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Changes in financial fragmentation in the euro area since 2008

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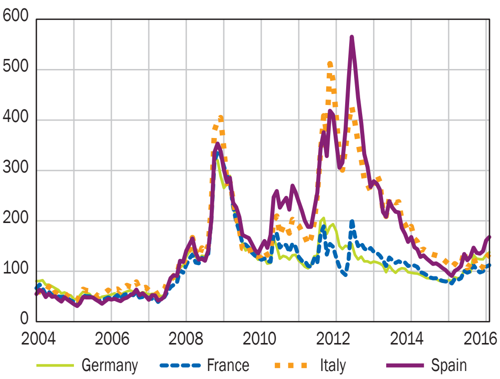
There is said to be financial fragmentation when bond issuers located in the so-called "periphery" face higher credit risk premia than issuers with the same characteristics located in the "core" countries. This financial fragmentation peaked during the sovereign debt crisis and has receded since the announcement of the Outright Monetary Transactions (OMTs) programme by the ECB.

The 2008 financial crisis has been the deepest recession since the 1930's. It has left a double legacy in terms of credit risk. First, the ensuing recession came with a major deterioration of the public finances of most economies. Investors thereafter began to price in credit risks for some the most indebted sovereign issuers, especially at the so-called periphery of the euro area. Second, the credit risk premia for financial and non-financial corporations in these countries also increased to unprecedented levels (Gilchrist and Mojon, 2014). The increasing difference in financial conditions across euro area member states has been labelled "financial fragmentation".

To illustrate this, chart 1 shows the credit risk premia paid by non-financial corporations in France, Germany, Italy and Spain from January 2004 to February 2016. Each country's premia are computed with respect to the German Bund of similar maturity.[1]

C1 Non-Financial Corporate bond spreads

(in basis points)



Source: Horny, Manganelli and Mojon (2016)
Note: corporate bond yield – German Bund.

1 We use the rate on the German Bund as a reference because it is both very liquid and considered by the markets as free of default risk.

Average spreads in the four largest euro area countries co-moved remarkably up to 2010. They split into two groups thereafter. For France and Germany, they have fluctuated between 100 and 200 basis points (bp), slightly above their pre-2008 average of 60bp. For Italy and Spain, they increased in two stages to reach as much as 500bp in mid-2012. After that, they decreased progressively and converged to levels similar to those observed for France and Germany in 2015. Finally, they have risen again but at a much slower pace since September 2015, especially in Italy.

What is financial fragmentation?

However large these cross-country differences are, this does not necessarily imply that there is financial "fragmentation". They may be explained by differences in the corporate bond characteristics. For instance, if issuers located in Italy and Spain are more likely to default than those in France or Germany, it is natural that the investors ask for some additional yield to be compensated for this increased risk. A similar reasoning holds when firms located in Italy and Spain issue bonds with longer maturities than firms in France or Germany. Chart 1 therefore does not indicate that the markets ask for different yields for otherwise similar bonds that differ only in their country of origin.

One definition of financial integration is related to the law of one price. Securities with identical risk and cash flows should command the same price, irrespective of the country of their issuer. Only differences in prices that do not stem from differences in characteristics indicate fragmentation.

We assess the financial integration of the euro area using non-financial corporate bond data. Our approach is the following: since bonds with similar characteristics should provide the same yields, differences in the yields that cannot be explained by differences in the bonds' characteristics indicate financial fragmentation. We therefore aim to strip out from the corporate bond spreads the differences in the bonds' characteristics that influence their pricing, namely differences in default risk and bond duration.

How to measure financial fragmentation?

The key challenge in our empirical approach is to link the differences in bond yields to the differences in their characteristics. While it is quite easy to take into account differences in their residual maturity, to measure the credit worthiness of a debtor is more challenging. To get around this problem, we use Moody's credit ratings.

