. 4). According to the endogenous money view, credit is demand-led and banks need not collect reserves before they can make loans; further, banks do not lend central bank reserves (McLeay, Radia, and Thomas 2014). Moreover, when reserves are remunerated at a negative interest rate at the central bank, it is rather understandable that banks try to get rid of them, and this can only be done, considering a whole banking industry at the national level, either by repaying debt or by transferring it abroad through the purchase of international assets.

4. Should Investors Worry because of the Increase in T2 Imbalances since March 2015?

As stated in Section 1.3, during the sovereign and banking doom loop in 2011-2012, there were several reports raising claims against T2 imbalances, mostly (but not exclusively) written by mainstream authors, located in surplus countries, chiefly in Germany.

Regarding T2 imbalances and the PSPP, since March 2015, to the best of our knowledge warnings on this issue have decreased markedly. As an exception, Sinn (2016, 2018) has expressed concern again, accepting in any case the official account. The risk, again, is that with the T2-PSPP mechanism, the German Bundesbank (Buba) acquires a liability to a German bank which is ultimately supported by the bonds held by the NCB of debtor countries (Spain and Italy). In the event of a euro breakup, Buba would suffer a loss because the value of those assets would plummet. Further, he criticizes the PSPP because it is a violation of Article 123 of the Treaty on the Functioning of the European Union.

Leaving aside Sinn's warnings, we find three potential explanations for the silence on this issue, which do not rival one another, but are rather complementary. The first one might be called "this time is different". The second one is a form of "disguised austerity propaganda", and the third one, which we shall call "shifting target", holds that (mainly) German criticisms have shifted from T2 imbalances to the ECB's monetary policy.

4.1 This Time Is Different

In 2011-2012, banks in the EZ periphery, which were experiencing a sudden stop, borrowed from their NCBs the reserves that they could not obtain from within the

interbank money market, and next they cross-border transferred them to the core EZ through the T2 system, following investors' orders, in search of a safer harbor. T2 imbalances reflected a lack of confidence.

By contrast, with the PSPP, national central banks (and the ECB) have been injecting reserves at their own initiative, which have then flowed to Germany. Moreover, sovereign governments have been able to sell bonds in international markets.

The purpose of this unconventional monetary policy was chiefly to raise inflation to the 2% target level, grounded in the money multiplier mechanism: it was expected that the injection of reserves combined with a negative deposit facility rate would encourage banks to increase lending, as banks would see those reserves as a "hot potato". Although the level of inflation has been markedly below the 2% until the present, the PSPP has indirectly benefitted some economies by reducing their long-term interest rate (this has been rather beneficial in peripheral economies that were heavily indebted), weakening the so-called doom-loop by removing public debt from banks' balance sheets, contributing to a wealth effect that, in turn, has encouraged consumers to spend more (the falling interest rate has increased debtors' disposable income as well), devaluating against the US dollar stimulating exports, and so on (but see Scott Fullwiler 2013, Section 4 for a critical review of the effects of quantitative easing).

4.2 Disguised Austerity Propaganda

This explanation is in keeping with the former one. One representative reference is Gros (2017, 2018). According to this account, the economic recovery in countries like Ireland, first, and Spain later (and Portugal to some extent), was chiefly based on fiscal austerity, structural reforms especially in the labor market and the repair of their banking systems. In this vein, the PSPP should be viewed as an auxiliary economic policy measure that has proved helpful though it has played a secondary role in the return to economic growth and it was implemented after the beginning of the recovery. T2 imbalances, though related to the PSPP, should not be considered as a factor of concern, because: (1) contrary to what happened in 2011-2012, the current bond yield risk premium with respect to the German *bund* has not increased in peripheral countries and their banks and governments do not report any difficulty in accessing the interbank money market; (2) it is *normal* that reserves flow to countries where banks have the greatest liquid surplus, and this coincides with countries with a large current account surplus; (3) even Greece, whose sovereign debt is not eligible in the PSPP, is improving its T2 balance, contrary to what should happen in the event of capital flight (Gros 2017, pp. 9-11).

Gros (2018) is rather optimistic on the strength of the new phase of prosperity, because this time, peripheral countries have shifted towards a growth pattern that is less dependent on domestic demand.

Of course, this holds for countries like Ireland and Spain, which have repaired their banking industries and, after fiscal consolidation and wage devaluation, are shifting their engine of economic growth towards net exports. Italy is not a poster child of austerity-cum-wage devaluation measures in the EZ because the *Belpaese* did not

implement the reforms – strictly required by official institutions in the Euro Zone- to foster potential growth.

