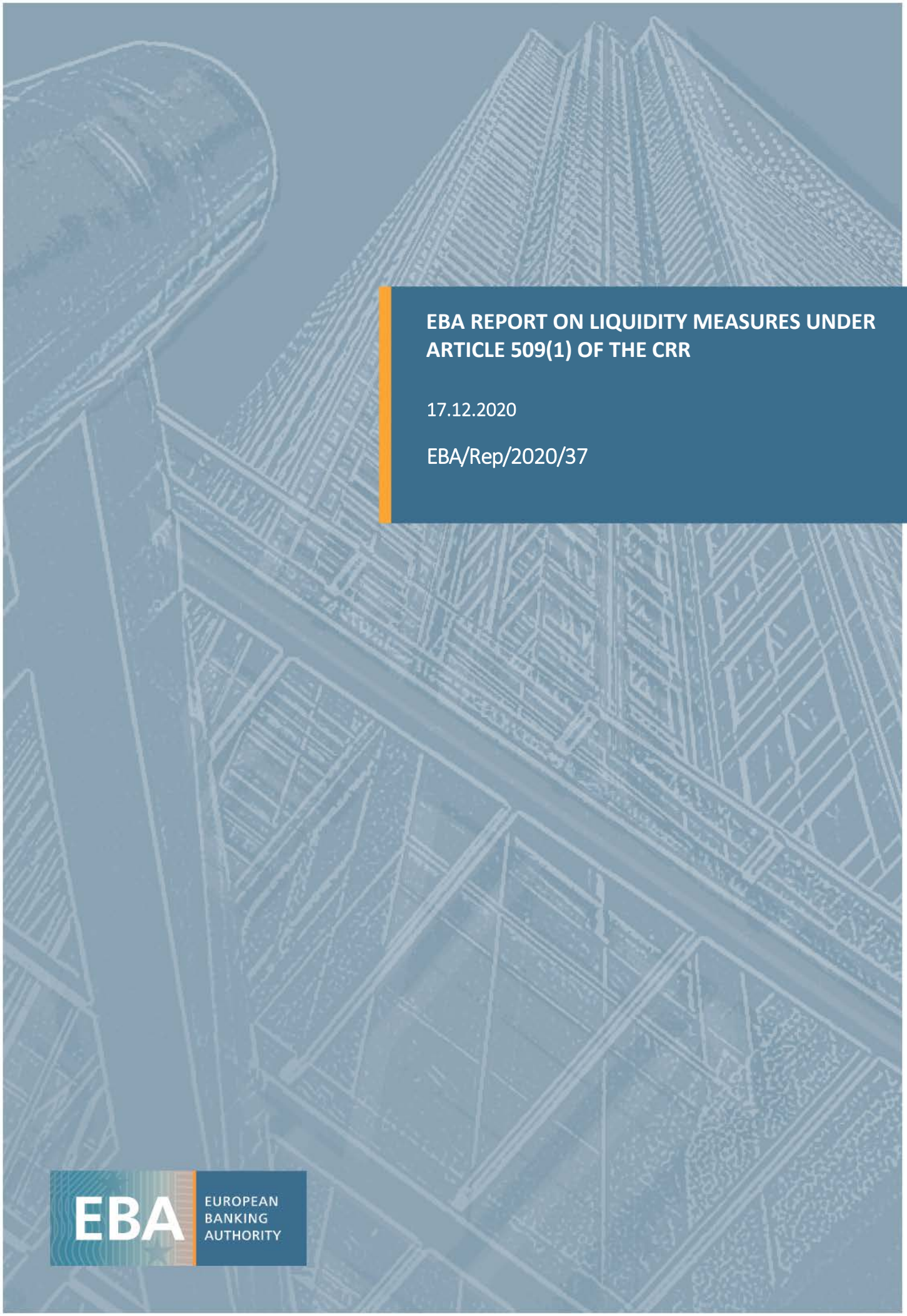

EBA REPORT ON LIQUIDITY MEASURES UNDER ARTICLE 509(1) OF THE CRR

17.12.2020

EBA/Rep/2020/37

EBA EUROPEAN BANKING AUTHORITY

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Abbreviations

CCP	central counterparty
CET1	Common Equity Tier 1
COREP	Common Reporting
CRR	Capital Requirements Regulation
DR	Delegated Regulation
EBA	European Banking Authority
ECB	European Central Bank
EHQCB	extremely high-quality covered bond
ESRB	European Systemic Risk Board
EU	European Union
EUR	euro(s)
FINREP	Financial Reporting
FX	foreign exchange
GBP	pounds sterling
GDP	gross domestic product
GSIIs	global systemically important institution
HQCB	high-quality covered bond
HQLA	high-quality liquid asset
LCR	liquidity coverage ratio
NFC	non-financial company
NP	net profit
OLS	ordinary least squares
O-SII	other systemically important institution
Pr	probability
QE	quantitative easing
SMEs	small and medium-sized enterprises
TLTRO	targeted longer-term refinancing operation
USD	United States dollar

Executive summary

The objective of the report is to monitor banks' short-term liquidity risk profiles.

This report provides an update of the European Union (EU) banks' compliance with the liquidity coverage ratio (LCR), defined as the stock of high-quality liquid assets (HQLAs) over the net liquidity outflows arising during a 30-calendar-day stress period. The analysis is based on Common Reporting (COREP).[1]

On average, the LCR is well above the minimum requirement and has continued to increase, driven by investment in HQLA assets.

At end-June 2020, the weighted average LCR across the sample of EU banks stood at 166%, well above the minimum LCR requirement of 100%. The compliance with the ratio has steadily improved since September 2016 when data first became available.[2] There was a significant increase in the LCR in the second quarter of 2020, driven by banks' holdings of HQLAs, partially offset by the growth of net liquidity outflows. The increase in HQLA has been mainly driven by the additional liquidity extended by the ECB and other EU central banks. This has boosted the already high levels of excess of liquidity that banks record as holdings of central bank reserves. No bank in the monitoring sample had LCR levels below 100% in June 2020. The average LCR level of global systemically important institutions (GSIIs) stood at 155% and that of other systemically important institutions (O-SIIs) at 167%. The weighted average LCR of the remaining banks was higher at 217%. The average LCR level for the majority of the countries was within the 100-200% range. These averages mask some important differences in banks' LCR levels within countries.

Specific funding structures could drive different LCR compositions across business models.

