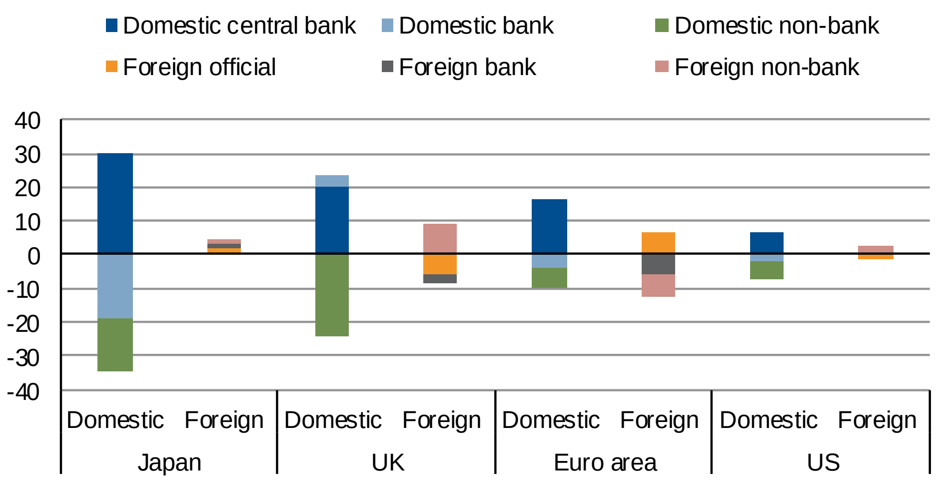
The rise of central banks as sovereign debt holders: implications for investor bases

Central bank holdings of sovereign debt have increased considerably in recent years as a result of unconventional monetary policies. While this has reduced borrowing costs and refinancing risks, it has also been accompanied by a heterogeneous shift in sovereign investor bases across countries, with important implications for issuers, investors and the central banks themselves.

Following the Global Financial Crisis, major central banks adopted unconventional monetary policies in the form of quantitative easing (QE) – including large-scale purchases of sovereign debt – to stimulate economic growth, support inflation and/or reduce borrowing costs. While numerous studies have looked into the effects of QE, little attention has been paid to the resulting changes in the investor base for sovereign bonds.

The sovereign investor base has important consequences for fiscal sustainability, the sovereign banking-nexus and international financial spill-over risks. Using IMF databases, we examine changes between 2008 and 2018 to the sovereign investor base of 27 countries across six institutional sectors: domestic central banks, domestic banks, domestic non-banks, the foreign official sector, foreign banks and foreign non-banks.

Figure 1: Shifts in the investor base for major QE-adopting economies, 2008-18
% of total debt



Source: IMF, Scope Ratings GmbH

Our analysis highlights the following key take-aways:

- QE programmes in Japan, the UK, the US and the euro area have led to central banks becoming increasingly dominant in sovereign debt markets, accompanied by heterogeneous shifts in investor bases. Despite the observed heterogeneity (which we will explore in a follow-up research piece), central banks have mostly displaced the traditional domestic (not foreign) investor base of banks and institutional investors.
- The implications are threefold: Issuers benefit from lower re-financing risks but have a more concentrated investor base; investors face a trade-off between safe-haven assets and the search for yield; and central banks are increasingly exposed to their respective sovereigns, with implications for monetary policy independence and effectiveness.

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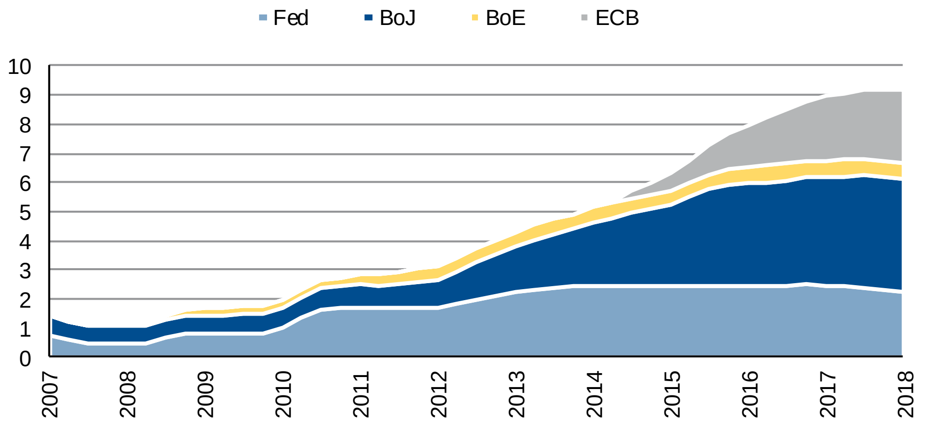
The rising importance of central banks in sovereign debt markets