Silence on T2 imbalances could be implicitly understood as a way to comment on the role of the reforms adopted by peripheral countries to sort out the crisis.

4.3 The Focus of (Mostly German) Criticism Has Shifted from the ECB's Unconventional Monetary Policy to the Official Interest Rate

During the sovereign debt crisis in 2010-2012, Germany held a position that was critical of the ECB's measures alleviating the situation of debtor countries (the resignation of Axel Weber, President of the Bundesbank, and Jurgen Stark, the ECB's chief economist, prove this). This seemed paradoxical, as we have mentioned before, because German banks were largely exposed to the GIIPS countries (acronym for Greece, Ireland, Italy, Portugal and Spain), and the provision of reserves to these countries would allow German banks to transform risky assets into ECB reserves. Without such relief measures, German banks would have suffered significant losses that would have had to be borne by tax payers. Thompson (2015, p. 858), calls this Eichengreen's puzzle, and provides the following explanation: the German government was very much concerned by the situation of many of its banks after the Great Financial Crisis. The ECB's unconventional monetary policy was beneficial for German banks, but the German government feared that if it publicly admitted this, it was going to be much more difficult to shift the burden of the adjustment towards debtor countries. At the same time, German public opinion was against rescuing with public funds both debtors in the EZ periphery and creditors in Germany. Hence, the German government had to play an ambiguous role, pressing on debtors – and urging EZ institutions to force them – to adopt painful rebalancing measures, and arguing that the ECB's unconventional monetary policies were a German sacrifice that would help to keep the EZ united.

Continuing with the opposition to the ECB's unconventional monetary policy, in early 2014 the German Constitutional Court questioned whether the OMT were beyond the ECB's jurisdiction (see for instance contributions in Helmut Siekmann, Vikrant Vig, and Volker Wieland 2015; see also Thompson 2015, Section 1). The German Court based its view on three arguments. Firstly, OMT were economic policy, not monetary policy, because they challenged the market perception of the solvency of some Treasuries in the EZ. This was, according to the Court, what was behind rising sovereign bond risk premia and that yield spread should be offset through fiscal consolidation and other policy measures. Secondly, through this mechanism, the ECB might fund governments, something that is forbidden by law in the EU. And thirdly, in the event that the value of the bonds purchased through the OMT decline, the ECB would suffer a loss that should be borne by all tax payers, even those not benefitting from the program (on this see for example De Grauwe 2014). This decision adopted by the German Court arose after some controversy took place in Germany, including at the Bundesbank (Siekmann 2015, Footnote 10; see also Asoka Mody 2015).

In mid-2015, the Court of Justice of the European Union rejected this view and declared that OMT were compatible with EU law. In that judgement, it formulated a list of conditions that such a program had to comply with and that involved the conditions under which the ECB would purchase public debt, mostly with the view to avoid

funding governments. Amongst those conditions: bond purchases are not announced, the volume of such purchases is not unlimited, there is a minimum period of time between the issuance of bonds and their purchase by the ECB, the ECB only purchases bonds issued by governments that have access to market funding, bonds are exceptionally held until maturity, and when intervention is no longer needed, purchases cease and bonds are remarketed (see Bundesverfassungsgericht 2016).

In mid-2016, the German Constitutional Court agreed that the OMT were not beyond the jurisdiction of the ECB, provided that those conditions were complied with.

This conclusion was reached more than one year after the ECB had begun to purchase the public debt of all EZ Treasuries through the so-called PSPP, and with the ECB having spent not a single euro on OMT. We believe that there are, at least, five reasons that can help us to understand the change in the view held by German conservative circles on the purchase of public debt by the ECB, although we remain skeptical on some of them. Firstly, inflation had been below the target level since 2013. The PSPP, combined with a negative deposit facility rate, might help to bring effective inflation close to 2% (especially if one believes in the quantitative theory of money). Secondly, the ECB had not purchased any bonds with the OMT and, conversely the ECB had begun to purchase public debt from all of the Treasuries in the EZ, including Germany, through the PSPP. Hence, the mutualization of debt had become less problematic, because each NCB was accumulating the public debt of its own sovereign nation. Thirdly, troubled peripheral economies (Ireland, Portugal and Spain) had already begun to recover from the crisis, driven by net exports, and their fiscal policy was under the conditionality imposed by the ECB. Fourthly, Germany did not wish to draw out the conflict with the ECB that had begun in 2010. And finally, and very significantly indeed, German banks had reduced their exposure to GIIPS remarkably since 2008.

