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David Cronin and Peter Dunne*

Have Sovereign Bond Market Relationships Changed in the Euro Area? Evidence from Italy

The Italian sovereign bond market experienced considerable disruption in May 2018 and subsequent months amid concerns about the fiscal implications of political developments in Italy. This episode is used to examine relationships among the euro area bond markets some six years after the euro area sovereign bond market crisis of 2009-2012. The main finding is that turbulence in a periphery Member State's bond market (in this case, Italy's) continues to have its strongest cross-border effects on other periphery countries' markets, while core Member States react by disengaging from the sovereign bond market where the disruption originates. The core-periphery distinction identified among the 11 euro area Member States during the crisis then remains broadly intact. The implication for policy is that adverse country shocks continue to have asymmetrical effects within the euro area sovereign bond market. An emphasis on the sustainability of national public finances remains necessary, both to protect individual sovereigns against adverse market developments and to reduce the spillover of such shocks to other Member States.

A feature of the economics literature studying the 2009-2012 euro area sovereign bond crisis is the recognition that country-specific shocks became more prominent and tended to have asymmetrical effects on other Member States' bond markets. While developments in individual countries' bond markets tended to have pan-euro area effects prior to spring 2010, idiosyncratic shocks thereafter registered relatively strongly on some Member States' markets, but not on others.

The core-periphery distinction during the euro area sovereign bond crisis

A dichotomy in behaviour between two country groupings, the 'core' (Germany, France, Austria, Finland, Belgium and the Netherlands) and the 'periphery' (Portugal, Italy, Ireland, Greece and Spain), became evident during the crisis. The periphery countries saw their sovereign bond spreads over the core increase as concerns about their public finances and the health of their banking sectors arose. The behaviour of these two groupings became distinct from one another with adverse shocks in a peripheral Member State spilling over to other countries in that grouping but having much less effect on the core.[1]

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* The views in this article are those of the authors and do not necessarily reflect those of the Central Bank of Ireland or the European System of Central Banks.

1 See C. Caceres, V. Guzzo, M. Segoviano: Sovereign Spreads: Global Risk Aversion, Contagion, or Fundamentals?, IMF Working Paper No. 10/120, 2010, International Monetary Fund; C. Garcia-de-Andoain, M. Kremer: Beyond Spreads: Measuring Sovereign Market Stress in the Euro Area, in: Economics Letters, Vol. 159, No. C, 2017, pp. 153-156; S. Dajcman: Non-linear Spillovers between Euro Area Sovereign Bond Markets, in: Economics and Sociology, Vol. 8, No. 1, 2015, pp. 28-40; R. McDonald, V. Sogiakas, A. Tsopanakis: Volatility Co-movements and Spillover Effects within the Eurozone Economies: A Multivariate GARCH Approach Using the Financial Stress Index, in: Journal of International Financial Markets, Institutions and Money, Vol. 52, No. C, 2018, pp. 17-36; R. Beetsma, M. Giuliodori, F. De Jong, D. Widijanto: Spread the News: The Impact of News on the European Sovereign Bond Markets during the Crisis, in: Journal of International Money and Finance, Vol. 34, No. C, 2013, pp. 83-101. The literature, nevertheless, tends to the view that episodes of pure contagion (where cross-market correlations increase after fundamental or common links are accounted for) were rare during the euro area sovereign bond crisis. See J. Beirne, M. Fratzscher: The Pricing of Sovereign Risk and Contagion During the European Sovereign Debt Crisis, in: Journal of International Money and Finance, Vol. 34, No. C, 2013, pp. 60-82; P. Claeys, B. Vasicek: Measuring Sovereign Bond Spillover in Europe and the Impact of Rating News, CNB Working Paper No. 7, 2012, Czech National Bank; D. Cronin, T. Flavin, L. Sheenan: Contagion in Eurozone Sovereign Bond Markets? The Good, the Bad, and the Ugly, in: Economics Letters, Vol. 143, No. C, 2016, pp. 5-8; M. Caporin, L. Pelizzon, F. Ravazzolo, R. Rigobon: Measuring Sovereign Contagion in Europe, in: Journal of Financial Stability, Vol. 34, 2018, pp. 150-181.

The turbulence in Italy's sovereign bond market in May 2018

Since 2012, and after Greece decoupled from other Member States at the time of its second bailout,[2] adverse developments of the severity observed in euro area sovereign bond markets during the crisis have been largely absent. Perhaps the most significant non-Greece, post-crisis event occurred in May 2018 when investors became nervous about the fiscal implications of a new government being formed in Italy. The representative yield on ten-year Italian sovereign bonds increased from 1.9% on 15 May to 3.1% two weeks later and then fluctuated around that value for the rest of the year amidst heavy selling of Italian sovereign debt and deteriorating liquidity conditions.[3] Not only were there heightened concerns about Italy's economic performance and adherence to EU fiscal rules but the related standing of its banks came under scrutiny, including their substantial holdings of domestic sovereign debt. The sovereign's relatively large gross financing needs over the short-to-medium term were also in the spotlight.[4] These developments occurred at a time when unease about fiscal performance in advanced economies remained relevant. The sovereign debt ratio in the OECD area increased from 50% of GDP in 2007 to 74% in 2017, with some 40% of outstanding marketable debt due to be serviced within the following three years.[5] In the euro area, sovereign debt ratios at the end of 2017 remained above 100% of GDP in Portugal, Belgium, Greece and Italy.