The observation that LCRs tend to be well above 100% holds across business models. However, their compositions differ. Some business models that have funding coming predominantly from wholesale markets show higher net liquidity outflows and tend to fulfil their LCR targets by holding higher amounts of HQLAs.

Banks finance their assets in different currencies. LCR levels considering items denominated exclusively in US dollars and pounds sterling are, in general,

Many EU banks tend to finance part of their assets in a different currency than the one in which the assets are denominated. This gives rise to an inherent risk of currency mismatch in the LCR. The regulation requires banks to ensure that the currency distribution of their liquid assets is consistent with the currency distribution of their net liquidity outflows. Among the significant (foreign)

[1] The report is provided under Article 509(1) of the Capital Requirements Regulation (CRR). The objective of the report is to monitor and evaluate the liquidity coverage requirements under Commission Delegated Regulation (DR) (EU) 2015/61.
[2] First reference date for which COREP data, based on the LCR DR, is available.

lower. In spring 2020, central banks mitigated stresses in FX funding markets by introducing FX swap lines.

currencies, the US dollar (USD) and the pound sterling (GBP) are those that show the lowest LCR levels for EU banks. As the ability of banks to swap currencies and to raise funds in the foreign currency markets may be impaired during times of stress, significant currency mismatches should be followed closely by competent authorities. Amid the COVID-19 crisis, central banks have established or reactivated FX swap lines to ensure that they can meet increased demand of funding in foreign currencies. As the duration and potential extension of these currency swap lines are unknown, competent authorities should consider making greater use of their discretion to restrict currency mismatches by setting limits on the significant excesses of net outflows denominated in significant reporting currencies.

There is no clear evidence of an impact of the LCR regulation on the lending to the economy.

The analysis of the potential impact of the LCR regulation on bank lending shows that a statistical significant relationship can be identified between the level of the LCR and the probability of banks increasing their lending activity. However, after controlling for additional variables such as the level of capital and the non-performing loan ratio, this relationship is no longer statistically significant, thus rendering the results much less conclusive.

Introduction

As part of the mandate in Regulation (EU) No 575/2013 (CRR), the European Banking Authority (EBA) monitors and evaluates the liquidity coverage requirements on an annual basis (pursuant to Article 415(1)). In this regard, the EBA takes into account the potential impact of these requirements on the business and risk profiles of banks, on the stability of financial markets, on the economy and on the stability of the supply of bank lending (Article 509(1) of the CRR). The current report is the seventh publication of the EBA report under Article 509(1) and the fifth publication since the introduction of the minimum liquidity coverage standards in 2015.

This report presents a detailed analysis of the short-term resilience of banks' liquidity risk profiles. It also reports on the liquidity risks that banks face in various significant foreign currencies.[3] As in the previous reports, the analysis is based on COREP data. Differently from previous reports, the current report uses figures as of two different reporting dates (end-December 2019 and end-June 2020). End-June 2020 figures are shown in this report with the purpose of showing the potential impact of the COVID-19 outbreak on banks' liquidity profile. The sample covers 130 banks (159 banks including subsidiaries) in 27 EU Member States and two European Economic Area / European Free Trade Association states that report COREP data to the EBA on a regular basis.[4]

The sample covers both globally active and other significant institutions (GSIIs and O-SIIs), as well as 'other banks', and the report provides breakdowns by different business models across the EU. In terms of total assets, the sample covers approximately EUR 23.5 trillion (EUR 24.8 trillion including subsidiaries) or, on average, 86% of the total assets of the EU banking sector.[5] Country data should be interpreted with caution because differences in the representativeness of the sample across countries may affect data comparability.

The report includes a detailed assessment of the LCR key components (HQLA and net liquidity outflows). The analysis of currency mismatches investigates whether the banks' liquidity coverage in foreign (and significant) currencies differs from their overall LCR.

Aggregated figures in this report are based on COREP data reported at the highest level of consolidation, with the exception of the analyses concerning banks' business models and country breakdowns,[6] which also include subsidiaries of EU parent institutions.[7] Unless stated otherwise, all average figures are weighted.

[3] See definition of significant and foreign currency in Section 0.
[4] Banks included in the sample not only reported LCR COREP data but also Financial Reporting (FINREP) data (amount of total assets). Banks that do not report the amount of total assets in FINREP have not been included in the analysis.
[5] The information on total assets of the EU has been obtained from the Statistical Data Warehouse of the European Central Bank (ECB).
[6] To ensure confidentiality, figures by country breakdown are shown only if there are at least three banks that reported data in each specific country.
[7] The number of banks by country breakdown included in the different analyses is provided in the Annex.

The outbreak of COVID-19 has resulted not only in a huge health crisis, but also in enormous economic challenges. The magnitude of the contraction will depend on many factors (including the duration of the crisis and the restricting measures put in place in the different countries) and the impact could yet propagate to the financial sector. The LCR intends to ensure that banks will have enough high-quality liquid assets to cover liquidity outflows in a 30-day stress period. The EBA statement on actions to mitigate the impact of COVID-19 on the EU banking sector published on 12 March 2020[8] encouraged CAs, where appropriate, to make full use of the flexibility already embedded in the existing regulatory framework and recognised that the LCR is designed to be used by banks under stress.

[8]See the EBA's Statement here

Analysis of the LCR and its components

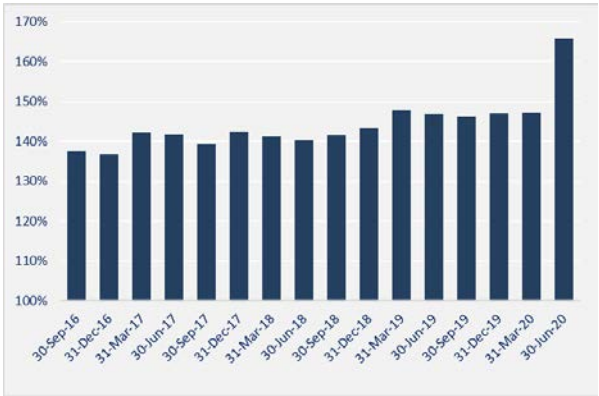
Trends in the LCR

Liquidity coverage requirements are intended to ensure banks' short-term resilience to potential liquidity disruptions. Banks should hold liquid assets to cover net liquidity outflows over a stress period of 30 calendar days and should maintain an LCR of at least 100%.[9] The LCR minimum requirement was set at 60% on 1 October 2015 and it reached 100% at the end of the implementation period on 1 January 2018.