Quantitative easing as a response to the zero-lower bound

A major challenge faced by many central banks to achieve their price stability objectives has been the zero lower-bound on interest rates. Several jurisdictions have responded to this challenge by implementing QE. In 2001, the Bank of Japan was the first to introduce QE in response to falling growth rates and deflationary pressures. Following the financial crisis of 2007-08, several other central banks followed suit, including: The Federal Reserve (November 2008); the Bank of England (March 2009); the ECB (January 2015); and the Swedish Riksbank (February 2015).

These unconventional monetary policies have led to a significant expansion of central banks' holdings of sovereign debt. From year-end 2008 to year-end 2018, cumulative government debt holdings of the Fed, the Bank of Japan, the Bank of England and the ECB increased more than eightfold, exceeding USD 9trn (**Figure 2**).

Figure 2: Government debt holdings of selected central banks
USD trn



Source: ECB, IMF, Scope Ratings GmbH
NB. The figures have been aggregated by using fixed exchange rates, as of 31st December 2018

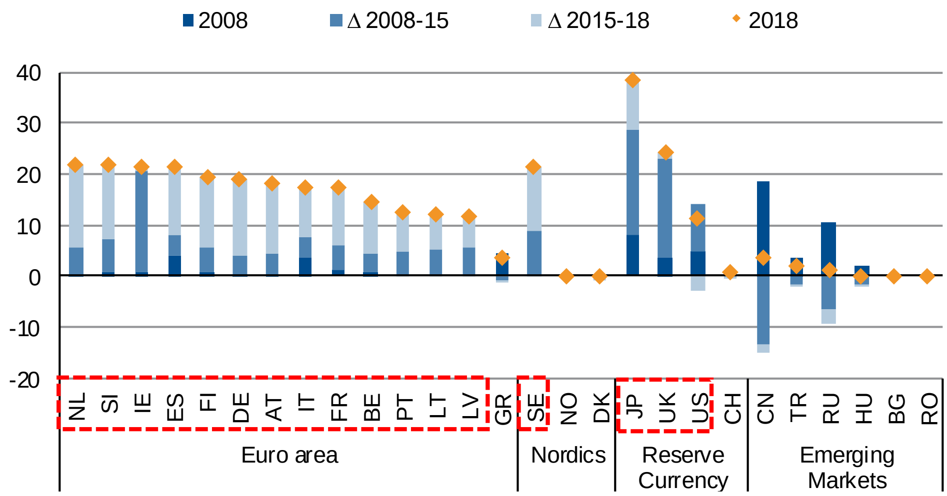
Central banks are 'sticky' investors

Examining sovereign debt holdings by central banks versus other institutional sectors is relevant for public finance risk as investment strategies typically differ between the two.

Private and public investors typically hold government debt as collateral, either for liquidity management or to realise profits. Central banks, on the other hand, are required by their mandate to support economic activity and/or price and financial stability. Central banks therefore tend to i) adopt a hold-to-maturity approach, ii) are typically 'sticky' holders of debt instruments, and iii) are less likely to divest when faced with heightened yield volatility, acting instead as stabilising investors. Thereby, the increasing presence of central banks as sovereign debt holders is likely to have a long-lasting impact on the rest of the investor base.

Using IMF databases on holders of sovereign debt for advanced economies and emerging markets, we analyse how the shares of central bank holdings have increased in the sovereign investor base from December 2008 to December 2018.

Figure 3. Domestic central bank holdings of sovereign debt, selected countries
% of total debt



N.B. The red boxes highlight countries that benefit from QE
Source: IMF, Scope Ratings GmbH

Overview of central banks' share in sovereign investor bases

Figure 3 shows that countries that adopted QE have seen a substantial increase in their central banks' holdings as a share of the investor base, by 17.4pps on average during the 2008-18 period. In detail:

- **Euro area:** The average increase in this region was 15.4pps, led by the Netherlands (+21.6pps), Slovenia (+21.1pps) and Ireland (+21.0pps). Only Greece saw a slight decrease (-0.9pps), as its government bonds were ineligible for the Public Sector Purchase Programme over the entire asset purchasing period.