The experience of the 2009-2012 crisis should lead euro area policymakers to remain vigilant about how adverse shocks in one sovereign bond market can affect market conditions in other Member States and in the area more generally. Against this background, the developments in the Italian sovereign bond market from May 2018 onwards can serve as a basis for examining how national sovereign bond markets are now interacting with one another in the euro area. In particular, events in the Italian sovereign bond market in 2018 may shed light on how disturbances in one periphery Member State's market affect other euro area markets and whether a dichotomy in behaviour between core and periphery Member States' markets still exists more than six years after the crisis. This is the focus of our analysis.

2 T. Conefrey, D. Cronin: Spillover in Euro Area Sovereign Bond Markets, in: The Economic and Social Review, Vol. 46, No. 2, 2015, pp. 197-231.
3 European Central Bank (ECB): Financial Stability Review, November 2018, European Central Bank.
4 International Monetary Fund (IMF): Fiscal Monitor: Capitalizing on Good Times, Washington 2018, International Monetary Fund.
5 OECD: Sovereign Borrowing Outlook, Paris 2018, OECD Publishing.

Preliminary analysis of sovereign bond market data

A precise dating of the euro area sovereign bond market crisis is difficult to achieve. The period from November 2009, when Greece indicated it was making a sharp upward revision to its government deficit projections, to August 2012, when the Outright Monetary Transactions (OMT) programme was adopted and ECB President Draghi's "whatever it takes" speech had been given, is an approximate timespan.[6]

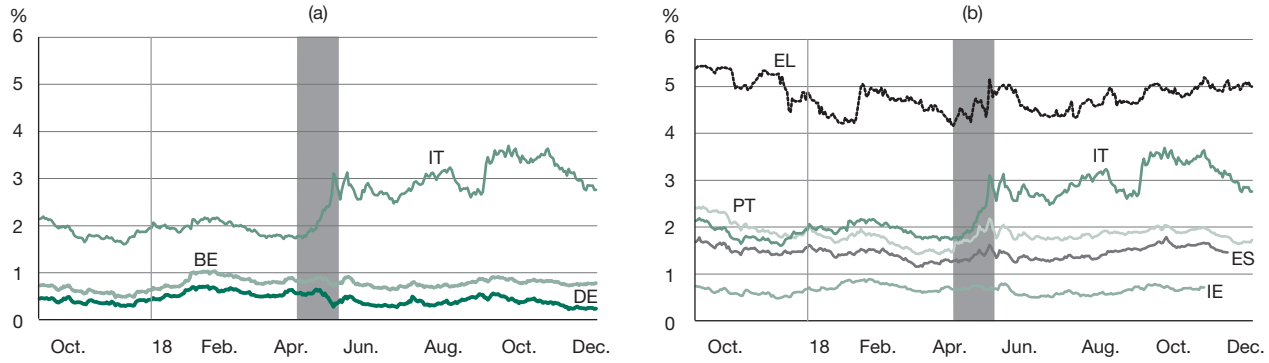
Development of sovereign bond yields

During the crisis, Italian long-term (ten-year) sovereign bond yields generally moved in an end-of-day range of 3.7% to six percent. Yield values in excess of six percent (reaching a peak of 7.1%) occurred between late 2011 and early 2012. In the post-crisis period, and in line with other Member State bonds, Italian long-term sovereign bond yields declined steadily, to low values of just above one percent in August 2016. In the closing months of that year, there was some upward movement in yields to values close to two percent.

There was little change in Italian (IT) long-term yields during 2017, as they hovered around two percent (Figure 1).[7] Their behaviour during 2018 was much different. Disruption to the Italian sovereign bond market took effect in mid-May as a new Italian government was being formed and financial markets became concerned about its implications for fiscal policy.[8] There was also market unease about the possible effects on Italian banks, particularly on Monte dei Paschi di Siena,[9] and heavy selling of Italian sovereign debt was reported.[10] There was a sharp rise in Italian long-term bond yields to close to three percent by late May. Panel (a)[11] of Figure 1 shows that its spread over the German (DE) ten-year bond yield more than doubled

6 D. Cronin, P. Dunne: How Effective are Sovereign Bond-Backed Securities as a Spillover Prevention Device?, in: Journal of International Money and Finance, Vol. 96, 2019, pp. 49-66.
7 Figure 1 shows yield values from 2 October 2017 onwards. This reflects there being little movement in most Member States' yield values during 2017. Plotting the charts from early October 2017 onwards allows the reader to see movements in yield values in 2018 more clearly and is in line with later charts, which also have that month as their starting date.
8 J. Politi, K. Allen: Italian populist parties accuse markets of 'blackmail', Financial Times, 16 May 2018.
9 R. Smith: Italian bond fears turn to Monte Paschi debt, Financial Times, 23 May 2018.
10 K. Allen, P. Stafford: Italian bonds sink to seven-month low on government deal, Financial Times, 18 May 2018.
11 Only Belgium and Germany's long-term yields among the original core member states (the others being the aforementioned Austria, Finland, France and the Netherlands) are shown in panel (a) as each of those six member states' yields are close to one another in terms of value and movement during the period. Consequently, only Belgium and Germany yields are shown in that chart to avoid visual clutter.