An analysis of the evolution of the LCR over time[10] shows that banks have made significant efforts to increase the level of the LCR and to reduce the shortfall in liquid assets. Banks entered the COVID-19 crisis in a good shape. Prior to the pandemic outbreak, banks' LCRs were significantly above the regulatory minimum. In December 2019, the weighted average LCR for the sample of banks used for this report was 147.0% (Figure 1). At the same time, the liquidity shortfall has decreased from over EUR 27.0 billion in September 2016 to EUR 0.86 billion in December 2019. The number of banks with a shortfall decreased from seven in September 2016 to two in December 2019.

In June 2020, the weighted average LCR increased to 165.9% and no bank reported a shortfall. These results indicate that, to a large part owing to the additional liquidity support provided by the monetary authorities, the adverse effects of the COVID-19 crisis on the LCR levels had not materialised by June 2020.

Figure 1: LCR evolution (weighted average)

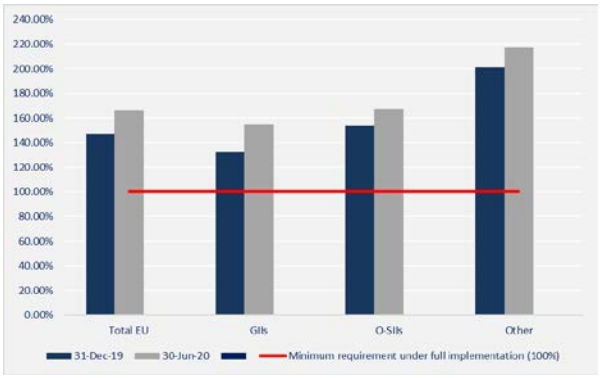


[9] In accordance with Article 412 of the CRR and Article 4(3) of the Commission Delegated Regulation (EU) 2015/61, credit institutions can make use of their liquid assets to cover their net liquidity outflows under stressed circumstances, even if such a use of liquid assets may result in their liquidity coverage ratio falling below 100% during such periods. However, as further specified in Article 414 of the CRR and Article 4(4) of the Commission Delegated Regulation (EU) 2015/61, where credit institutions do not meet or expect not to meet the requirement, including during times of stress, they shall immediately notify the competent authorities and shall submit, without undue delay, to the competent authorities a plan for the timely restoration of compliance.

[10] The time series uses a consistent sample of 99 banks (excluding subsidiaries; results are shown for total EU, GSIIs and O-SIIs). Analysis showing two reference dates (December 2019 and June 2020) are based on a consistent sample of 116 banks. The results are reported in terms of volumes or in changes from previous period reference dates. In all other analyses, the sample is the same as was used in the cross-sectional analyses, which includes all banks that submitted data by the latest reporting date.

The same trend is observed when analysing LCR levels across bank groups. All categories (GSIIs, O-SIIs and 'other banks') showed higher LCR levels as of June 2020. On average, GSIIs and O-SIIs have lower LCRs (155% and 167%, respectively) than 'other banks' (217%). Moreover, the LCR dispersion across 'other banks' is greater than across GSIIs and O-SIIs. This reflects the heterogeneity of banks in the group classified as 'other' in terms of size and business model.

Figure 2: Weighted average LCR across bank groups (GSIIs, O-SIIs and others)



The evolution of the LCR levels can be better understood by looking at the evolution of its components. The increase in the LCR ratio between December 2019 and June 2020 can mostly be attributed to a significant increase in the liquid assets (HQLA) component (Figure 3). The same tendency is observed when analysing the LCR components by bank group. For the group 'other banks', the increase in HQLA became more important in the second quarter of the year.

Figure 3: Evolution of the numerator and the denominator of the LCR, September 2016 = 100% — balanced sample

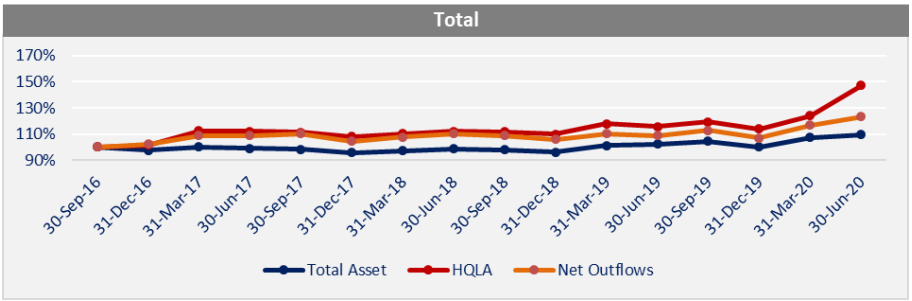
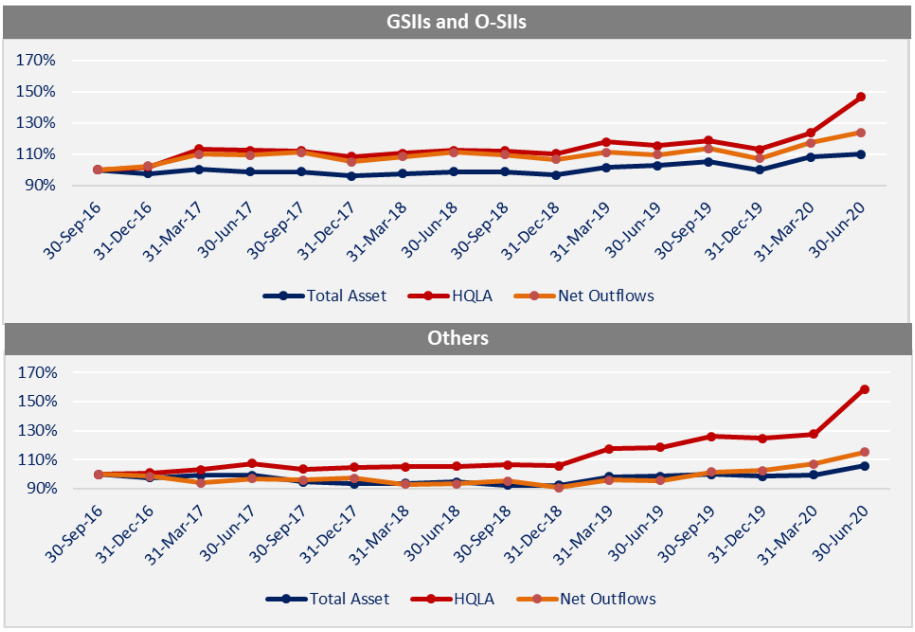