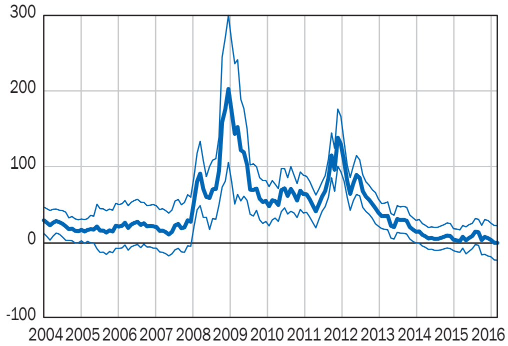
By taking into account the characteristics of bonds (see Box entitled Data), we can break down the yields of individual corporate bond into first a credit risk component, as measured by Moody's ratings, second into a maturity component, and third into a country component. Using this breakdown, we can measure financial fragmentation. Only when the country component of a corporate bond interest rate is "large" can we say that financial fragmentation is material. These country-specific premia, or, if we take a euro area perspective, the euro area-wide aggregate of the country specific components provide us with an accurate indicator of financial fragmentation in euro area bond markets.

The decomposition of credit risk into default risk and country risk

Credit risk premia measure changes in the spread between yields on bonds rated from Baa1 to Baa3 and yields on bonds rated from Aaa to A3 (see Chart 2). Credit risk premia started to increase in the first months of 2008, suggesting that a substantial re-pricing of risk was already under way before the Lehman default. They reached a first peak in December 2008 at more than 170 basis points above their level of January 2004. Then they reached a second peak at 110 basis points above their level of January 2004 at the end of 2011, associated with the euro area sovereign debt crisis. But this peak was much lower than the previous one observed at the end of 2008. The decrease in risk premia since summer 2012 indicates that the yields on securities rated from Aaa to A3 has moved closer to those on bonds rated from Baa1 to Baa3. These risk premia are close to zero at the end of the period. This may reflect a "search for yield" generating, in the current context of very low interest rates, an excess demand for assets with a relatively high default probability.

C2 Credit risk premia

(in basis points)



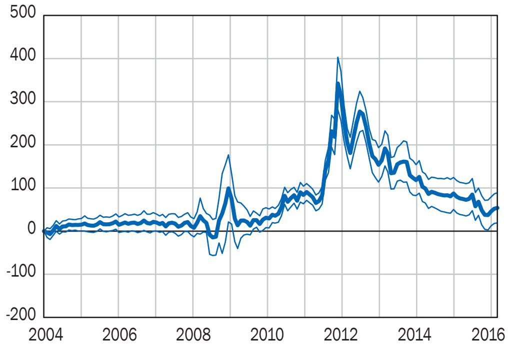
Source: Horny, Manganelli and Mojon (2016)
Note: The estimated credit risk premia measure the average gap in the spreads for bonds rated from Baa1 to Baa3 relative to those rated from Aaa to A3. Estimated standard errors are clustered at the issuer level. Thin lines represent the confidence intervals at the 5% level.

Charts 3, 4 and 5 show the estimated country premia for Italy, Spain and France. First, they remained close to zero until 2010, taking their level in 2004 as a reference. This is the case even after following the Lehman Brothers default. Second, country risk premia started to be priced into bond yields for Italy and Spain in 2010 with the start of the euro area sovereign debt crisis. They peaked at more than 300 basis points at the end of 2011 for Italy, and at 400 basis points for Spain during the summer 2012. Country premia fell sharply after the "whatever it takes" speech by Mario Draghi on July 2012 and the following announcement of the Outright Monetary Transactions (OMT) in September 2012. They have been rising again since October 2015. According to our measure, there was no major sign of fragmentation for French non-financial corporate bonds.

According to these figures, at the end of the 2015, issuers in Italy and Spain faced a premium of about 55bp and 80bp respectively relative to issues with similar characteristics in Germany. These estimates are barely significant, suggesting that concerns about market fragmentation have substantially declined compared to the period from 2011 to 2013.