Table 4 Foreign Claims of BIS-Reporting Banks on Spain and Italy, Million US Dollars, Total Amounts and Percentages Held by Creditors

	2008:Q2	2011:Q2	2017:Q4
	Spain		
Total	1,267,369	910,049	418,238
Germany	23.29%	21.06%	17.67%
France	16.97%	19.04%	27.50%
Netherlands	4.38%	5.29%	2.34%
UK	3.96%	28.20%	15.01%
Others	30.99%	26.41%	37.48%
	Italy		
Total	1,445,378	1,014,118	603,417
Germany	18.55%	15.51%	13.49%
France	24.16%	29.32%	34.16%
Netherlands	3.76%	2.99%	2.17%
UK	16.63%	19.94%	11.98%
Others	36.90%	32.24%	38.20%

Source: Bank for International Settlements (2018)².

² **Bank for International Settlements**. 2018. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed March 12, 2018).

Nevertheless, the new situation did not stop criticism from being raised in Germany, now against the ECB's very low official interest rate starting in late 2014, especially once the EZ economy began to recover. Martin Grabau and Heike Joebges (2017) provide a list of critiques -and replies- which (mostly) originated in Germany. Amongst them, the authors report a shift in distribution towards borrowers, incentives for developing financial and asset bubbles, lower benefits for banks and other financial institutions, and fewer stimuli to save, in a country whose population is ageing markedly.

5. But Is the Silence on T2 Imbalances Justified?

The reasons listed in the previous section are widely shared by those who held critical positions against T2 imbalances during the sovereign debt crisis in the EZ, but, in our opinion, they do not completely explain why T2 imbalances are not a factor of concern for the following three reasons:

- With the PSPP, NCBs can indirectly fund governments;
- It is not clear whether fiscal consolidation and wage devaluation are sufficient reasons that justify the return to economic growth in peripheral countries: expansionary fiscal policies and other tailwinds have made substantial contributions to growth in the Spanish case;
- With the PSPP and T2 imbalances, the risk of debt mutualization still holds, despite the occurrence of T2 imbalances now driven by the PSPP, which is at the initiative of NCBs.

Current silence on this issue reveals, in our opinion, that critics of the T2 imbalances in surplus countries in 2011-2012 may have ended up reluctantly agreeing that fiscal policy was needed once monetary policy had come close to its limits and with populism threatening stability in the EZ; and despite the risks linked to debt mutualization and the funding of governments through the T2 – Refinancing Operation mechanism, the ensuing fears have been assuaged with the resulting benefits from participating in the PSPP.

Following Thompson's lead (Thompson 2015 op. cit.), we interpret the lack of reactions to T2 imbalances since 2015 as part of the German defense of its national interests. Although the situation of the country's banks has improved markedly (International Monetary Fund 2017b), there are new risks of a euro collapse, because of reform fatigue and the rise of populist movements against fiscal austerity and wage devaluation – not all of them against the euro – in the periphery and also in core EZ countries. As Stephane Deo, Paul Donovan, and Larry Hatheway (2011) or Spiegel International (2012) state, a euro breakup would mean a loss for Germany of around 50% of its GDP (to be distributed throughout several years). This would include not only the recapitalization of Germany's banks but also the appreciation of its currency and the resulting consequences on international trade or the value of its international investment position, in a country that is ageing rather rapidly.

In short, we interpret the lack of concern regarding the second wave of T2 imbalances as an easing of German pressure on debtor countries (i.e. countries accumulating liabilities to the T2 system: particularly Italy and Spain) because the risks of

tightening conditions (increasing anti-euro sentiments) more than offset the risk of providing some assistance.

Further, by tacitly accepting these T2 imbalances, former critics agreed with some logical inconsistency on the arguments put forward during the sovereign bank doom-loop crisis: (i) the funding of governments by central banks went against the rules of the European Union (Article 123 of the Lisbon Treaty); but (ii) some expansionary fiscal policy has made a non-negligible contribution to the return to a positive growth rate (rather clearly in Spain); and (iii) recovery is a condition for no longer considering T2 imbalances to be a factor of concern.

The fact that Italy is not growing faster since the implementation of the PSPP does not change our view on this issue. Under the PSPP, Italy is removing part of its public debt from its banks (their holding of national public debt fell by 11% – roughly 74 billion euros – from March 2015 to December 2017). This helps to improve the situation of its banking industry, one of the weakest elements in the Italian economy.