  Increases in Portugal, Lithuania and Latvia were below average. Potential reasons include: i) the limited availability of bonds, perhaps as other investors are holding securities to maturity, or ii) the ECB's self-imposed limits (maturity, ISIN and issuer constraints) have reduced the overall size of the eligible asset purchase universe[1].

- **Nordics:** Norway and Denmark, which did not adopt QE, saw almost no change in their central banks' holdings. Initial holdings were negligible, below 1% for both countries. By contrast, Sweden, which does conduct QE, saw a strong rise by 21.3pps, the third-largest increase in our 27-country sample.

- **Reserve currency:** Japan saw the strongest surge (+30.2pps), reflecting the ultraloose monetary policies adopted by its central bank, whose nominal holdings of government debt increased almost seven-fold in the 10-year period analysed. Both the UK and the US saw their central banks' shares rise (+20.6pps and +6.4pps, respectively) although the Fed's decreased recently following initial steps taken towards policy normalisation. The Swiss National Bank's share remained broadly stable at 1% from 2008 to 2018.

- **CEE and emerging markets**: All emerging markets saw a decrease in central bank holdings, with the strongest movement for China (-15.2pps) followed by Russia (-9.2pps). Hungary's share also decreased, although to a lesser extent (-1.7pps), while Bulgaria's and Romania's non-existent levels remained unchanged.

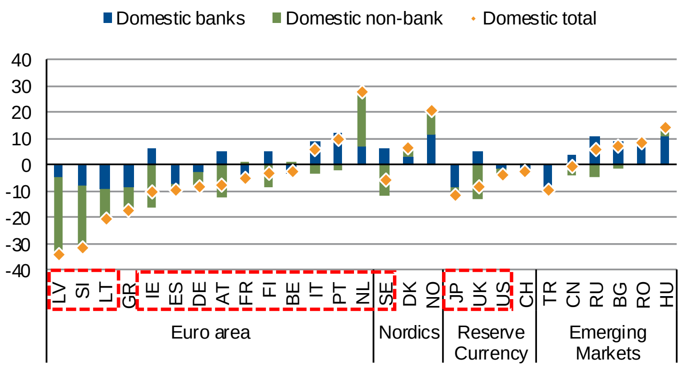
[1] ECB (2019), Taking stock of the Eurosystem's asset purchase programme after the end of net asset purchases, https://www.ecb.europa.eu/pub/economic-bulletin/articles/2019/html/ecb.ebart201902_01~3049319b8d.en.html#toc3

How debt ownership changes with the presence of central banks

Central banks: a new player in sovereign debt markets

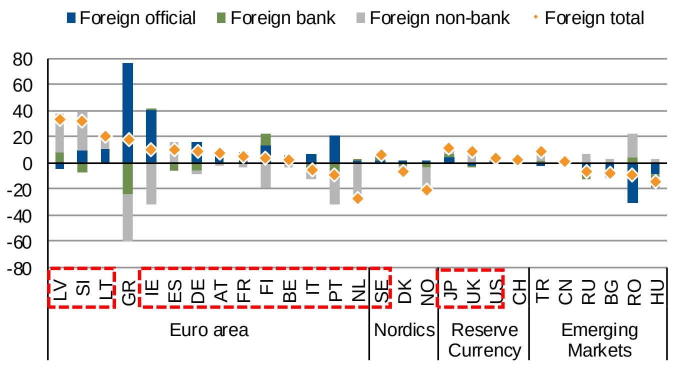
Large-scale asset programmes have led to domestic central banks becoming dominant investors in sovereign debt markets. While this has reduced refinancing risk (see previous Scope research), it has also led to the entry of a large and relatively new player in the market. This has displaced traditional sovereign bond holders [2] – the key question being which ones? The IMF databases allow us to examine how the rising central bank share in sovereign debt holdings has impacted other institutional sectors. To analyse the shift over time in the sovereign investor base – excluding that held by the central bank – we focused on the change in composition of the 'residual share' of sovereign debt holdings[3]. The results per institutional sector are shown in **Figures 4** and **5**.

Figure 4. Shifts in domestic residual holdings, 2008-18, pps



N.B. The red boxes highlight countries that have adopted from QE
Source: IMF Working Paper, Scope Ratings GmbH.