C3 Estimated country premia, Italy

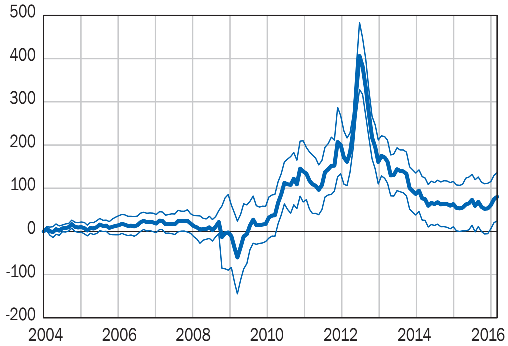
(in basis points)



Source: Horny, Manganelli and Mojon (2016)
Note: The estimated credit risk premium measure the gap in the yields for bonds issued in a country relative to similar bonds issued in Germany. Estimated standard errors are clustered at the issuer level. Thin lines represent the confidence intervals at the 5% level.

C4 Estimated country premia, Spain

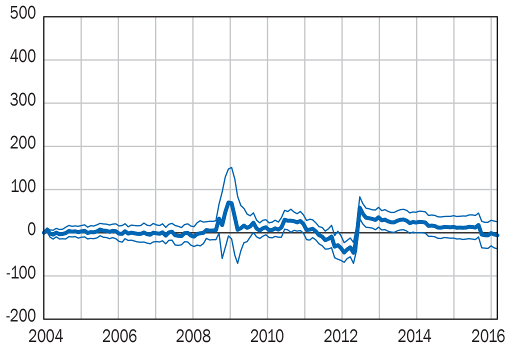
(in basis points)



Source: Horny, Manganelli and Mojon (2016)
Note: see chart 3.

C5 Estimated country premia, France

(in basis points)

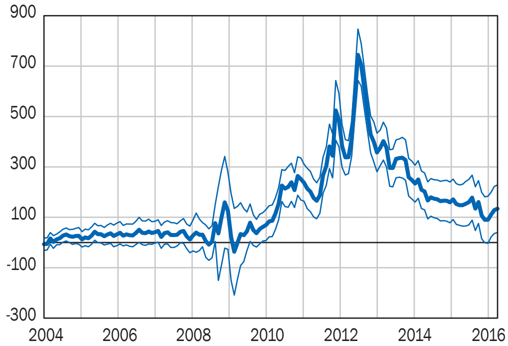


Source: Horny, Manganelli and Mojon (2016)
Note: see chart 3.

A fragmentation index based on market data

The sum of the estimated country premia provides us with a simple fragmentation index. This fragmentation index, which can be used to assess this impediment to the transmission of the ECB's monetary policy, is updated monthly and available in the online appendix of Horny, Manganelli and Mojon (2016).

C6 Fragmentation index
(basis points)



Source: Horny, Manganelli and Mojon (2016)
Note: Thin lines represent the confidence intervals at the 5% level.

Data

The study is based on data on individual corporate bonds, issued by non-financial corporations, and collected from Datastream, Bloomberg and Dealogic, over the period from January 2004 to February 2016. We impose several restrictions to ensure comparability of the interest rates. We restrict the sample to fixed coupon, non-callable securities issued by non-financial corporations, for which Moody's rating is available at all dates. We observe the yield of each bond, which we measure with the yield to maturity, on the last day of the month. Since the market price is volatile for bonds close to their maturity, we discard bonds with a residual maturity less than eighteen months. The sample includes around 32,000 monthly observations, relative to 157 issuers and 735 securities including 310 securities of companies in Germany, 214 in France, 104 in Italy and 107 in Spain.

The key variable we use in our empirical analysis is the corporate bond spread over the German government bond with similar maturity. These spreads, which were computed by Gilchrist and Mojon (2014) are by construction free of term risk premia and should therefore capture credit and liquidity risk premia vis-à-vis the Bund.

Conclusion

Our results show that while financial fragmentation has remained fairly limited during the post-Lehman "Great Recession", from 2008 to 2009, it reached very high levels at the heights of the 2011-2012 euro area sovereign debt crisis. Fragmentation has receded since the announcement of the ECB's Outright Monetary Transaction programme. It has tended to rise again since October 2015, but remains limited compared to its peak in 2012.

References

Gilchrist (S.) and Mojon (B.) (2014)
"Credit risk in the euro area", Banque de France *Working Paper* No. 482.
Download the paper

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Download the paper

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