The amounts of public debt purchased under the PSPP are not negligible.

Table 5 Consolidated Public Debt and PSPP

	Δ Public debt (2015:Q2-2017:Q4) (%GDP 2017)	Cumulative net purchases under PSPP (until 2018:Q1) over existing public debt (2017:Q4)	Cumulative net purchases under PSPP over total PSPP	Cumulative net purchases under PSPP over GDP 2017
	(1)	(2)	(3)	(4)
Belgium	2.04%	14.96%	3.80%	15.43%
Germany	-2.01%	22.65%	26.62%	14.51%
Ireland	-1.00%	13.18%	1.49%	8.97%
Greece	8.68%	0.00%	0.00%	0.00%
Spain	7.39%	20.84%	13.39%	20.50%
France	4.79%	17.49%	21.79%	16.95%
Italy	3.29%	14.90%	18.94%	19.62%
Netherlands	-4.44%	25.48%	5.95%	14.45%
Austria	0.16%	18.53%	3.01%	14.49%
Portugal	7.93%	13.39%	1.82%	16.82%
Finland	3.12%	21.87%	1.69%	13.43%

Source: Authors' calculations based on data from European Central Bank and Eurostat.

In Greece, Portugal, France and Spain (and to a lesser extent, Italy and Finland), public debt increased markedly from the second quarter of 2015 to the end of 2017, as shown in column 1 (the period under consideration in the sections above). However, the amount of public debt that their NCBs accumulated under the PSPP is much larger (column 4, with the exception of Greece, which does not participate in the PSPP). If, for instance, the Spanish government issues public debt for the equivalent of 7% of GDP and the Banco de España purchases Spanish public debt for 20% of GDP, one can hardly deny that the Spanish Central Bank is – indirectly – funding its Treasury, although roughly 60% of such newly issued debt was sold to non-residents. And the same can be said for France, Italy, Portugal, etc. The only exceptions are Germany and the Netherlands, countries which cancelled public debt in the period of time under consideration. Notwithstanding, even these two latter countries are benefitting from

the fiscal consequences of this monetary policy once part of their public debt load is removed from private hands: apart from raising the price of public debt (and lowering its yield) this increases its liquidity, and the government stops paying interest to private holders as it now pays them to its NCB (which is self-owned!).

Of course, this is not to denounce the violation of Articles 123 or 125 of the Lisbon Treaty, but simply to highlight that under the PSPP the ECB is circumventing such self-imposed constraints. In spite of limitations like the announcement of the amounts of public debt to be purchased, or that purchases occur only in secondary markets, the fact is that open market operations have fiscal consequences that affect government finances, and the ECB, under the PSPP, has implemented a monetary policy that has fiscal implications (see for instance Mitchell 2016).

One reason that helps to understand why critics have remained silent on this issue is provided by Mario Draghi (2014):

“Since 2010, the euro area has suffered from fiscal policy being less available and effective, especially compared with other large advanced economies. This is not so much a consequence of high initial debt ratios – public debt is in aggregate not higher in the euro area than in the US or Japan. It reflects the fact that the central bank in those countries could act and has acted as a backstop for government funding. This is an important reason why markets spared their fiscal authorities the loss of confidence that constrained many euro area governments’ market access. This has in turn allowed fiscal consolidation in the US and Japan to be more backloaded.

Thus, it would be helpful for the overall stance of policy if fiscal policy could play a greater role alongside monetary policy, and I believe there is scope for this, while taking into account our specific initial conditions and legal constraints. These initial conditions include levels of government expenditure and taxation in the euro area that are, in relation to GDP, already among the highest in the world. And we are operating within a set of fiscal rules – the Stability and Growth Pact – which acts as an anchor for confidence and that would be self-defeating to break”.

Brad DeLong and Larry H. Summers (2012) and Olivier J. Blanchard and Daniel Leigh (2013) provide additional support for a more proactive fiscal policy from a Neo-Keynesian theoretical standpoint. Bret Fiebiger and Marc Lavoie (2017, Section 6) make a review of this issue from a post-Keynesian standpoint.

With a supranational fiscal authority almost entirely absent in the EMU, it was national treasuries that had to implement fiscal policy, and under the PSPP the ECB cooperates with them. As pointed out above, reform fatigue and the risk associated with rising populist movements are some of the reasons behind this cooperation: Giancarlo Corsetti et al. (2016), European Central Bank (2016b, p. 26), Berger, Dell’Ariccia, and Obstfeld (2018).