Figure 5. Shifts in foreign residual holdings, 2008-18 pps



N.B. The red boxes highlight countries that have adopted from QE
Source: IMF Working Paper, Scope Ratings GmbH.

These charts point to one general conclusion: domestic banks and non-banks have seen their relative shares of sovereign debt drop as a result of central bank purchases. This is the case in Japan, the UK, the US and all euro area countries except for Italy and Portugal, where residual holdings by domestic banks have increased slightly since year-end 2014, as well as in Germany, Ireland and the Netherlands, where domestic non-banks have seen an increase during the same period.

The crowding-out of domestic investors becomes even more striking against the simultaneous increase in the domestic shares of government debt holdings in Nordic countries that did not adopt QE (Norway and Denmark). We have provided details on the change in investor bases per region in the **Annexes**. In the case study below, we explore how developments in Italy and Portugal have contrasted with those in Spain.

Italy and Portugal vs Spain: diverging trends in the home bias

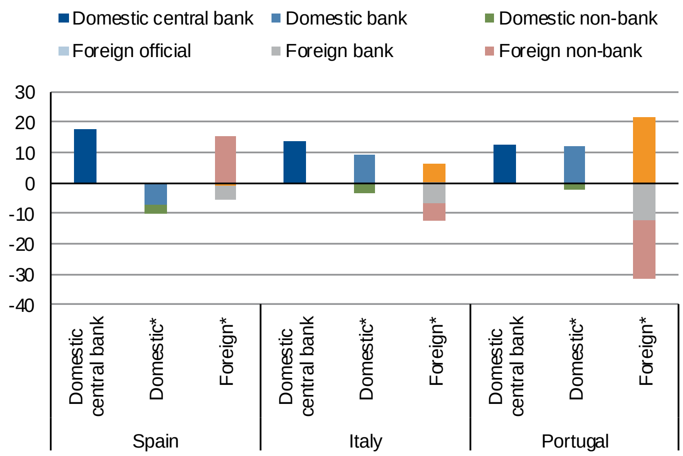
Rising central bank holdings have been accompanied by significant, heterogeneous shifts in sovereign debt ownership structures. A comparison of Italy and Portugal versus Spain illustrates this heterogeneity in the former crisis countries.

While the share of central bank holdings has increased in all three countries, the effect on private debt holders has differed, with domestic holders displaced in Spain, and foreign ones in Italy and Portugal (see **Figure 6**).

[2] Boermans, M. and Keshkov, V. (2018), The impact of the ECB asset purchases on the European bond market structure: Granular evidence on ownership concentration, DNB Working Paper.

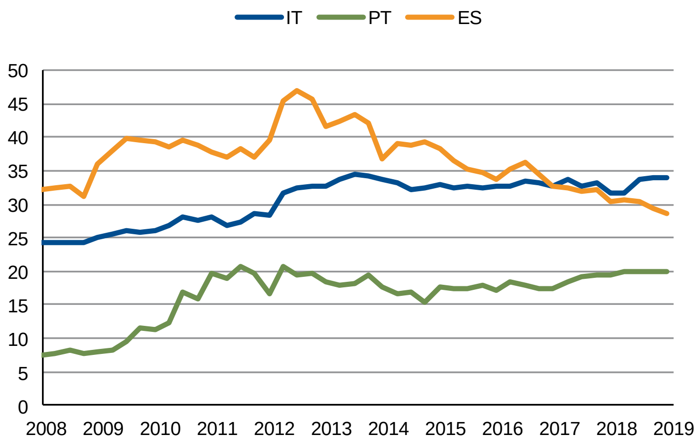
[3] Residual shares exclude central bank holdings and are equal to : $\frac{sector\ holdings}{total\ sovereign\ debt\ holdings - central\ bank\ holdings} \times 100$

Figure 6. Shifts in investor bases for IT, PT and ES, 2008-18
pps



* Based on residual shares
Source: IMF Working Paper, Scope Ratings GmbH

Figure 7. Domestic banks' residual holdings, 2008-18
% of total debt



Source: IMF Working Paper, Scope Ratings GmbH.

Diverging home bias developments

Across the three countries, a striking divergence in investor behaviour was observed for domestic banks. Between 2008 and 2012, a period marked by the financial crisis and subsequent sovereign debt crisis, all three countries saw residual holdings by domestic banks rise significantly, a result of foreign investors having fled from the peripheral euro area economies during that period (**Figure 7**).