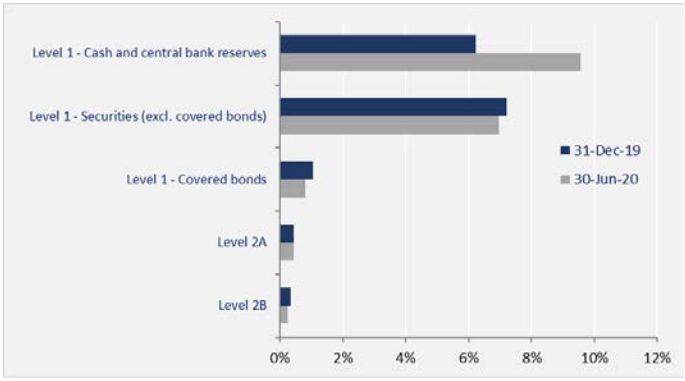
Figure 4: Evolution of the numerator and denominator of the LCR by bank group, September 2016 = 100% — balanced sample



The analysis of the composition of HQLA gives more insights into the drivers of the increase in HQLA levels.

Figure 5 shows the evolution of such composition between December 2019 and June 2020. The increase in cash and central bank reserves explains the important HQLA increase that drives the increase in LCR levels. Amid the COVID-19 crisis, central banks in the EU have eased banks' access to funding by strengthening lending facilities or resuming or increasing the magnitude and scope of their asset purchase programmes. The access to liquidity via central bank funding from the ECB and other central banks in the EU has generated a supplementary excess of liquidity that has been placed by the banks on the ECB current account and deposit facility.[11]

Figure 5: Evolution of the composition of liquid assets (post-weight and before the cap) relative to total assets — balanced sample

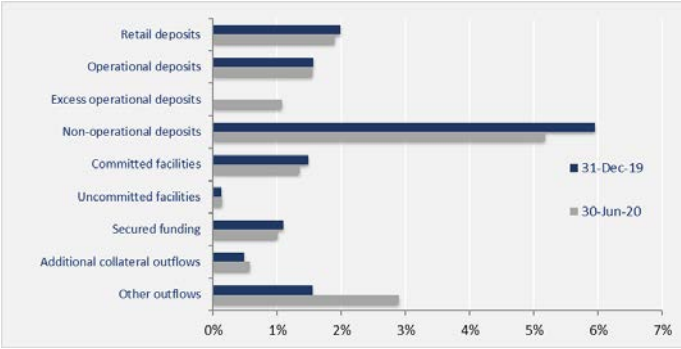


[11] See box Interactions between non-standard monetary policy measures and the LCR liquidity buffer.

The increase in HQLA levels has been partially offset by an increase in the net liquidity outflows across banking groups. The increase in the net liquidity outflows can be understood by looking at the evolution of outflows and inflows. On average, cash outflows (post-weight) represent approximately 14.3% of total assets in December 2019 and 15.7% in June 2020 (Figure 6). This increase was partially offset by an increase in cash inflows (post-weight and before cap) over total assets which increased from 4.3% in December 2019 to 4.5% in June 2020 (Figure 7).

The increase in outflows as a share of total assets was driven by the increase in other outflows. The share of other outflows over total assets increased from 1.6% to 2.9%. The reduction of the share of non-operational deposits, which declined from 5.9% of total assets in December 2019 to 5.2% in June 2020, can be explained by the new requirement in the LCR amending Act,[12] by which the excess of operational deposits must be reported as a separate category of outflows. Non-operational deposits and excess operational deposits combined constitute 6.2% of total assets. Regardless of the reduction, non-operational deposits (e.g. short-term deposits from financial customers) remained the main component of the cash outflows, and tend to have higher run-off rates. The share of outflows from retail deposits of total assets slightly decreased (from around 2% of total assets to 1.9%). The share of committed facilities decreased slightly from 1.49% to 1.35% in June 2020, which implies that customers made some use of their precautionary credit lines in the first semester of the year but can still benefit from a high level of liquidity granted by banks through their committed facilities.

Figure 6: Evolution of the composition of cash outflows (post-weight) relative to total assets — balanced sample



The increase in inflows can be explained by the large increase in inflows from secured lending (from 0.5% to 1.2% between December 2019 and June 2020).

[12] Commission Delegated Regulation (EU) 2018/1620 amending the LCR delegated regulation that entered into force as of 30 April 2020.

Figure 7: Evolution of the composition of cash inflows (post-weight and before cap) relative to total assets — balanced sample

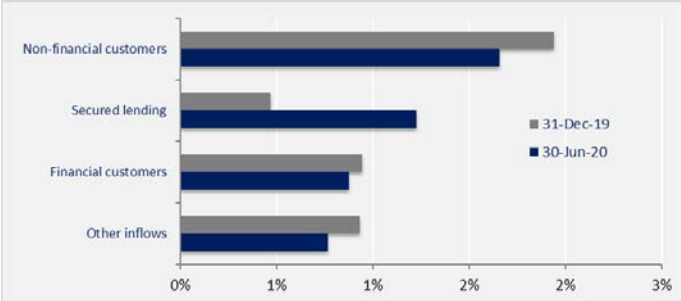
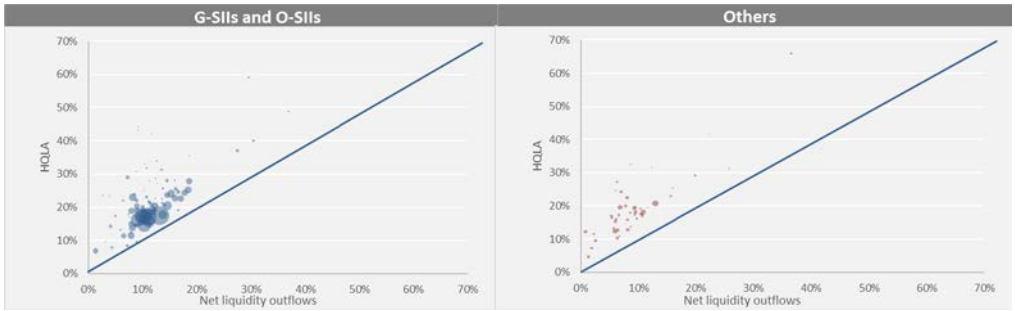


Figure 8 shows the interaction between HQLA and net liquidity outflows at individual bank level. The parameters are expressed as a share of total assets, and the size of the bubble indicates the banks' weights in terms of total assets. The bigger the bubble, the larger the bank and the greater the weight it takes in the weighted average values. The 45° line indicates equality between HQLA and net liquidity outflows, i.e. when the LCR is 100%.

