1.9 LIQUIDITY AND TRADING VOLUME IN THE EU COVERED BOND MARKETS

By Joost Beaumont, ABN AMRO, Jonny Sylvén, ASCB, Lars Ravn Knudsen, Finance Denmark,
Steffen Dahmer, J.P. Morgan and Michael Weigerding, *former* Commerzbank

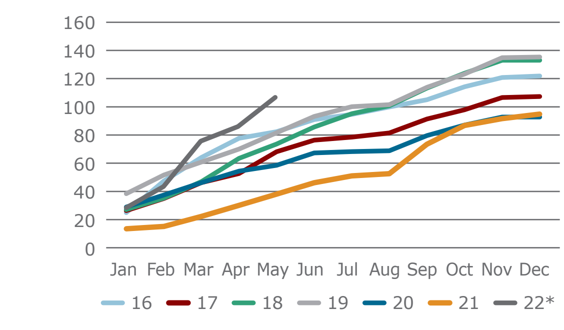
INTRODUCTION

The international covered bond benchmark segment, which started as an interbanking market-making (head to head) market in the 90s, transformed during the crisis into a pure investor market-making market. A functional repo market constantly increases the liquidity of the Covered Bond market, as a consequence of which the Covered Bond benchmark market is one of the most significant and liquid market segments. Covered bonds are viewed in different ways: thanks to their nature and rating some view them as part of the rates world, others clearly see credit elements and consider Covered Bonds as the strongest product in the credit world.

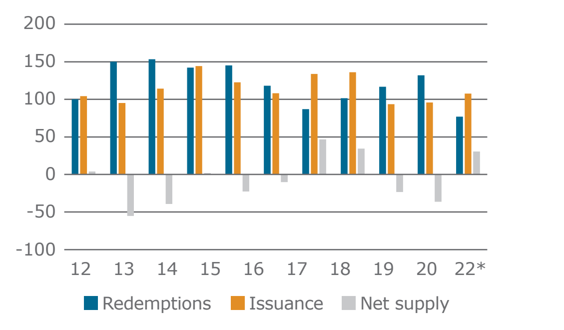
As is the case for any other market in the rates or credit world, the Covered Bond market faces regulatory requirements which result in a more prudent approach to trading books in terms of balance sheet allocation. In short, bank inventories have gone down and often only axed trading books are able and willing to show competitive prices and sizes to investors.

However, the tide seems turning, as the covered bond market has started to grow again in 2022 after it had been shrinking for two years after the outbreak of the Covid-19 pandemic, which induced central banks to introduce large monetary support measures. These are now (gradually) coming to an end, while central banks have also stopped net asset purchase programmes. This is likely to result in less covered bonds being bought by the Eurosystem, which, in turn, should support liquidity of covered bonds. Another positive development in 2022 is that new issue sizes of euro covered bonds have started to become larger. This probably signals a break with the trend seen in recent years, with EUR 500mn becoming more and more the standard benchmark size for issuers. In other markets such as GBP, issue sizes have increased, as more than half of new deals had a minimum issue size of GBP 1bn from 2019 onward, up from GBP 500-750mn before. Meanwhile, in USD's the "regS only" market often targets 600mn (to match the regulatory important 500mn + EUR equivalent) while 144a or SEC registered deals are often larger than/or at least USD 1bn. The Swedish or Danish Kroner Covered benchmarks can grow over time to a significant size often larger than in Euro or Dollar benchmarks. Obviously smaller benchmark volumes often lead to smaller secondary turnovers given that the various Covered Bond markets are dominated by a majority of buy and hold investors.