From 2013 onwards, however, Spanish banks began to divest from domestic government debt, reaping large trading gains in the process and placing the residual share of domestic banks on a firm downward trajectory, whereas residual holdings of Italian and Portuguese banks remained broadly stable. The persistence of domestic bank holdings in the latter two has implications for the sovereign-bank nexus in the euro area (see previous Scope research).[4]

These heterogenous developments possibly reflect i) the different economic and public finance fundamentals[5], ii) yields, iii) varying degrees of domestic capital market depth, iv) investor preferences and constraints, v) rating levels and their regulatory implications[6], vi) issuance levels, and/or vii) the scope and degree of banking sector consolidation. In a follow-up research piece, we will investigate these possible explanations in more depth.

Conclusions and possible implications

Implications for issuers, investors and central banks

The recent significant increase in central bank holdings of sovereign debt has important implications for issuers, investors and the central banks themselves:

➢ **Issuers: multiple trade-offs**

The increase in central bank holdings has reduced borrowing costs and refinancing risks. However, QE has also resulted in a more concentrated investor base. As such, sovereign debt management offices could benefit from re-engaging with traditional investors such as investment and pension funds, as recently suggested by the OECD[7]. For sovereigns with limited fiscal space, the gains from a (re)financing perspective need to be contrasted

[4] Dell'Ariccia et al. (2018), Managing the Sovereign-Bank Nexus, ECB Working Papers
[5] See Cornand et al. (2016), Increase in home bias in the Eurozone debt crisis: The role of domestic shocks.
[6] A potentially important factor is the "cliff-effect" at the A- rating level. Below this level, the Eurosystem requires higher haircuts applied to assets used as collateral in market operations while institutional investors often exclude securities rated below this same level from their portfolios.
[7] OECD (2019), Sovereign borrowing outlook 2019.

with possible incentives for governments to postpone fiscal consolidation measures and much-needed structural reforms.

Conversely, for sovereigns with low indebtedness, increased holdings by their central banks may lead to scarcity effects, given the long maturity of purchases and holding strategies of these institutions[8]. According to the IMF, this may impair market functioning through the diminished availability of public debt securities[9], a safe-haven asset. The increased scarcity of these assets and the related risks to financial stability have been discussed at length, resulting in various proposals for central banks to create safe assets directly[10].

- **Investors: search for yield**

Despite the observed heterogeneity (which we will explore in follow-up research), QE programmes in Japan, the UK, the US and the euro area have mostly displaced the traditional domestic (not foreign) investor base of banks and institutional investors.

This may reflect the resulting low-for-long yield environment, incentivising private investors to search for yield elsewhere. As a result, the asset-class and geographical diversification of institutional portfolios – away from fixed-income towards more equity-like products and from advanced economies into Emerging Markets – could be an important consequence.

- **Central banks: dealing with uncertainty**

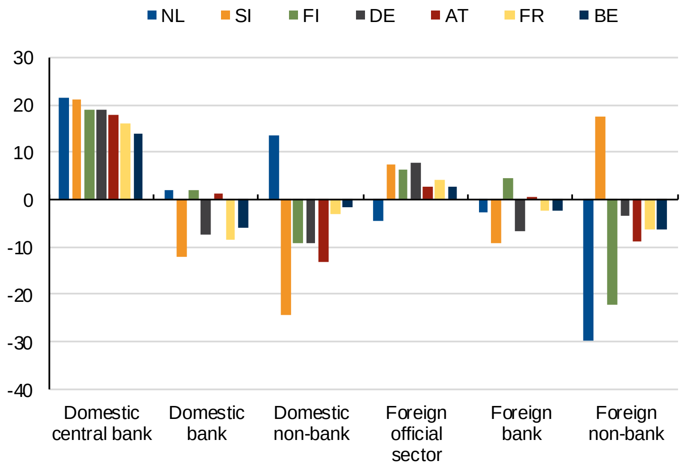
Central banks have become increasingly vulnerable to sovereign debt crises. This could result in a loss in their credibility due to growing concerns: i) about central banks preserving their balance sheets instead of achieving inflation targets, and/or ii) among investors regarding monetary policy independence, given the high central bank share of sovereign debt.