Most banks in the sample are located above the line, suggesting that they have LCR levels that are adequately above the minimum requirement.

In terms of their position with respect to the 45° line, GSIIs and O-SIIs present a higher dispersion, as some of them show very high HQLA holdings and net liquidity outflows over total assets ratios.

Figure 8: HQLA and net liquidity outflows (as a share of total assets) by group of banks (as of June 2020)



The efforts that banks have made to increase their LCR levels are also reflected in the evolution of the liquidity shortfall (Figure 9),[13] which, based on the fully-loaded LCR minimum requirement (100%), has decreased from over EUR 27 billion in September 2016 to EUR 0.86 billion[14] in December 2019 and no shortfall in June 2020. Consequently, the number of banks with an LCR

[13] The shortfall calculated in this report is the sum of differences between the net liquidity outflows and the stock of HQLAs for all banks with an LCR below the minimum requirement. The calculation of shortfall does not account for the offsetting effect of the aggregate surplus arising from those banks that already meet or exceed the minimum requirement. Therefore, no reallocation of liquidity between individual banks or within the banking system is assumed.
[14] Note that the time series analysis showing volumes is based on a consistent sample of banks that submitted data for all reporting dates.

below 100% also declined, from eight in September 2016 to two in December 2019 and no bank with a shortfall in June 2020.

Since September 2016, banks that were already compliant with the LCR minimum requirement have further increased their surplus, suggesting ongoing efforts to strengthen their liquidity profiles. As a result, in recent years, most banks in general have shown an LCR level well above the 100% minimum requirement. This is the situation for almost all countries in the EU and for all groups of banks.[15]

Figure 9: Evolution of the liquidity shortfall (EUR billion) — balanced sample

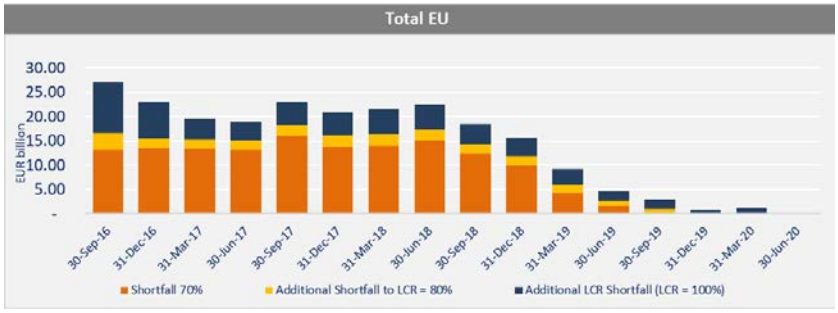
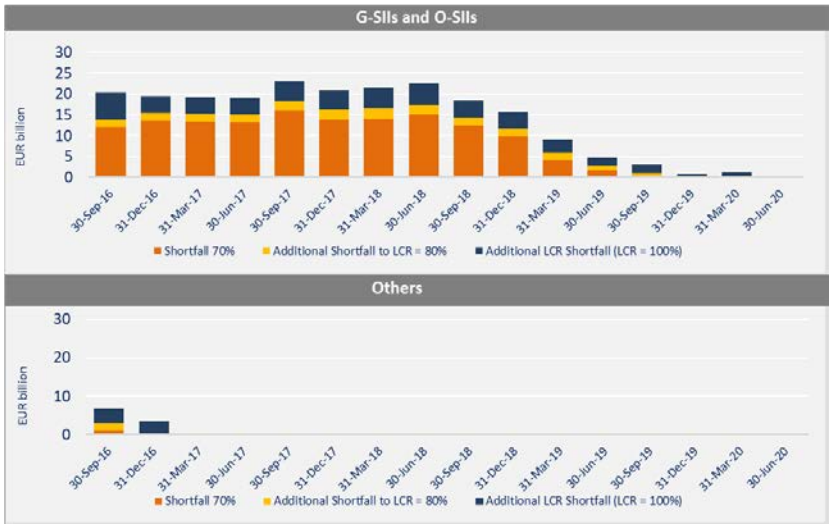


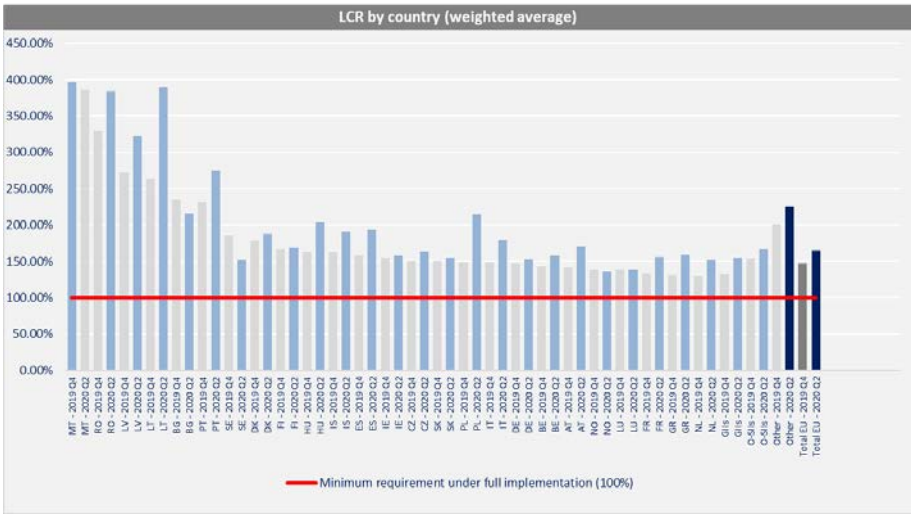
Figure 10: Evolution of the liquidity shortfall by bank group (EUR billion) — balanced sample



Differences are also found when analysing the weighted average LCR levels across countries. The majority of countries have LCR levels between 100% and 200% as of June 2020. Nevertheless, some countries present very high average LCR levels, such as Malta, Lithuania, Romania and Latvia, which have ratios above 300%. Portugal, Bulgaria, Poland and Hungary have ratios above 200% and no country presents average LCR levels that are below 100%.