> Figure 1: Issuance of euro benchmark covered bonds, cumulative EUR bn



> Figure 2: Gross and net supply of euro benchmark covered bonds, EUR bn

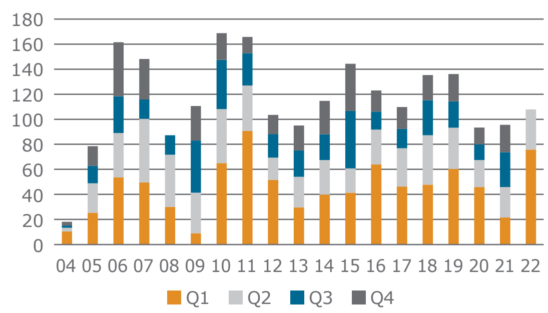


Source: ABN AMRO, Bloomberg, * January-May period

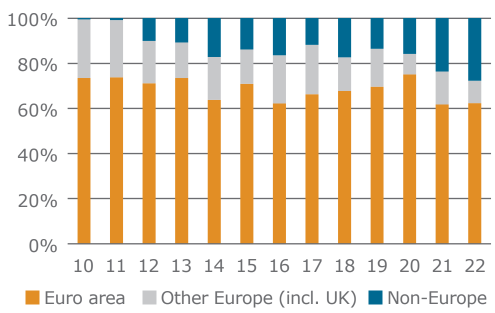
In summary, it indeed seems that liquidity conditions are improving again, after it had been negatively affected by a few years of negative net supply, lower-sized deals, a change of regulatory requirements and the nature of the investor base. Gross supply of euro benchmark covered bonds stood well above EUR 100bn at the end of May 2022, which already exceeded issuance during the full year in 2020 and 2021. Relatively favourable new issue conditions in the covered bond market supported new supply in the first five months of 2022. Indeed, covered bonds proved again their resilience this year after volatility in financial markets flared up related to major central banks shifting course on the back of ongoing high inflation, and also after the outbreak of the war in Ukraine (and also Covid-19 related lockdowns in China). Despite investors generally shifting into a more risk-off mode, conditions in the primary market for covered bonds remained relative good during these turbulent times, with issuers being able to place large amounts of covered bonds with investors.

Meanwhile, issuance was likely supported by this year's large redemptions (around EUR 137bn) as well as issuers anticipating a lower presence of the Eurosystem in the market as QE would come to an end. The latter of course is likely to have boosted issuance of issuers located in the euro area. However, issuance has also been boosted by Canadian issuers, which had issued more than EUR 20bn of euro benchmark covered bonds in the first five months of 2022, which set a new record as it already exceeded the roughly EUR 15bn that they issued in 2015 (the record year so far). The jump in this year's volume of new supply has also implied that net supply was firmly positive in the January-May period. It was EUR 31bn positive, given that redemptions equalled around EUR 77bn.

> Figure 3: Issuance of euro benchmark covered bonds, EUR bn



> Figure 4: Issuance of euro benchmark covered bonds by region, % share of total

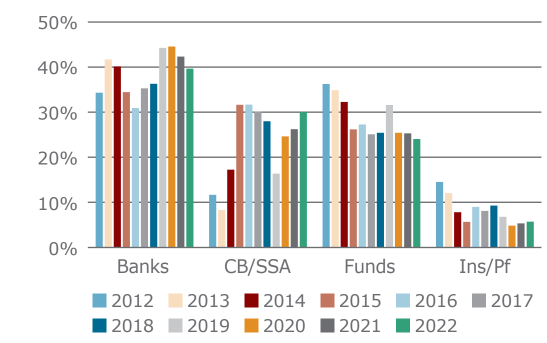


Source: ABN AMRO, Bloomberg

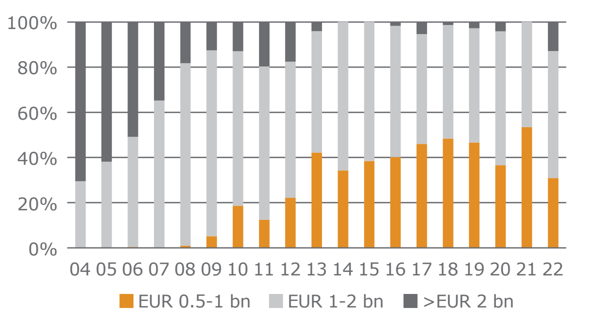
A regional breakdown (see graph above right) shows that euro area issuers account for the majority of new issuance, with their share remaining rather constant at 62% of total issuance. This reflects for a large part France and Germany, the largest markets of euro benchmark covered bonds, although issuance from Austria and the Netherlands had also been rather strong in 2022 so far. Meanwhile, non-European issuers gained further ground in 2022 so far. Their share in total issuance rose to 28% in the January-May period in 2022, up from 24% in 2021 as a whole. Moreover, this compares to a share of only 10% ten years ago. However, as said, this mainly stems from a strong rise in covered bond issuance of Canadian issuers, which can likely be explained by the fact that all support measures that the Bank of Canada took after the outbreak of the pandemic have been stopped, implying that Canadian banks need to meet their funding needs more and more on wholesale funding markets. Meanwhile, Australian banks have also increasingly found their way to the covered bond market, adding to the rising share of non-European issuers. More generally, it shows that covered bonds have expanded their global presence.