In addition, central banks face increased uncertainty given the limited predictability of monetary policy effectiveness. With interest rates already at or below zero and substantial QE measures in place, central banks' investment opportunities are limited, especially among safe assets. Furthermore, the use of additional instruments is likely to be accompanied with unforeseen consequences.

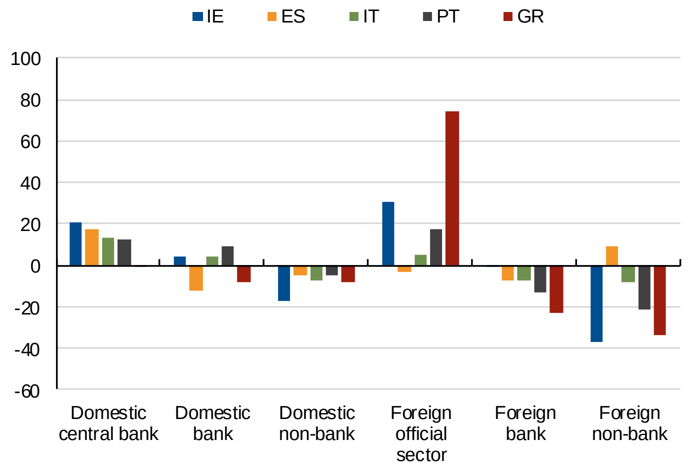
[8] See IMF (2018), Scarcity Effects of Quantitative Easing on Market Liquidity: Evidence from the Japanese Government Bond Market, IMF Working Paper.
[9] IMF (2015), Selected Issues: Euro Area Policies.
[10] See Greenwood, Hanson and Stein: "The Federal Reserve's Balance Sheet as a Financial-Stability Tool", Jackson-Hole conference working paper, September 2016

Annex I: Sovereign investor base shifts per country grouping

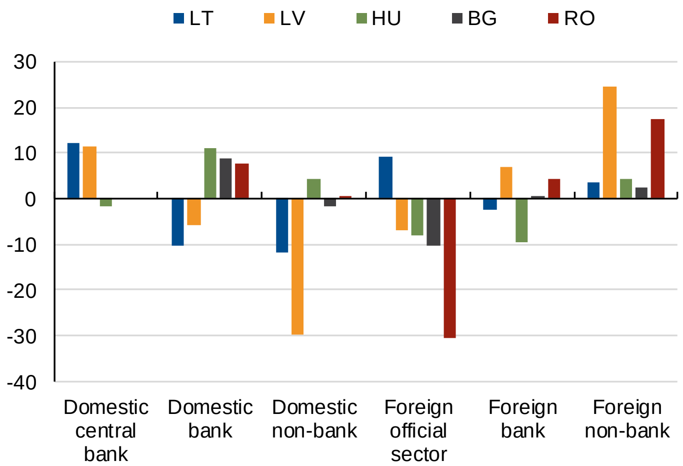
Changes in investor base shares: EA core 2008-18
pps



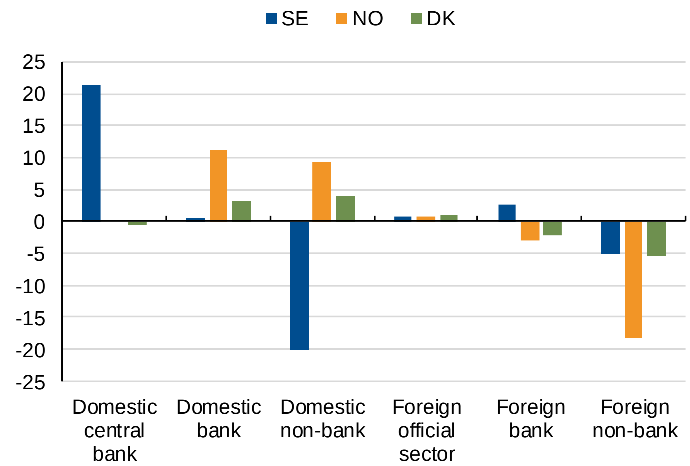
Changes in investor base shares: EA periphery 2008-18
pps