[15] See the EBA Report on Liquidity measures (Reference date December 2018) - Box: Why EU banks report LCRs that are well above the minimum requirement?

Figure 11: LCR across countries — balanced sample



Out of 27[16] countries, 23 reported an increase in their average LCR ratio between December 2019 and June 2020. For the majority of countries, this increase is driven by an increase in HQLA due to the upward trend in the amount of cash and central bank reserves that can be attributed to the additional access to central banks funding amid the COVID-19 crisis.[17] For some countries, the large increase in LCR levels arises from a reduction in the amount of net-cash outflows mainly driven by a decrease in outflows. For two countries, the reduction of net-cash outflows is driven by a significant increase in inflows.

Figure 12: LCR dispersion across countries — balanced sample

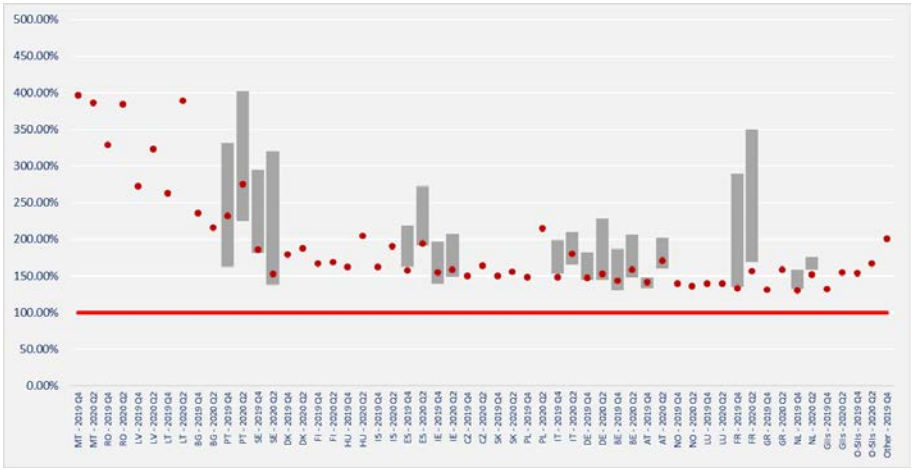


Figure 12 shows the dispersion of the LCR across countries. The top line of the grey box shows the 75th percentile, whereas the bottom line of the grey box shows the 25th percentile.[18] The red

[16] No country results are showed for Slovenia, as less than 3 banks reported data for the two reference dates shown in the analysis.

[17] See box: Interactions between non-standard monetary policy measures and the LCR liquidity buffer

[18] A percentile is the value of a variable below which a certain percentage of observations fall. For example, the 25th percentile is the value below which 25% of the observations are found.

points represent the weighted average LCRs.[19] The figure shows that there is dispersion in the banks' LCR levels even within countries. As of June 2020, Sweden is the country with the highest dispersion, followed by France and Portugal. The reason behind the high dispersion is the strong liquidity positions in specific banks driven either by their specific business models or by their high level of L1 assets mainly composed of central government assets and central bank reserves. In many countries, the weighted average point tends to be closer to the 25th percentile, meaning that larger banks within the country have lower-than-average LCRs.

Composition of liquid assets

Regulation differentiates between assets of extremely high liquidity and credit quality (Level 1 assets), and assets of high liquidity and credit quality (Level 2 assets). Level 1 assets may comprise, *inter alia*, cash and central bank reserves, as well as securities in the form of assets representing claims on or guaranteed by central or regional governments, local authorities or public sector entities. The EU regulation, unlike the Basel III framework, also considers promotional banks' assets as being in the Level 1 liquidity buffer. In addition, it provides for greater recognition of extremely high-quality covered bonds (EHQCBs), which may be included in Level 1 assets (unlike the Basel III framework).

Level 2 assets are divided into Level 2A and Level 2B assets. Level 2A assets are considered to be more liquid than Level 2B assets and, therefore, are subject to lower haircuts. The EU framework allows Level 2 assets to include exposures in the form of high-quality covered bonds (HQCBs), certain non-residential mortgage-backed securities, as well as units or shares in collective investment undertakings.

Figure 13 shows the composition of the liquidity buffer as a share of total assets by country as of June 2020. The bulk of liquidity buffers consisting of Level 1 assets in the form of cash, central bank reserves and securities (also EHQCBs). GSIIs and O-SIIs, on average, tend to hold higher shares of central bank reserves and lower levels of EHQCBs than 'other banks'. Overall, the average liquidity buffer (before the application of the cap on liquid assets) is approximately 18% of total assets for all banks and for GSIIs and O-SIIs (Figure 13).

Article 17 of the LCR DR sets the minimum requirements for the composition of the liquidity buffer by asset category. A minimum of 30% of the liquidity buffer is to be composed of Level 1 assets, excluding EHQCBs. Aggregate Level 2 assets should not account for more than 40%, and Level 2B assets should not account for more than 15% of a bank's total stock of HQLAs.

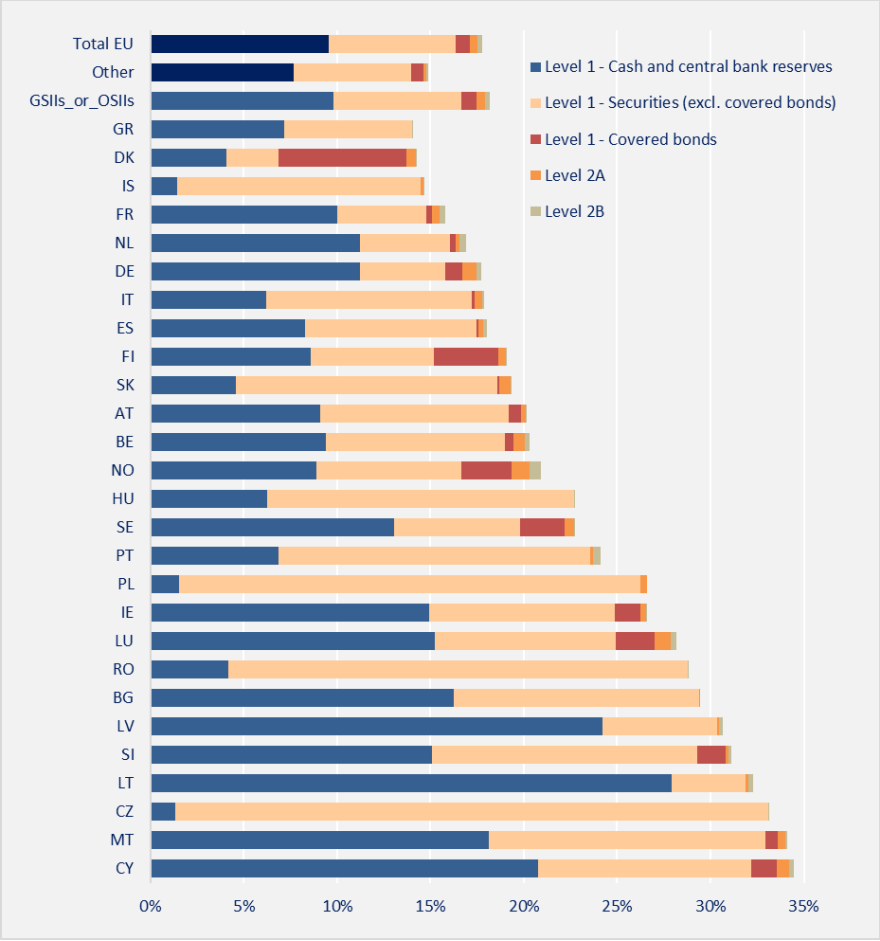
On average, liquid assets before the above-mentioned caps consist mainly of Level 1 assets (more than 96%, or more than 92% when excluding EHQCBs, of the total liquidity buffer).