The fact that net supply has been positive so far this year, has also been reflected by a rise in the total outstanding volume of euro benchmarks in the covered bond indices. The Bloomberg-Barclays euro covered bond index had an outstanding amount of EUR 821bn in May 2022. This marks a 6% increase compared to a year ago.

> Figure 5: New euro benchmark covered bond deals broken down by investor type, %



> Figure 6: New euro benchmark covered bond deals broken down by size, %-share



Source: ABN AMRO, Bloomberg

Let us again look at the evolution of the investor base as an angle for liquidity. If the share of buy-and-hold investors has risen in the past few years, this should have reduced liquidity of covered bonds. The graph above left shows the average allocation share per investor type in new euro benchmark deals. The graph clearly illustrates the crowding out impact of the Eurosystem's third Covered Bond Purchase Programme (CBPP3). The share of central banks/SSAs rose again after the restart of net covered bond purchases within CBPP3 at the end of 2019 (the Eurosytem only reinvested maturing principles between January and October 2019). The share of central banks/SSAs rose to 25% in 2020, up from 16% in 2019 and 8% in 2013. It's share increased further to 26% in 2021, reaching even 30% in 2022. The later likely signals that euro area issuers started to allocated higher amounts to the Eurosystem in 2022 as they expect the central bank to be less active once it will stop net asset purchases in July. In any case, the rising share of central banks has come at the expense of other investors. Asset managers have seen the biggest drop in their share, to 24% in 2022 from 36% in 2012. As these can be regarded as the most active portfolio managers, it seems fair to conclude that the change in the investor base in recent years has not supported liquidity of covered bonds. Furthermore, participation of banks in new deals has remained above 40% in recent years, likely reflecting that covered bonds are an attractive asset class in LCR portfolios. Unfortunately, most banks are buy-and-hold investors, so this does not support liquidity in the end neither. Ending on a more positive note is that it is likely that the share of central banks will drop from the second half of 2022, with that of, for instance, asset managers rising. This should support liquidity.

Finally, the larger the issue size, the better the liquidity. Also in this respect, there are some positive developments, with issuers having increased deal amounts. The graph above right depicts the share of new deals broken down by issue size. The share of deals with an issue size below EUR 1bn dropped significantly to 31% in the first five months of 2022, down from 53% in 2021 and a 46% average in the past five years. However, this is still well above the 22% share of such deals ten years ago. The drop in lower-sized deals is mirrored by a rise in new deals with minimum size of at least EUR 1bn. In 2022, 56% of new euro benchmark covered bonds had a size between EUR 1bn and EUR 2bn, which was up from 47% in 2021, and five percentage points higher than the average in the past five years. What is more, 13% of new euro benchmark deals even had a size above EUR 2bn, which has become rare since 2014. 2022 even saw the largest deal being issued (EUR 2.75bn) since