Changes in investor base shares: CEE 2008-18
pps

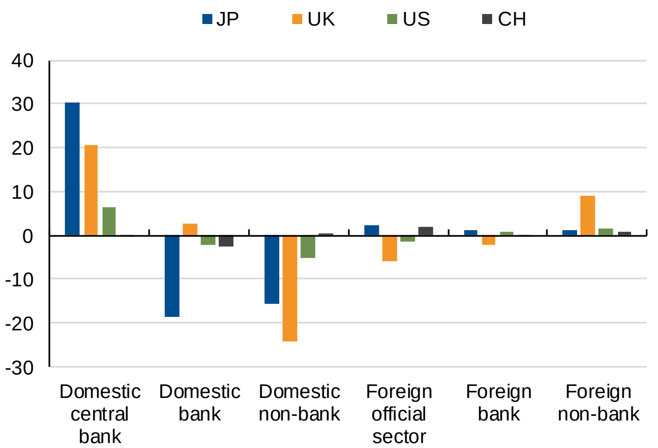


Changes in investor base shares: Nordics 2008-18
pps

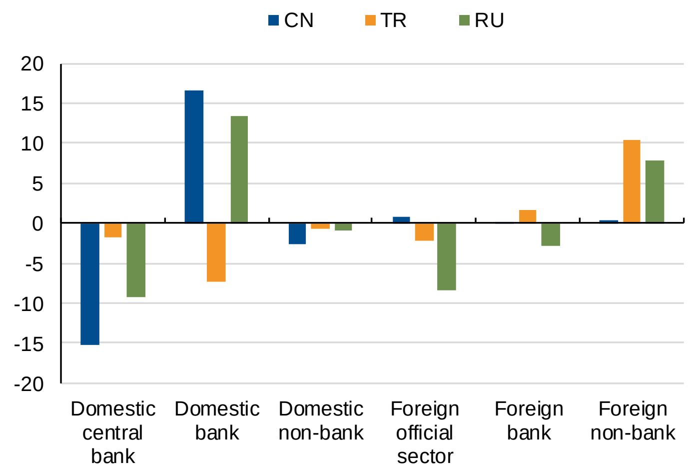


Source: IMF Working Paper, Scope Ratings GmbH

Changes in investor base shares: Reserve currency 2008-18
pps



Changes in investor base shares: Emerging markets 2008-18
pps



Source: IMF Working Paper, Scope Ratings GmbH

Annex II. Shifts in the investor base per institutional sector, 2008 to 2018 (pps)

Country/Region		Domestic central bank	Domestic banks*	Domestic non-bank*	*Domestic total**	Foreign official*	Foreign bank*	Foreign non-bank*	*Foreign total**
Euro area	Austria	17.8	5.1	-12.7	*-7.5*	6.7	3.2	-2.3	*7.5*
	Belgium	13.7	-3.7	1.3	*-2.4*	5.2	-0.9	-1.9	*2.4*
	Finland	19.0	5.0	-8.3	*-3.4*	13.0	9.1	-18.7	*3.4*
	France	16.2	-5.7	0.9	*-4.8*	7.8	-1.1	-2.0	*4.8*
	Germany	18.9	-2.6	-5.9	*-8.5*	16.5	-5.3	-2.7	*8.5*
	Greece	-0.9	-8.9	-8.5	*-17.4*	77.1	-24.1	-35.6	*17.4*
	Ireland	21.0	6.3	-16.4	*-10.1*	40.7	1.6	-32.3	*10.1*
	Italy	13.6	9.1	-3.4	*5.8*	6.6	-6.6	-5.7	*-5.8*
	Latvia	11.6	-5.0	-28.8	*-33.8*	-4.7	8.6	29.9	*33.8*
	Lithuania	12.0	-9.4	-11.3	*-20.7*	10.6	-1.4	11.5	*20.6*
	Netherlands	21.6	7.2	20.4	*27.6*	1.4	0.6	-29.6	*-27.6*
	Portugal	12.7	12.1	-2.3	*9.8*	21.8	-12.1	-19.4	*-9.8*
	Slovenia	21.1	-7.9	-23.7	*-31.6*	10.1	-7.4	28.9	*31.6*
	Spain	17.8	-7.4	-2.4	*-9.8*	-0.8	-5.0	15.7	*9.8*
Nordics	Denmark	-0.6	3.0	3.7	*6.7*	1.0	-2.2	-5.5	*-6.7*
	Norway	0.0	11.1	9.3	*20.5*	0.7	-2.9	-18.3	*-20.5*
	Sweden	21.3	6.2	-12.0	*-5.9*	1.2	5.3	-0.7	*5.9*
Reserve Currency	Japan	30.2	-8.4	-3.1	*-11.5*	4.7	2.4	4.4	*11.5*
	Switzerland	0.0	-2.7	0.5	*-2.1*	1.8	-0.5	0.8	*2.1*
	United Kingdom	20.6	4.7	-13.3	*-8.5*	-2.4	-1.3	12.3	*8.5*
	United States	6.4	-1.3	-2.2	*-3.4*	0.1	1.3	2.1	*3.4*
Non EA Emerging Markets	Bulgaria	0.0	8.9	-1.6	*7.3*	-10.5	0.6	2.5	*-7.3*
	China	-15.2	3.7	-4.3	*-0.6*	0.4	0.0	0.2	*0.6*
	Hungary	-1.7	10.8	3.7	*14.5*	-8.5	-9.7	3.7	*-14.5*
	Romania	0.0	7.8	0.7	*8.5*	-30.5	4.4	17.5	*-8.5*
	Russia	-9.2	10.9	-5.0	*5.9*	-9.4	-3.4	6.9	*-5.9*
	Turkey	-1.8	-8.5	-1.0	*-9.6*	-2.5	1.6	10.5	*9.6*
Average		9.8	1.5	-4.6	*-3.1*	5.8	-1.7	-1.0	3.1

