

Box 4

Commonality of bid-ask spreads in euro area bond markets

Low secondary market liquidity and the potential for it to evaporate across market segments during periods of stress represent sources of systemic risk. In an environment of low liquidity, market shocks are amplified and propagated at a faster rate. While many measures indicate that global market liquidity is abundant on aggregate, its distribution within the financial system is not uniform. Broad liquidity measures for secondary fixed income markets indicate a deterioration in conditions (see Section 2.2). This development, alongside reports from large banks of reduced confidence in their ability to act as market-makers during stressed periods, raises concerns regarding the potential for liquidity to evaporate precisely at the moment when it is needed most.¹⁰ One means of measuring the propensity for systemic liquidity stress is to separate bond market liquidity into elements common across all market segments (such as investors' risk perception and appetite for risk or general financial conditions) and elements that are largely idiosyncratic. This box analyses common factors of bid-ask spreads in euro area bond markets, thereby focusing on one particular aspect of liquidity, notably the "tightness" dimension.¹¹

¹⁰ See, e.g., "Market-making and proprietary trading: industry trends, drivers and policy implications", *CGFS Papers*, No 52, Committee on the Global Financial System, 2014.

¹¹ For a definition of the different dimensions of liquidity, see Kyle, A., "Continuous auctions and insider trading", *Econometrica*, Vol. 53, 1985, pp. 1315-1335.

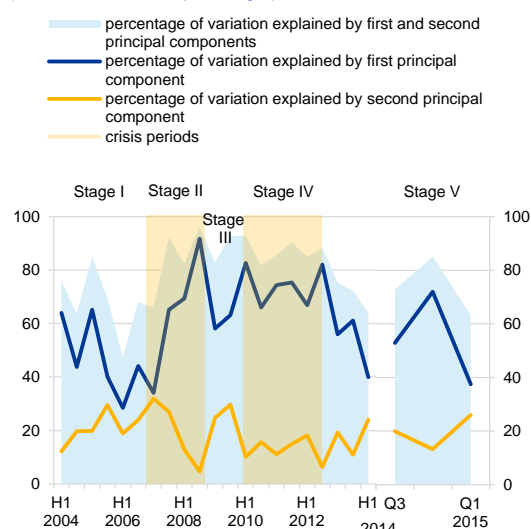
More specifically, a principal component analysis applied to normalised bid-ask spreads across a number of euro area market segments, including large vulnerable (Spanish and Italian) and non-vulnerable (German, French and Dutch) sovereign and corporate bond markets, provides two striking results. First, two factors explain roughly 80% of the variation in bid-ask spreads across all market segments over the past decade (see Chart A). Second, the importance of these factors in driving liquidity conditions shifts from calm periods to periods of market distress (see Charts A and B). It appears that correlations of individual market segments and the common factors display characteristic patterns (see Chart B). One factor is positively correlated with all market segments, but it moves from the second principal component during the pre-crisis period (Stage I) to the first principal component at the onset of the global financial crisis (Stage II). Another factor mirroring the first displays opposing correlations with different segments, also changing over time; it moves from the first to the second principal component.

Chart A

Strong commonality in liquidity-driving forces, especially in periods of market distress

Principal component analysis of bid-ask spreads across selected euro area bond markets

(Jan. 2004 – Feb. 2015; percentages)



Sources: iBoxx and ECB calculations.