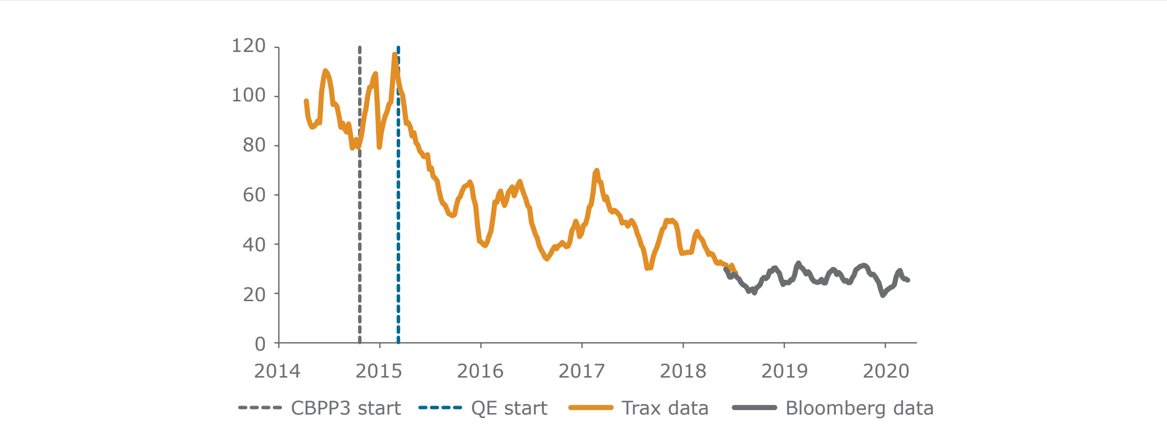
2006. Although part of the increase in deal size might be related to issuers allocating higher amounts to the Eurosystem, larger deal sizes suggest that liquidity in the covered bond market should have improved this year.

How much, how often and where? Secondary market trading in the euro covered bond market

Each time the covered bond segment came under general spread pressure in recent years, its (lack of) market liquidity came into the spotlight again. In view of the defensive stance taken by many market makers in general, it has become all the more difficult for investors to buy or sell larger positions in some segments, if required. But how was liquidity in the covered bond market before the outbreak of the pandemic?

In order to gain a broader overview, we analyse the trading volumes that are aggregated by Bloomberg as part of MiFID (Markets in Financial Instruments Directive) reporting. After adjusting the data, we can identify a total trading volume of around EUR 201bn for EUR benchmarks via Bloomberg for the 12-month period from April 2019 to March 2020. On a weekly average, this was just under EUR 4bn or 0.4% of the outstanding volume. Moreover, as is well known, it is by no means unusual when even younger covered bonds fail to trade at all in individual weeks. Calculated across all benchmarks, we see this happening on average every third week. A glance at the ticket sizes confirms this assessment. Naturally, the number of transactions processed on stock exchanges significantly exceeds that of other sources. However, their volumes are usually negligible. If one excludes stock exchanges, there are around 111,000 transactions left between April 2019 and March 2020. Their average ticket size was only around EUR 2.5mn. This figure corresponds to the ballpark figure suggested by Trax data in the past and should therefore reflect the current state of the market quite well. This highlights the fact that liquidity in the covered bond market has stabilised, although at a relatively low level compared to the period before the ECB's CBPP3 set in. The data and the graph does not capture environmental components such as defensive or inactive investor and trading behavior. In times of stress and or volatile market conditions the share which goes directly or indirectly to the ECB and its PEPP or CBPP3 programs are much higher, the percentages which are with those programs are lowering the free float of available bonds and therefore also the trading activities.

> Figure 7: Trading activity has stabilised on a relatively low level
Turnover of EUR benchmark covered bonds recorded by Bloomberg in accordance with MiFID rules or Trax, respectively, 8-week moving average of indexed turnover data (100 = H1-14)



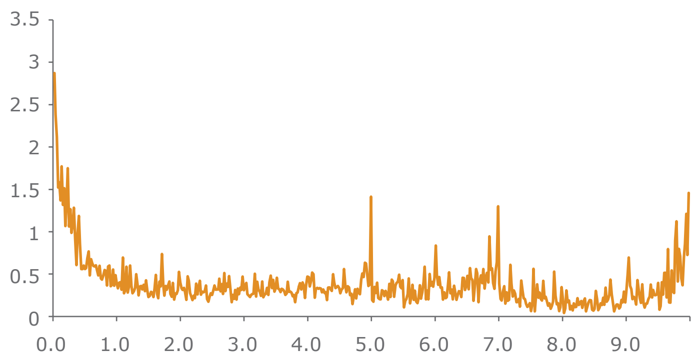
Source: Bloomberg, Trax, Commerzbank Research

Which other factors influence trading volume?