Figure 1
Daily ten-year sovereign bond yields



Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Thomson Reuters Datastream.

from 1.2% to 2.5%. For the rest of the year, Italian long-term yields varied at a range of 2.5% to 3.6%, with the highest rates being recorded in the second half of October and first half of November. Italian yields declined in the closing six weeks of 2018. Panel (b) of Figure 1 shows how the other periphery Member States' long-term bond yields behaved in 2018. Those of Portugal (PT), Spain (ES) and Greece (EL) moved upwards during May, albeit to a lesser extent than Italy's, while Ireland's (IE) remained broadly unchanged.

The Composite Indicator of Sovereign Stress (CISS)

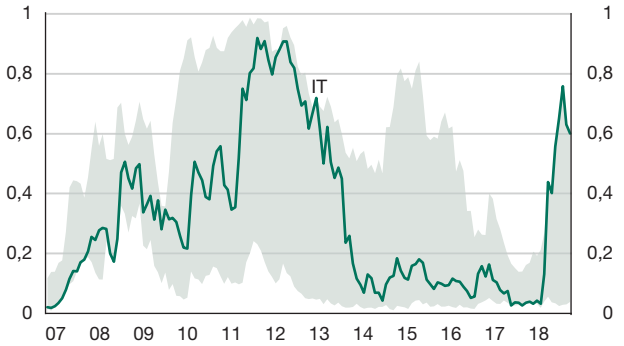
Changes in yield values are only one indicator of bond market conditions. The Composite Indicator of Sovereign Stress (CISS), calculated according to Hollo et al.'s methodology and published by the European Central Bank, measures the level of stress in individual Member State sovereign bond markets on a monthly basis.[12] The indicator is calculated using two-year and ten-year bond yield spreads over the euro swap interest rate, realised yield volatilities and bid-ask bond spreads. These data are aggregated into a composite indicator based on time-varying cross-correlations between individual stress indicators, with estimated stress levels falling within a range of zero to one. In this way, the CISS captures the degree of market stress arising on a month-by-month basis.

Figure 2 plots the range of CISS values across the 11 euro area Member States from January 2007 (the first month for which CISS values are available) up to December 2018. The range expanded considerably during 2018 owing to a rise in Italy's composite indicator that moved from having the lowest CISS values between November 2017 and February 2018 to the highest from June through December 2018. Its CISS value increased from 0.03 in April to 0.13 in May and continued to rise thereafter, reaching levels experienced during the late 2011-mid 2012 period (with a peak value for 2018 of 0.76 recorded in October).

Assessing sovereign bond market relationships

The previous section indicates relatively stressful conditions arising in the Italian sovereign bond market during 2018, in particular from May onwards. The disturbances in the Italian sovereign bond market can be used to assess euro area sovereign market relationships in 2018 and in particular to see whether transmission patterns of na-

Figure 2
Composite Indicator of Sovereign Stress



Note: The shaded area reflects the range of indicator values in each month among the 11 euro area Member States.

Source: ECB Statistical Data Warehouse.

12 D. Hollo, M. Kremer, M. Lo Duca: CISS – a Composite Indicator of Systemic Stress in the Financial System, ECB Working Paper No. 1426, Frankfurt 2012, European Central Bank.

tional bond market shocks across the euro area similar to those observed during the crisis continue to arise or not.

Two econometric methodologies[13] are employed in assessing cross-market interactions: first, a time-varying correlation methodology (combining a covariance compilation approach with a Bayesian stochastic volatility estimator) and secondly, a spillover index approach. The dataset in both applications is the same. It comprises day-to-day changes in the spread of the national long-term (ten-year) sovereign bond yield over EONIA for the period 2 January 2017 to 28 December 2018 for each of the aforementioned 11 euro area Member States.

Correlation analysis to assess interactions between euro area sovereign bond markets

Comparing correlation values between pairings of sovereign bonds over time is one method of assessing the level of engagement between them. Conditional correlation methodologies account for time-varying behaviour and have been employed to show how euro area sovereign bond markets started to re-engage with one another in mid-2012 following a number of pan-euro area policy initiatives in the first half of that year.[14] Here, the recent approach of Gibson et al. of providing covariance estimates from conditional variances is used.[15] It is a computationally advantageous approach that allows conditional covariance matrices of unlimited size to be formed; it still requires the econometrician to estimate only univariate conditional variances, however. Variance estimates are obtained from a Bayesian stochastic volatility model developed by Chan and Grant to provide the conditional correlation estimates.[16]

The interaction between the sovereign bond markets of Italy and core/periphery countries

Figure 3a shows the estimates of Italy's conditional correlations to each of the six countries identified as core Member States in the literature on the 2009-2012 crisis. The correlations are plotted from the start of October 2017 through to late December 2018.[17] In the closing months of 2017, those bilateral correlations are usually highly positive but there is some decline in correlation values in the opening months of 2018. Large changes in correlation values occur during May (the shaded area in each of the individual panels). Italy's correlation with each of the six Member States falls into negative values during the month, reflecting upward movement in Italy yields occurring alongside little change or a downward movement in core Member States' yields.[18] There is some recovery in correlation values to previous positive values in June and July but low positive and, more usually, negative values arise from August through until November, before a sharp ratcheting up in correlation values in December.