Within Level 1 assets, the share of securities (38%) is slightly lower than the share of cash and reserves (54%). On average, EHQCBs represent a similar proportion for 'other banks' and for GSIIs and O-SIIs (4.4% and 4.2% respectively). Eligible assets in Level 2 assets represent only 4% of the total liquidity buffer for all banks.

[19] For confidentiality reasons, for countries with between three and four observations, only the weighted average LCR is shown.

The composition of the liquid assets depends largely on the business models of the institution and also reflects differences across EU countries. While liquidity buffers comprise mainly Level 1 assets in all countries, banks in 56% of the countries rely largely on cash and central bank reserves; banks in 41% of the countries rely on Level 1 securities (excluding covered bonds). On average, Lithuania and Latvia are the countries with a larger share of cash and central bank reserves in their total liquidity buffer (87% and 79% of the total liquidity buffer), whereas Czech Republic, Poland and Iceland have the biggest share of Level 1 securities (between 96% and 89% of the total liquidity buffer). Covered bonds contribute significantly to the liquidity buffer in Denmark (48% of the total liquidity buffer), Finland (18%), Norway (13%) and Sweden (11%).

Figure 13: Composition of liquid assets (post-weight and before the cap) relative to total assets (as of June 2020)



Interactions between non-standard monetary policy measures and the LCR liquidity buffer

Monetary policy operations can have direct implications on banks' liquid asset holdings. This is because liquidity provided by central banks is held in the form of exposures to central banks (withdrawable central bank reserves or other assets representing claims on or guaranteed by central banks), which are currently one of the major components of banks' liquidity buffers. The evolution of liquidity buffers since 2015 has indeed been influenced by the ECB's targeted longer-term refinancing operations (TLTROs) and the asset purchase programme in the euro area, as well by the quantitative easing (QE) or asset purchase programmes carried out by other EU central banks.

Amid the COVID-19 crisis, central banks in the EU have eased banks' access to funding by strengthening lending facilities or resuming or increasing the magnitude and scope of their asset purchase programmes (APPs).

The ECB set up its Pandemic Emergency Purchase Programme (PEPP), a temporary programme (to last until the end of June 2021 at least) for the purchase of public and private sector assets, to purchase EUR 1.350 bn of assets. The PEPP was first launched in March 2020 to purchase EUR 750 bn and was expanded in June 2020 for an additional EUR 600 bn.[20] Additionally, the APP was reinforced with an additional EUR 120 bn envelope (on top of the EUR 20 bn net monthly purchases announced in September 2019) to be spent by the end of 2020. In relation to its long-term lending facilities, the ECB has improved the conditions of the third targeted longer-term refinancing operations (TLTRO-3), has introduced weekly longer-term refinancing operations (LTROs) and implemented pandemic emergency longer-term refinancing operations (PELTROs).[21] The PELTROs, consisting of seven non-targeted operations, were introduced to ensure that sufficient liquidity is provided throughout the pandemic period. Additionally, the ECB has temporarily eased the collateral requirements to facilitate the availability of eligible collateral for eligible counterparties to participate in the aforementioned liquidity providing operations.[22] Further measures included the reactivation of currency swap lines and enhancement of existing swap lines with different central banks.[23]

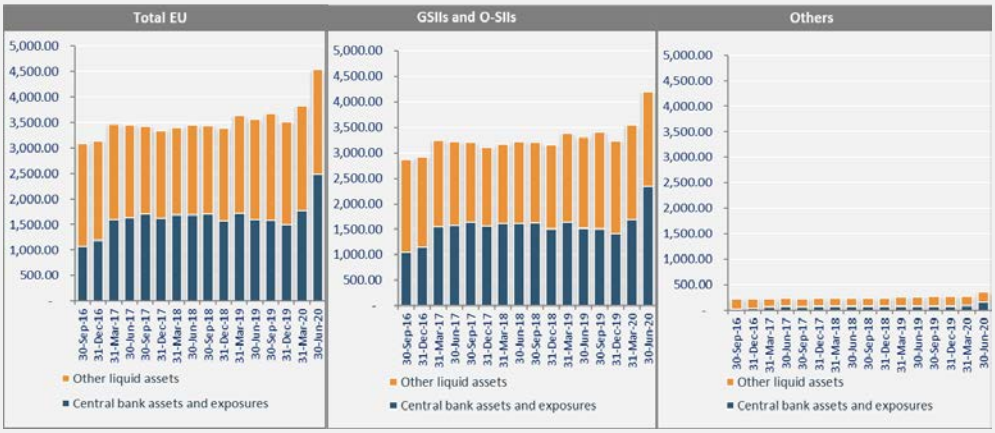
Similar policy packages were implemented in member states outside the euro area.[24]

The effect of this additional central bank funding explains the increase in the contribution of central bank assets and exposures from December 2019 to June 2020. The relative increase

[20] See the ECB press release the PEPP (18 March 2018) and the subsequent communication on the PEPP expansion (4 June 2020).
[21] See the ECB press release on the additional LTROs, the easing of the TLTRO-3 conditions and the additional APP envelope (12 March 2020). See also the press release on further easing of TLTRO-3 conditions (30 April 2020) and the ECB press release on the PELTROs (30 April 2020).
[22] See the ECB COVID-19 related measures.
[23] See box Enhancement and reactivation of currency swap lines.
[24] See IMF for an extensive list of the monetary measures adopted in each country.

between December 2019 and June 2020 is 66% for GSIIs and O-SIIs and 87% for Others. (Figure 14).