Whether the liquidity of a covered bond is high or low is not easy to determine. For one thing, market liquidity is difficult to measure. We therefore focus on trading volume here. Furthermore, there are naturally a number of different factors that influence the liquidity or trading volume of bonds – and these must be taken into account when comparing individual covered bonds. In addition to the age of a bond, its size and market risk, these include seasonal factors, the quality of its allocation, demand during book building and primary market supply. We have recently verified these liquidity drivers in three detailed studies.[1] Our dataset for the turnover recorded by Bloomberg between April 2019 and March 2020 confirms most findings there. For example, the average trading volume of a covered bond increases with its size. Trading volume grows at a slower pace though: the turnover of a EUR 1bn – EUR 1.24bn bond was roughly 75% higher in the mentioned period than that of a EUR 500mn – EUR 749mn issue. An additional element might be, that larger i.e. 1bn and above, qualify for more investors and are eligible for additional indices which certain investors are required to follow

However, by far the most important factor for the trading volume of a covered bond is its age. While switch trades, profit taking or follow-on purchases support the turnover, over time, volume increasingly seeps away due to buy-and-hold investors. Our data show that, on average, the weekly turnover falls below 1.0% of the outstanding volume after only one quarter. After one year this rate is only 0.35%, and in the long run it typically levels off between 0.2% and 0.3%. On the market as a whole, the turnover is likely to be higher, but the trend should be the same.

> Figure 8: Liquidity follows an L-shape: turnover drops rapidly within a few months
Average trading volume of a EUR benchmark from April 2019 to March 2020, by age of bond in years, in % of the nominal outstanding

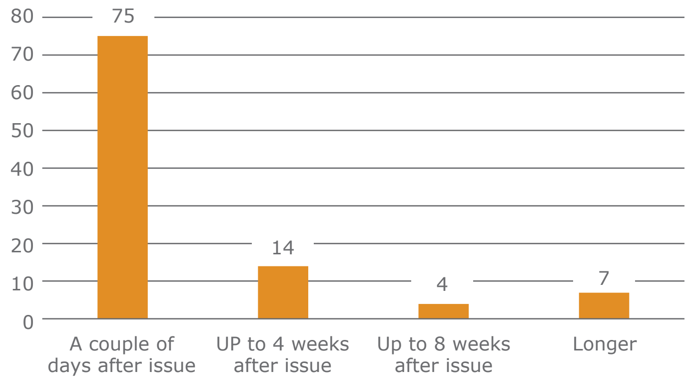


Source: Bloomberg, Commerzbank Research

The fact that liquidity reduces quickly after a new bond has been issued also follows from the investor interviews held for this Fact Book. Respondents noted that it was fairly easy to buy new bonds in the secondary market a few days after issuance. However, only 14% of investors noted that it was easy to buy bonds up to four weeks after issuance, while only 7% of investors indicated that this was still the case around two months after the issuance date.

1 see How new bond issuance influences the liquidity of covered bonds. *The Journal of Fixed Income*, vol. 29 (2), pp. 44-60; Seasonal liquidity effects and their determinants on the covered bond market. *The Quarterly Review of Economics and Finance*, forthcoming; and *Liquidity drivers on the covered bond market*.