Where the pattern of correlation values between Italy and each of the six core Member States in Figure 3a are quite similar to one another over time, there is greater variation across its correlations to the periphery Member States in the panels of Figure 3b. Both Portugal and Spain maintain high correlation values with Italy through May 2018. Prior to May, Greece-Italy bond yield correlation values were relatively low, most likely reflecting Greece's detachment from other euro area Member States markets since the crisis. They rose steadily throughout that month to a value close to one by end-month before declining somewhat thereafter. In contrast to the other periphery Member States, Italy-Ireland correlation values decline sharply during May 2018. Indeed, the correlation values between the two countries show a pattern and similar correlation values over time to what arises between Italy and each of the core Member States in Figure 3a.

13 The first econometric technique provides correlations between pairs of bond spread variables (in this case, between Italy and each of the other ten member states) which produce positive or negative values. Unlike the bilateral correlation values, the spillover index approach allows a relative ranking of the effects of developments in the Italian bond market on the other ten markets, and in the opposite direction (i.e. from those markets to Italy's). These two approaches then provide different but complementary information in assessing euro area sovereign bond market developments in 2018.

14 D. Cronin: Interaction in Euro Area Sovereign Bond Markets During the Financial Crisis, in: Intereconomics, Vol. 49, No. 4, 2014, pp. 212-220, available at https://archive.intereconomics.eu/year/2014/4/interaction-in-euro-area-sovereign-bond-markets-during-the-financial-crisis/.

15 H.D. Gibson, S.G. Hall, G.S. Tavlas: A Suggestion for Constructing a Large Time-Varying Conditional Covariance Matrix, in: Economics Letters, Vol. 156, 2017, pp. 110-113.

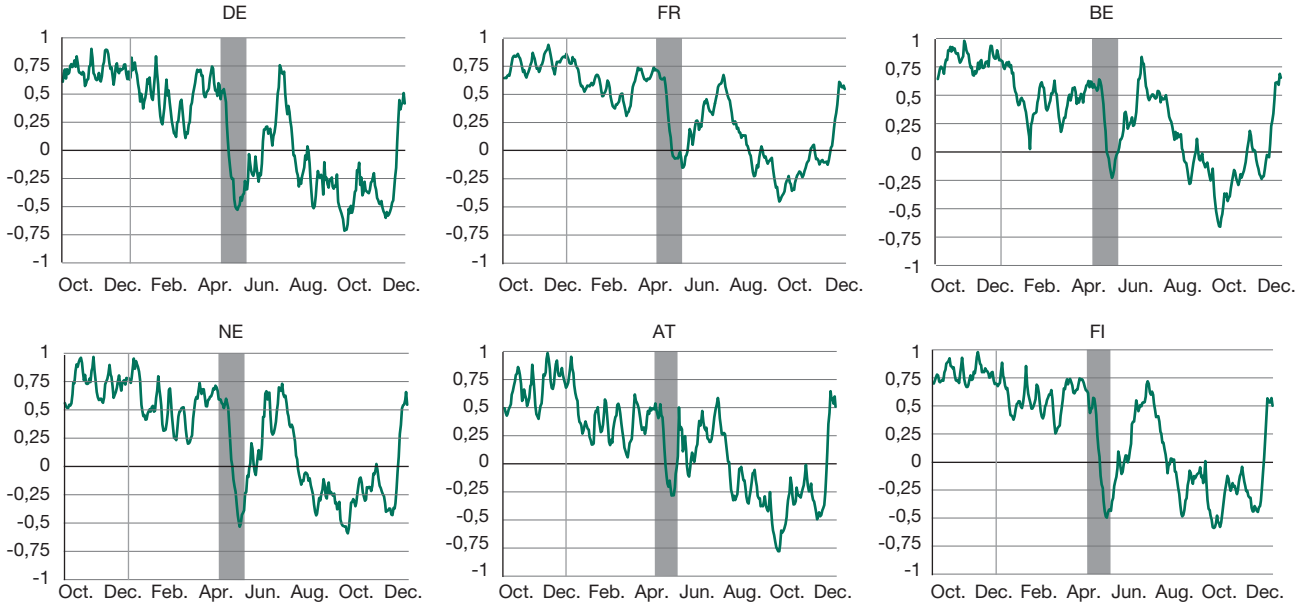
16 J. Chan, A. Grant: Modeling Energy Price Dynamics: GARCH versus Stochastic Volatility, in: Energy Economics, Vol. 54, 2016, pp. 182-189.

17 This starting point of the plots again reflects the focus being on sovereign bond market behaviour in 2018 and, therefore, the closing months of 2017 act as a backdrop to what follows. Moreover, the first 200-day estimation window reported in the spillover index analysis has an end-date in early-October 2017.

18 These negative correlations reflect a large sell-off of Italian sovereign bonds, particularly in the second half of May 2018 (see J. Politi, K. Allen, op. cit.). The funds received by investors from those sales would have been available to invest in 'safer' assets, such as the sovereign bonds of the core Member States. The German sovereign bond yields declined from 0.6% to 0.3% in the final two weeks of May 2018, suggesting that there was a substitution by investors from Italian to German bonds at that time.