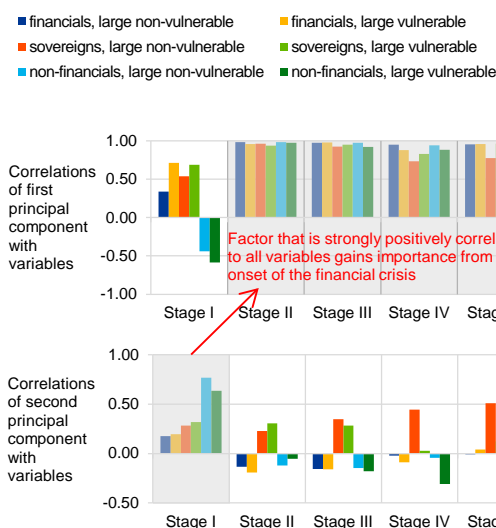
Notes: Stage I refers to the period from January 2004 to May 2007 (pre-crisis); Stage II refers to the period from June 2007 to mid-March 2009 (global financial crisis); Stage III refers to the period from mid-March 2009 to November 2009 (signs of tentative recovery in global economy); Stage IV refers to the period from December 2009 to July 2012 (sovereign debt crisis); and Stage V refers to the period from August 2012 to February 2015.

Chart B

Liquidity-driving forces shift from calm periods to periods of market distress

Correlations of first and second principal components with normalised bid-ask spreads

(correlations)



Sources: iBoxx and ECB calculations.

Notes: Stage I refers to the pre-crisis period from January 2004 to May 2007; Stage II refers to the period from June 2007 to mid-March 2009; Stage III refers to the period from mid-March 2009 to November 2009; Stage IV refers to the period from December 2009 to July 2012; and Stage V refers to the period from August 2012 to February 2015.

A possible way of explaining this predominant factor which drives liquidity conditions across markets in the same direction is to relate it to risk aversion. Before the onset of the global financial crisis, the explanatory power of this possible “risk aversion” factor – as reflected by the second principal component in Stage I – was relatively low (20-30%). It strengthened and is captured by the first principal component from the onset of the global financial crisis (Stage II onwards). At the height of the financial crisis – when risk aversion measures reached unprecedented levels following

¹² It should be noted that the analysis considers non-overlapping sample periods, suggesting that the interpretation of principal components may change over time.

the collapse of Lehman Brothers – the factor explained over 90% of the variation in bid-ask spread movements across euro area markets. Its explanatory power was also elevated (above 80%) during the euro area sovereign debt crisis, peaking in the first half of 2012, a period during which the yields on ten-year Spanish and Italian government bonds rose to exceptionally high levels. More recently, the percentage of variation in bid-ask spread movements explained by a risk aversion factor rose sharply (to over 70%) in the second half of 2014, a period of increasing global uncertainty amid rising geopolitical tensions, concerns regarding Greece, and sharp adjustments in US Treasury and foreign exchange markets. However, the explanatory power of this factor has fallen to its lowest level since the global financial crisis emerged.

Mirroring this development, the explanatory power of another factor, possibly associated with risk-seeking affected market liquidity predominantly before the onset of the global financial crisis, has declined in recent years; it seems to have moved from the first (Stage I) to the second (Stages II to V) principal component. Since the onset of the global crisis, bid-ask spreads for sovereign markets, when compared with financial and non-financial corporates, appear to be inversely related to this factor, suggesting that a rebalancing of portfolios affected market liquidity. During the sovereign debt crisis (Stage IV), this rebalancing channel was concentrated mainly on non-vulnerable sovereigns and non-financial corporations from vulnerable markets. Financial institutions and vulnerable sovereigns were only marginally correlated with this factor throughout the sovereign debt crisis. More recently (Stage V), this factor starts to correlate more strongly with non-financials from non-vulnerable markets and has become stronger in explaining liquidity conditions (see Chart A).

Altogether, the analysis depicts strong commonality in forces driving the “tightness” dimension of liquidity across euro area secondary bond markets, with the two predominant factors possibly related to risk aversion and risk-seeking. In light of recent shifts in the main factors, it can be argued that risk-seeking may play a greater role in determining market liquidity amid a lower propensity for risk aversion to affect all markets simultaneously. Not least since risk-seeking is shown to be important for only a few market segments, pockets of illiquidity have become more likely. Thus, there is a key need to monitor the fragmentation of liquidity in bond markets, also given that bond yields in many segments are well below historical norms and banks report declining confidence in their ability to act as market-makers.