> FIGURE 9: INVESTOR INTERVIEWS: HOW LONG IS IT POSSIBLE TO BUY A NEW BOND RELATIVELY EASILY IN THE SECONDARY MARKET AFTER ISSUANCE? % OF RESPONDENTS



Source: ECBC

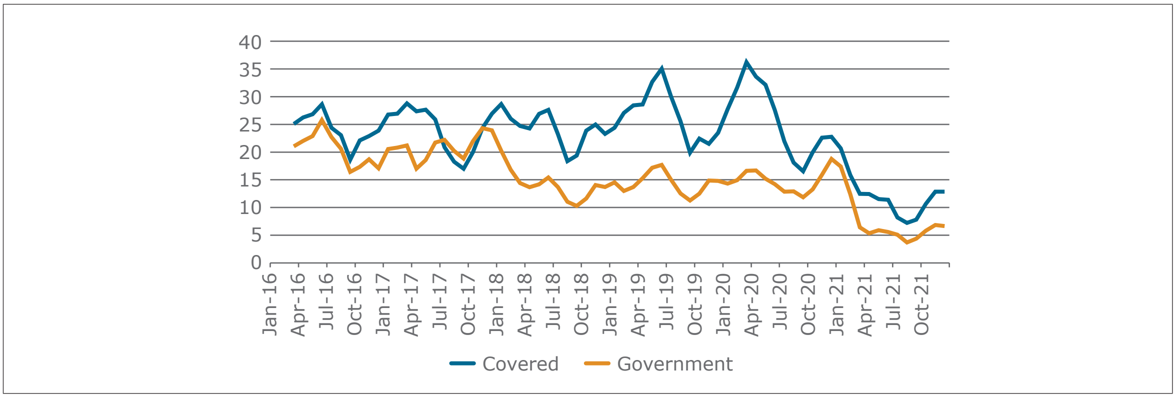
THE SWEDISH COVERED BOND MARKET

The Swedish domestic market for covered bonds is of great importance for the domestic capital market. Before Sweden implemented a law for covered bonds in 2004 a liquid market for mortgage bonds had been around since the beginning of the 80s. The outstanding volume of covered bonds in SEK was EUR 195.8 bn at year end 2020. That was more than twice as much as the outstanding volume of government bonds.

Swedish bond market investors appreciate liquidity. The large banks issue their covered bonds as benchmarks which mean that large amounts are issued and that several dealers are contracted to show both bid and offer prices. Also, only benchmarks are deliverable in the future contracts. When a new benchmark-bond is issued, the issuers make sure that the amount issued meets the requirements for a benchmark sized deal. After the initial day of issuance, the issuer can, without further notice, issue "on tap". The benchmark bonds can amount to volumes of about SEK 60 bn. Sweden has a liquid and smoothly operating repo market with almost all banks and broker firms involved in the trading. The issuers offer their market makers a repo-facility in their own bonds. The repo transaction is viewed as a 'sell-buy back' or 'buy-sell back' deal and the ownership of the security has to be transferred.

Overall, this system has been working for a long period of time. The recently implemented legislations have not been observed to have had any significant effects on the liquidity in the Swedish covered bond market. The Swedish Central Bank (Riksbanken) has been aggressive in its Quantitative Easing (QE) policies for some years. During the pandemic the Riksbank increased their buying of bonds. Before the pandemic they just bought government bonds but during the QE-period they have also been buying Covered bonds and other bonds. The Riksbank owned 20 percent of the outstanding amount of SEK covered bonds in the end of 2021. The Riksbank has now announced a slowdown of the acquisition of bonds. During the beginning of the pandemic there where an increase in trading activity but the activity has been diminishing throughout the pandemic. During the period of more intense QE the turnover in the market has decreased.