Figure 3a

Conditional correlations to Italy – core Member States

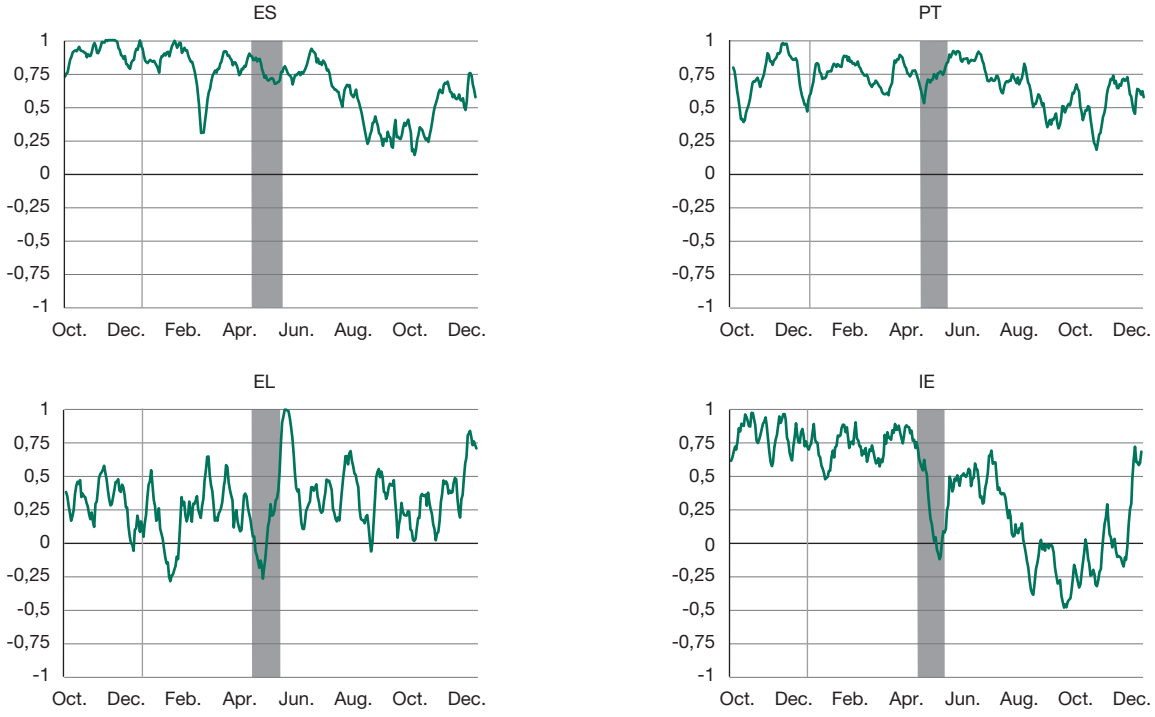


Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

Figure 3b

Conditional correlations to Italy – periphery Member States



Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

Table 1
Total Spillover Index and components – full sample estimates
in %

	ES	PT	NE	IT	IE	EL	DE	FR	FI	BE	AT	From others
ES	16.7	9.9	8.5	8.3	10.5	1.2	7.9	9.9	8.7	9.9	8.5	83.3
PT	12.7	21.1	7.2	9	9.7	1.4	6.1	9	7.2	9.4	7.3	79
NE	7.0	4.6	13.9	2.9	11.8	0.5	12.1	12	11.9	11.8	11.6	86.2
IT	14.2	11.9	6	28	7.9	2.8	4	7.5	5.4	7.2	5.2	72.1
IE	8.3	5.9	11.4	3.7	13.5	0.8	11.1	11.8	11.2	11.5	10.8	86.5
EL	4.8	4.6	2.4	6.8	3.8	65.7	1.9	2.7	1.9	2.6	2.9	34.4
DE	6.8	4	12.7	1.9	12.1	0.4	14.5	11.1	12.8	11.7	11.9	85.4
FR	8.2	5.9	11.9	3.6	12.1	0.7	10.5	13.8	11.0	11.8	10.5	86.2
FI	7.3	4.6	12.2	2.6	11.8	0.5	12.4	11.3	14.2	11.5	11.5	85.7
BE	8.1	5.9	11.6	3.4	11.8	0.5	10.9	11.7	11.1	13.8	11.1	86.1
AT	7.2	4.8	12	2.6	11.6	0.7	11.9	10.9	11.8	11.7	14.9	85.2
Contribution to others	84.6	62.1	95.9	44.8	103.1	9.5	88.8	97.9	93	99.1	91.3	870.1
											TSI =	79.1

Source: Authors' estimations.

Spillover analysis to quantify interconnectedness

Using forecast error variance decompositions from vector auto-regressions (VARs), Diebold and Yilmaz provide a spillover index approach to quantify interconnectedness between financial variables.[19] It has been applied previously to assessing relationships between euro sovereign bond markets during the financial crisis.[20] Spillovers are positive in value as they represent shares (adding up to 100%) of how much of a variable's evolution over time (e.g. the Italian bond spread) is explained by its own history and by that of the other variables (the other ten bond spreads) in the system, irrespective of whether those influences are negative or positive in nature. Thus, while the dynamic correlation approach captures the bilateral co-movement of bond spreads over time, the spillover index goes a step further in showing the relative importance of developments in Italy's bond market to other Member States', as well as their influence on Italy.

At a more technical level, the decompositions quantify what proportion of a variable's forecast errors are attributable to the variable's own past shocks and to other variables' past shocks. Diebold and Yilmaz propose a method of tabulating those decompositions across the system of variables under consideration and of calculating average spillover values.