* Figures presented here relate to changes in residual shares which exclude central bank holdings from the total debt stock

Source: IMF Working Paper, Scope Ratings GmbH

- **Euro area:**

Domestic investors have largely reduced their residual holdings of sovereign government debt, particularly non-banks. The Netherlands is the exception: its sovereign investor base shifted the most to domestic institutions. Domestic banks have also decreased their holdings of domestic sovereign debt, with the exceptions of Portugal (+12.1pps), Italy (+9.1pps), the Netherlands (+7.2pps), Ireland (+6.3pps), Austria (+5.1pps) and Finland (+5.0pps). Among the euro area periphery, Spain is a notable exception as the residual holdings of sovereign debt by Spanish banks decreased over the 2008-18 period by 7.4pps.

Foreign investors have reacted very heterogeneously over the period across the euro area. Foreign official creditors have markedly increased holdings in Greece (+77.1pps), Ireland (+40.7pps), and Portugal (+21.8pps), reflecting the crisis intervention. Conversely, foreign banks have reduced holdings across the euro area except for in Finland (+9.1pps), Latvia (+8.6pps), Austria (+3.2pps), Ireland (+1.6pps) and the Netherlands (+0.6pps). Foreign non-banks have increased their residual holdings in Latvia (+29.9pps), Slovenia (+28.9pps), Spain (+15.7pps) and Lithuania (+11.5pps) but reduced it particularly in Greece (-35.6pps), Ireland (-32.3pps), the Netherlands (-29.6pps), Portugal (-19.4pps) and Finland (-18.7pps).

- **Nordics:**

In Sweden, the only Nordic country conducting QE, domestic investors have reduced their residual holdings of sovereign debt overall, driven by non-banks (-12.0pps) and somewhat offset by banks (+6.2pps). Conversely, domestic investors (both banks and non-banks) have increased holdings in Norway (+20.5pps) and Denmark (+6.7pps) at the expense of foreign holders.

- **Reserve currency**

The large interventions by the Bank of Japan have largely substituted domestic banks (-8.4pps) and domestic non-banks (-3.1pps) while the share of all foreign investor types has increased slightly (+11.5pps). In the UK, the share of domestic banks has increased slightly (+4.7pps) whereas that of domestic non-banks has decreased significantly (-13.3pps). Interestingly, the decline is offset by the increased holdings by foreign non-banks (+12.3pps). The share of domestic (foreign) investors has declined (increased) slightly by -2.1pps (+2.1pps) in Switzerland and by -3.4pps (+3.4pps) in the United States.

- **CEE and euro area emerging markets**

Domestic banks have increased their respective debt holdings in all six countries except for in Turkey (-8.5pps). Foreign banks have decreased their respective shares in Hungary (-9.7pps) and Russia (-3.4pps) only. The declining holdings among the foreign official sector across all countries (except China, +0.4pps) reflect the end of crisis-era interventions such as in Romania (-30.5pps) and lower foreign central bank purchases. For all countries, foreign non-banks have increased their shares, particularly in Romania (+17.5pps), Turkey (+10.5pps) and Russia (+6.9pps).

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