> FIGURE 10: DAILY TURNOVER, 3M MOVING AVERAGE, WITHOUT REPOS, SEK BN



Source: Riksbanken

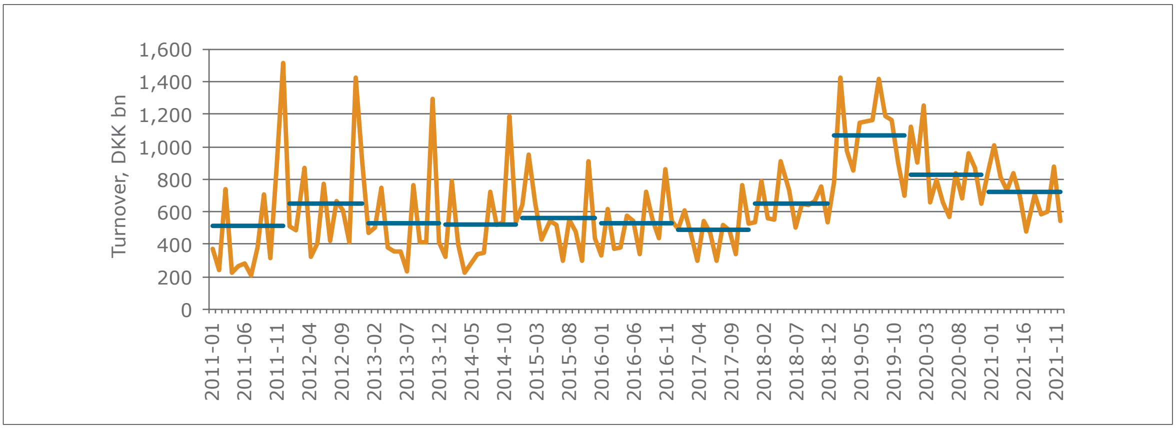
THE DANISH COVERED BONDS MARKET

The type of bonds making up the Danish covered bond market fall into three major segments: callable bonds, bullet bonds and floaters with or without a cap. The market comprises a great number of securities, but the vast majority of the nominal value is concentrated on a relatively small number of large series.

With an outstanding volume of EUR 455 bn the Danish covered bond market is the largest in Europe. Trades in mortgage covered bonds are reported to the Danish exchange, Nasdaq Copenhagen, including over the counter trades and excluding repos.

Average monthly turnover on Nasdaq Copenhagen including over the counter trades and excluding repos in the period 2011 – 2021 came in at around DKK 638 bn (app. EUR 86 bn). In 2021 average monthly turnover was DKK 725 bn (app. EUR 97,5 bn), cf. Figure 11. On average this means that approximately 21,5 percent of the outstanding volume was traded every month of 2021. After a record high remortgaging activity in 2019, issuance of callable bonds in the primary market financing, e.g., remortgaging and home purchases, was also a driver for turnover in 2020 and 2021.

> FIGURE 11: TURNOVER IN DANISH COVERED BONDS, MONTHLY TURNOVER IN DKK BN.



Source: Nasdaq Copenhagen

Note: Data is for nominal value Non- Repo Mortgage Bond transactions including OTC. Horizontal lines indicate yearly averages. From 2018 a new transaction reporting was implemented. Data before and after 2018 is not directly comparable.

By end of 2021 foreign investors owned around 25 percent of Danish covered bonds. Even during the spring months of 2020, the foreign investors share of Danish covered bonds remained on a constant level despite the corona outbreak. Foreign investors have a positive effect on market turnover and liquidity.

FACTORS AFFECTING TURNOVER AND LIQUIDITY IN DANISH COVERED BONDS

Pass through, tap issuance, quarterly refinancing auctions and frequent early repayment activity are all characteristics of the Danish covered bond market, which among other more universal factors affect the level of market turnover. The strict balance principle deployed by Danish mortgage banks incorporates pass through and means that mortgage covered bonds are tap issued on the go, in sync with demand for mortgage loans. Following the initial tap issuance, mainly bullet bonds and to an extent floaters, are refinanced by the issuance of new bonds at refinancing auctions over the life of the loan.

Borrowers' early repayments also influence liquidity in the Danish covered bond market. Any Danish covered bond can be bought back by the borrower at the current market price and delivered to the issuing mortgage bank – the buyback option – or in the case of fixed rate mortgages it is also possible to redeem at par. This type of early redemption activity gives rise to an increase in transactions both when bonds are bought back (the buyback option), and when new bonds are issued.

Due to tap issuance, the market maker function of universal banks is handed a central role providing liquidity in the covered bond market, as professional investors are mostly unwilling to buy in small batches. Onwards, market makers remain the main source of liquidity in the Danish covered bond market. However, higher capital charges, liquidity rules and the low interest rate climate have put pressure on the profitability of market making. To a lesser extent, market makers will be providers of market liquidity, rather than makers between buyers and sellers in the market.