Spillovers from other countries to Italy's bond market

Their approach can be explained through the example of Table 1. It provides the full sample (from 2 January 2017 to 31 December 2018) of decompositions for the 11 variable dataset.[21] Given that it is the country of specific interest, Italy can be used to explain the information in the table. In the row marked 'IT', the on-diagonal entry can be seen to have a value of 28%, indicating that prior shocks in its own yields (own-shocks) account for just over one-quarter of Italian bond yield developments over time, which is relatively high among the 11 Member States.[22] The off-diagonal entries in the Italy row – the relative influence of cross-variable shocks on Italian bond yields – by corollary must add up to 72.1%, as shown in the final column of Table 1. Spain (at 14.2%) and Portugal (at 11.9%) are the highest other-country contributors to Italy's decomposition. Germany, at four percent, has the least influence

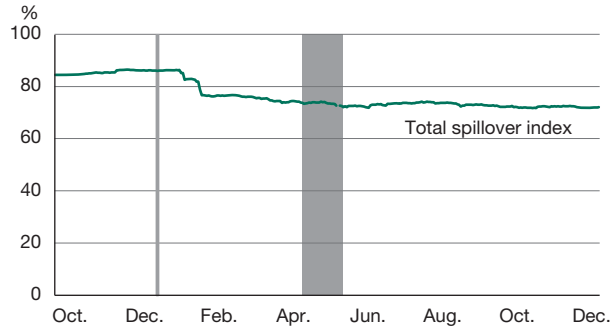
19 F.X. Diebold, K. Yilmaz: Better to Give than to Receive: Predictive Directional Measurement of Volatility Spillovers, in: International Journal of Forecasting, Vol. 28, No. 1, 2012, pp. 57-66.

20 P. Claeys, B. Vasicek, op. cit.; F. Fernandez-Rodriguez, M. Gomez-Puig, S. Sosvilla-Rivero: Using Connectedness Analysis to Assess Financial Stress Transmission in EMU Sovereign Bond Market Volatility, in: Journal of International Financial Markets, Institutions and Money, Vol. 43, 2016, pp. 126-145; T. Conefrey, D. Cronin, op. cit.

21 The VAR lag length is four and the forecast horizon for the error variance decompositions is 10 days. Generalised, as opposed to orthogonalised, decompositions are used meaning that no a priori ordering is imposed on the 11 variables that would restrict shocks on some from having no effect on others in the initial period in which the shocks occur.

22 Only Greece has a higher own-shock share at 65.7%.

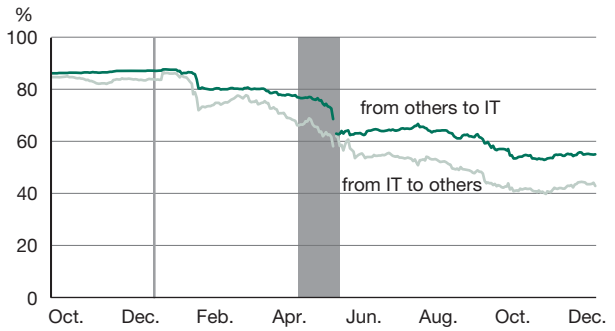
Figure 4
Total Spillover Index – rolling sample



Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

Figure 5
Total spillover to and from Italy – rolling sample



Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

among the euro area 11 on Italy's sovereign bond market over the two-year sample, aside from Greece.

Spillovers from Italy's bond market to other countries

The off-diagonal entries in the column "IT" in Table 1 indicate Italy's influence on the other euro area Member States' bond markets, i.e. the extent to which shocks in the Italian bond market spill over to the other markets. The last row of the table suggests that its cumulative influence (at 44.8%) on others is relatively low. There is some regularity in Italy's spillovers to other countries compared to what it receives from others, with Portugal and Spain the highest at nine percent and 8.3%, respectively, and Germany the lowest at 1.9%. Its spillover of shocks to Greece is relatively high at 6.8%. A Total Spillover Index (TSI) value, which gives the average spillover to/from Member States, is shown in the final row of the table, with a value of 79.1% (calculated as the sum of the country entries in the final table column, amounting to 870.1, divided by 11). In summary, Table 1 indicates Italy's spillover from and to other Member States being relatively low in general over the entire 2017-2018 period and, at the country level, it having its strongest interactions with Portugal and Spain.

Development of spillover effects over time

The next step is to estimate the VARs on a 200-day rolling window basis. This allows the analyst to see how the TSI and its country components vary over time, offering insight into how market relationships develop. The initial window ends on 9 October 2017 and the final window on 28 December 2018, implying 320 windows are estimated in total. Figure 4 shows that the TSI (the average spillover across all 11 Member States) experienced a moderate decline over the period, mainly owing to a steep decline arising in late January and early February 2018 with it otherwise remaining broadly unchanged from window to window. In contrast, Figure 5 shows gross spillovers from Italy to other Member States, and in the opposite direction, declining steadily throughout much of 2018, from values above 80% at the start of the year to 42% and 55%, respectively, by year's end. Consequently, Italy became more isolated during 2018. Large falls in spillover values occured in May, the month when turbulence in its sovereign bond market became apparent.