Although Draghi suggested that a somewhat expansive fiscal policy should be implemented in countries with fiscal space, the IMF reveals in its Article IV on Spain (International Monetary Fund 2017a, p. 26) that fiscal policy combined with monetary policy (plus other *tailwinds* like the low price of energy or political instability in neighboring countries giving rise to a positive boost to the tourist industry) explained half of the 3.2% GDP growth in 2015, and a little less in 2016. Further, economic growth in Spain is driven by net exports. This growth is not a consequence of an export boom

but is rather due to the collapse of imports resulting from a decrease in domestic demand: since 2013, exports have grown at the same rate as the period 1999-2007 (roughly 4.5% in real terms). Fiscal consolidation and wage devaluation have simply depressed domestic demand, with falling wages leading to a distributional shift in favor of profits, meanwhile export prices have not declined (see for instance Uxó, Febrero, and Bermejo 2016 or Nacho Álvarez, Uxó, and Febrero 2018).

Contrary to the “disguised propaganda” argument, in our judgement it is more appropriate to see the current situation as a sort of *unstable compromise*, where the hawks of structural reforms and fiscal consolidation in the EZ (conservative academics and politicians in surplus countries) agree to some easing of the deflationary measures imposed on the EZ periphery in the short-run at the expense of some commitment to comply with the rules under certain conditions in the longer run.

Some may say the T2 imbalances since 2015 are not troubling because now the economies accumulating T2 liabilities are growing, as is the case in Spain though not in Italy. The problem with this argument is that public spending is making a substantial contribution to the recovery and the PSPP is a root-cause of the bond yield remaining at relatively low levels. Hence, the alleged fears in 2010-2012 have proved to be contradictory.

6. Conclusion

Under the PSPP, National Central Banks in the Euro Zone have acquired a huge volume of public debt from their respective Treasuries. In the Spanish case, as in Italy, the Central Bank has purchased a large volume of Spanish public debt from residents, whose sale proceeds have then been transferred abroad, either to purchase international assets or to repay pending debt. This goes against the official version about T2 imbalances, provided by the ECB, which holds that the cross-border flow of reserves is occurring because bond purchases are taking place in international markets located in Germany and the Netherlands.

The residence of those selling public debt to each NCB is relevant because of how bond sellers are using the sales proceeds: it is possible that each NCB indirectly funds public spending, helping banks to clean their balance sheets and providing more liquid assets that also make it easier to repay cross-border debts; finally, this leads to a wealth effect experienced by residents. These arguments have been important in the Spanish recovery since 2014, as acknowledged by the IMF.

With T2 imbalances increasing as bond sellers transfer central bank reserves abroad, Italy and Spain mutualize the risk of their debt with Germany. However, contrary to what happened during the sovereign debt crisis in 2011-2012, criticism of this problem has been muted for several reasons. There are some relatively official explanations: T2 imbalances are now rising because peripheral economies are *exporting* their excess reserves and not because investors are repatriating their savings (this is the main cause), countries accumulating T2 liabilities began to grow before the implementation of the PSPP, and Germany does not wish to draw out a conflict with the ECB that had its origin with OMT.

But there are non-official arguments as well: creditor EZ countries have eased their pressure on debtor countries in order to suffocate populist anti-euro sentiments, with a view to keeping the euro afloat.

Spain and Italy are two different cases. Spain ran an expansionary fiscal policy in 2015 and 2016 that has positively contributed to economic growth. Simultaneously, it has committed to fiscal consolidation in the long run and has adopted some reforms to rebalance their external sector as well. It has benefitted from the PSPP because its Central Bank has indirectly funded the Treasury. The reserves injected into the system have been cross-border transferred through the T2 system to purchase international assets and to reduce banks' gross external debt. By contrast, Italy's long period of low growth continues. However, in this case, the PSPP has helped to clean its banks' balance sheets and the corresponding reserves, as in Spain, have cross-border flowed to purchase international assets and to reduce their banks' international debts.

The PSPP is a textbook monetary policy with clear fiscal implications. Under the program, the ECB has not committed any taboos because it has not directly funded any national treasuries. However, this mechanism proves that the ECB has more resources than just managing the interest rate to keep inflation under control. And those who criticized T2 imbalances in 2010-2012 have conceded that their arguments were not very sound by remaining silent as they begin to grow once again.

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