Although a general fall in spillover values from Italy to others - and in the opposite direction - occurred, Figures 6a and 6b indicate differing experiences arising between Italy and the core and periphery country groupings. Figure 6a shows Italy's spillovers to and from each of the core Member States being much lower at year's end (with values of close to zero percent in most cases) than at the start of 2018. A steep decline in interaction between Italy and each core country arises during May.[23]

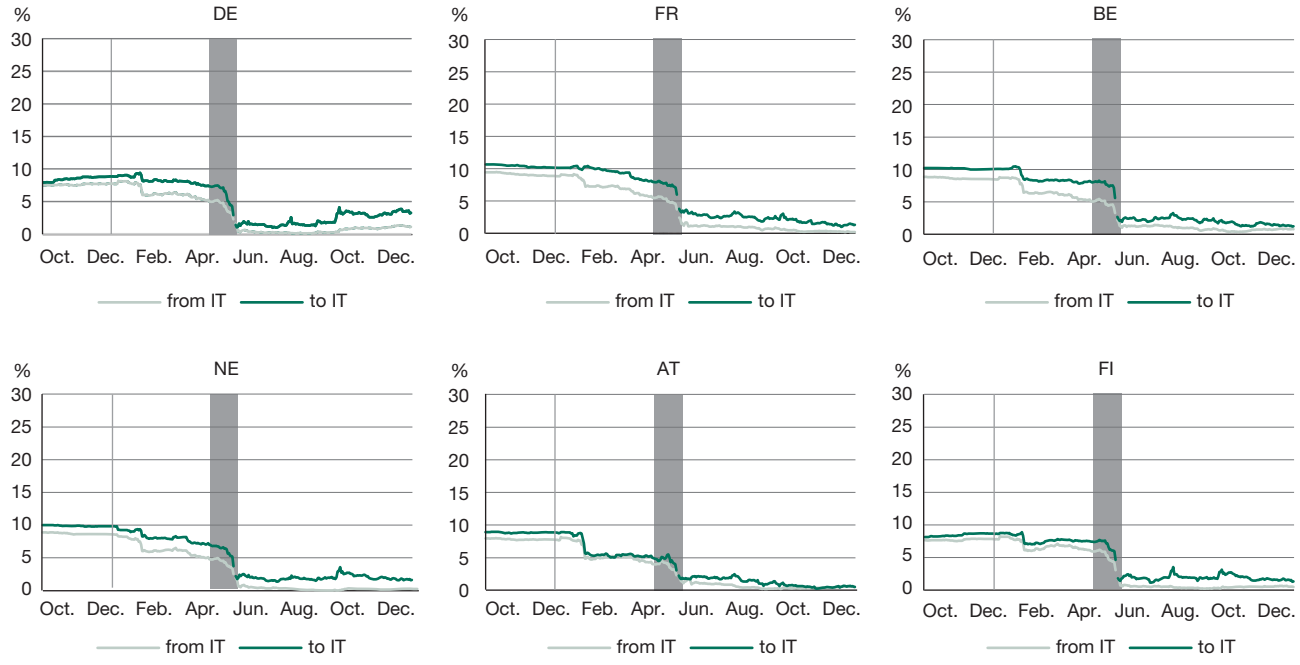
Figure 6b shows a sharp pickup in bi-directional spillover flows between Italy and, in turn, Portugal, Spain and Greece in May.[24] Adverse shocks in a periphery Member State (in this case, Italy) then raised the level of interaction with its crisis-era peers. The exception is Ireland, which,

23 Italy's cumulative spillovers to and from the six core Member States fell from 30.1% and 42.2%, respectively, in the window ending 1 May, to 10.2% and 11.9%, respectively, in the window ending 31 May. By year's end, those cumulative spillover values had declined further to 3.3% and 9.3%, respectively.

24 In contrast to its interaction with the core Member States, Italy's cumulative spillovers to and from Portugal, Spain and Greece rose from 29.5% and 24.4%, respectively, in the window ending 1 May, to 47.1% and 44.7%, respectively, in the window ending 31 May. In the final estimation window (ending 28 December), cumulative spillover values of 38.9% and 45%, respectively, are recorded.

Figure 6a

Spillovers to and from Italy – core Member States

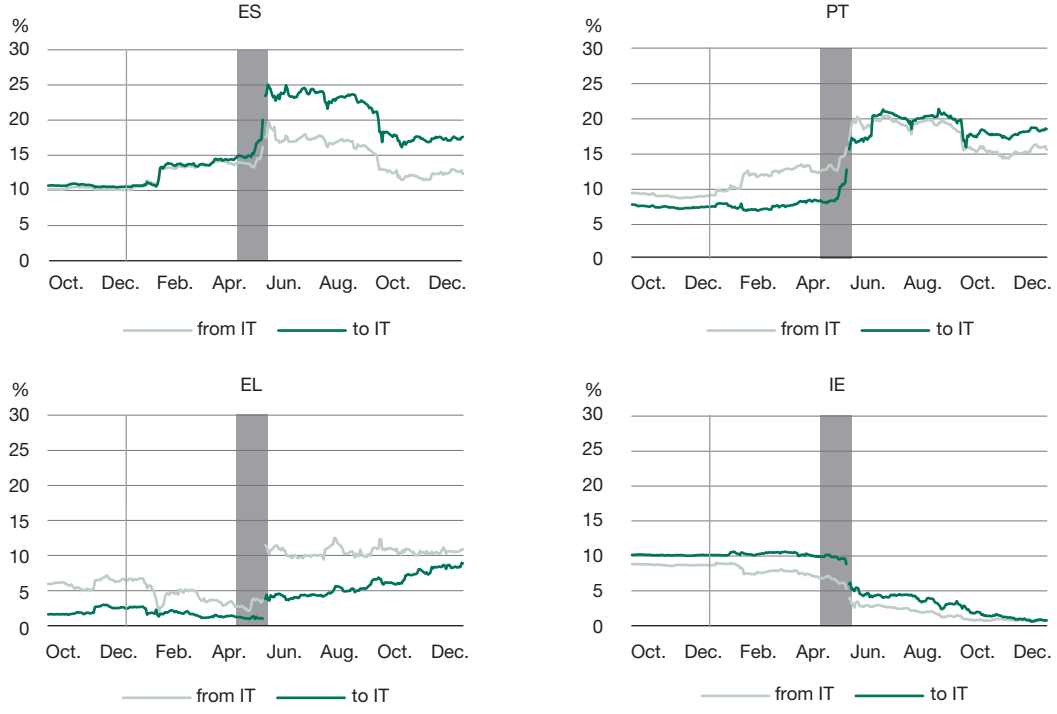


Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

Figure 6b

Spillovers to and from Italy – periphery Member States



Note: Vertical line indicates first trading day of 2018; shaded area is May 2018.

Source: Authors' estimations.

as the final panel of Figure 6b shows, exhibits similar behaviour to the six core Member States during 2018. By the end of the year, its spillovers to and from Italy were less than one percent. This reflects a steady decoupling of Irish sovereign bonds from those of the other periphery Member States since 2012 and its re-engagement with core sovereign bond markets. These changes may be explained by improvements in both its fiscal position and its banking sector as well as undue pessimism towards Ireland having dissipated over time.[25]

Adverse country shocks have asymmetrical effects

In this article, turbulence in the Italian sovereign bond market from May 2018 onwards is used as a basis for considering whether relationships identified among groups of Member States during the 2009-2012 euro area sovereign bond market crisis continue to hold. While the extent of the disturbances in Italy in 2018 were smaller in scale than what occurred between 2009 and 2012, the econometric evidence indicates that important features of the crisis arise again in 2018: first, the Member State where the shocks originate (in this case, Italy) becomes relatively isolated from other Member States' bond markets; secondly, when that Member State is in the periphery grouping, adverse developments in its market generate greater interaction with other periphery Member States' markets. At the same time, its relationships with core Member States' markets are weakened.

The core-periphery divide then remains in place in the euro area and the core grouping remains largely isolated from shocks arising in the periphery country grouping. One distinction from the 2009-2012 crisis, however, is that Ireland's sovereign bond market behaved like those of the core Member States in 2018, whereas it was categorised as a periphery Member State during the crisis.

Sustainable public finances can reduce spillovers

These findings re-emphasise the need for continued improvements in the national public finances, through reductions in public deficit and debt levels, and a commitment to adhere to EU and other fiscal rules over time. The need to break any remaining sovereign-banking sector nexus also arises, including any perception in the public's mind that governments stand ready to cover bank losses and capital difficulties. Ireland's move from periphery to core Member State is instructive in this regard. It implemented an EU-IMF bailout programme agreed in 2010, maintained fiscal discipline after exiting the programme, and put in place banking policies that addressed difficulties in that sector, including measures separating bank capital/solvency issues from the state. These efforts have been recognised by financial markets through a drop in Irish bond yield values and market stress levels (as measured by the CISS) to amongst the lowest in the euro area. These improvements proved resilient to the disturbances in the Italian sovereign bond market during 2018.

Bond-backed securisation may reduce spillovers

Beyond the purely fiscal sphere, there is also scope for examining how euro area sovereign bond markets are organised. In recent years, a task force established by the European Systemic Risk Board has been examining how to address the negative effects of bank-sovereign linkages by means of creating a pan-euro area 'safe asset' through a combination of diversification of a proportion of existing Member State bonds and a tranching of the resulting securitised asset. The task force produced a detailed practical assessment of a securitisation that is closely related to the proposal of Brunnermeier et al.[26] The securitisation approach is designed to avoid sensitive political issues, including the mutualisation of sovereign debt.

In a recently revised contribution by Leandro and Zettlemeier, a number of proposals that do not explicitly involve or envisage guarantees of any sovereign's debt by another Member State – or by other states collectively – have been compared with the bond-backed securitisation approach of Brunnermeier et al.[27] Most of these proposals require changes to banking regulation to prevent banks from holding the high-risk tranches of securitisations (or the marginal issuances of national bonds) and to allow them to hold safe sovereign bond-backed securities without additional capital charges. The ultimate aim is to break bank-sovereign linkages that were part of the source of the difficulties in Italy in 2018 and to increase the supply of safe assets that would protect investors from adverse country-specific developments. If well designed, the securitisation proposals could isolate negative developments in a single sovereign bond market and prevent them from spilling over to the safe parts of a bond-backed securitisation and, in doing so, would also protect banks.

25 D. Cronin, P. Dunne, K. McQuinn: Have Irish Sovereign Bonds Decoupled from the Euro Area Periphery, and Why?, in: The Economic and Social Review, forthcoming.

26 See M. Brunnermeier, S. Langfield, M. Pagano, R. Reis, S. Van Nieuwerburgh, D. Vayano: ESBies: Safety in the Tranches, in: Economic Policy, Vol. 32, No. 90, 2017, pp. 175-219. The 2018 ESRB High-Level Task Force Report on Safe Assets can be accessed at https://www.esrb.europa.eu/pub/task_force_safe_assets/html/index.en.html.

27 L. Leandro, J. Zettelmeyer: The Search for a Euro Area Safe Asset, Petersen Institute for International Economics Working Paper No. 18-3, 2019.