Figure 14: Evolution of central bank assets and exposures over time (EUR billion) — balanced sample



A scale down in central bank credit operations and the winding down of asset purchase programmes would reduce the supply of central bank reserves and slow down the upward trend in central bank assets. In addition, looking forward, banks might use the ECB liquidity to provide lending to the real economy.

Under such a scenario the banks may need to modify their funding strategies and, where necessary, the composition of their HQLAs, in order to keep their liquidity buffers.

Composition of outflows and inflows

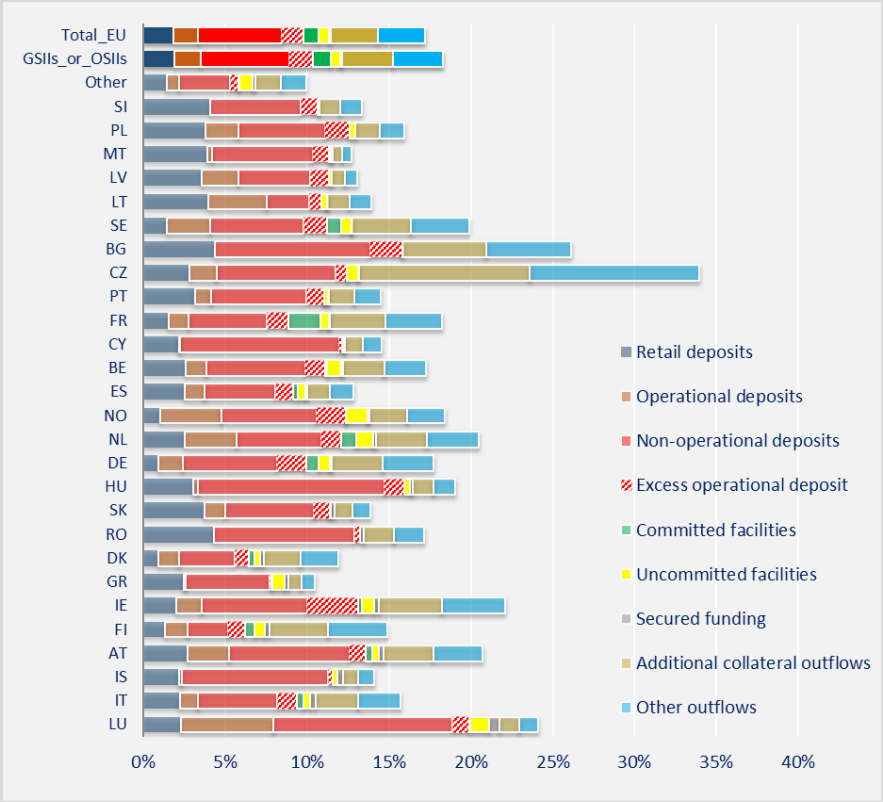
Net liquidity outflows are defined as the difference between liquidity outflows and liquidity inflows and are required to be positive.[25] Liquidity outflows are calculated by multiplying the outstanding balances of various categories or types of liabilities and off-balance-sheet commitments by the rates at which they are expected to run off or be drawn down.[26] Liquidity inflows are assessed over a period of 30 calendar days. They comprise only contractual inflows from exposures that are not past due and for which banks have no reason to expect non-performance within 30 calendar days. To prevent banks from relying solely on anticipated liquidity inflows to meet their LCR, and to ensure a minimum level of liquid assets holdings, the amount of inflows that can offset outflows is generally capped at 75% of total liquidity outflows. However, unlike the Basel LCR standard, the EU LCR regulation provides certain exemptions to this cap, either full or partial, although these are subject to the prior approval of competent authorities[27] and are subject to compliance with some conditions established in the regulation. This includes a potential exemption for intragroup and intra-institutional protection scheme flows and banks that specialise in pass-through mortgage

[25] Article 20 of the LCR DR.
[26] Article 22(1) of the LCR DR.
[27] Article 33 of the LCR DR.

lending or in leasing and factoring. In addition, banks that specialise in financing the acquisition of motor vehicles or in consumer credit loans may apply a higher cap of 90%.

As of June 2020, on average, cash outflows (post-weight) represent approximately 15.5% of total assets of the banks in the sample. GSIIs and O-SIIs present a higher share (16.4%) than 'other banks' (9.2%). The share of outflows from retail deposits of total assets is nearly the same in both groups of banks (around 2% of total assets). However, relative to total cash outflows, 'other banks' present a higher share of retail deposits (16% of total cash outflows compared with 11.5% of total cash outflows for GSIIs and O-SIIs). As expected, for both groups of banks (GSIIs and O-SIIs and 'other banks'), the main component of the cash outflows is non-operational deposits (e.g. short-term deposits from financial customers), which tend to have higher run-off rates and account for 3.1% of total assets for ´other banks´ and 5.4% of total assets for GSIIs and O-SIIs. Excess operational deposits account for around 1% of total assets for both groups of banks. The same composition of outflows is found when analysing results by country.

Figure 15 Composition of cash outflows (post-weight) relative to total assets (as of June 2020)



Furthermore, banks should take into account an additional outflow that corresponds to the collateral needs that would result from the impact of an adverse market scenario on credit banks' derivative transactions and other contracts, in case these are considered to be material.[28]

[28] Article 423(3) of the CRR and Article 30(3) of the LCR DR.

Figure 15 shows the share of additional collateral outflows in total assets (around 0.6% of the total assets for both groups of banks). As a percentage of total outflows, the share of additional collateral outflows is 3.5% for GSIIs and O-SIIs and 8.3% for 'other banks'.

As described above, the recognition of liquidity inflows is, in the absence of exemptions, limited to 75% of total liquidity outflows.[29] In this sample, no bank benefited from a higher cap of 90% and two banks benefited from a full exemption of certain inflows from the cap.

Figure 16: Composition of cash outflows (pre-weight) relative to total assets (as of June 2020)

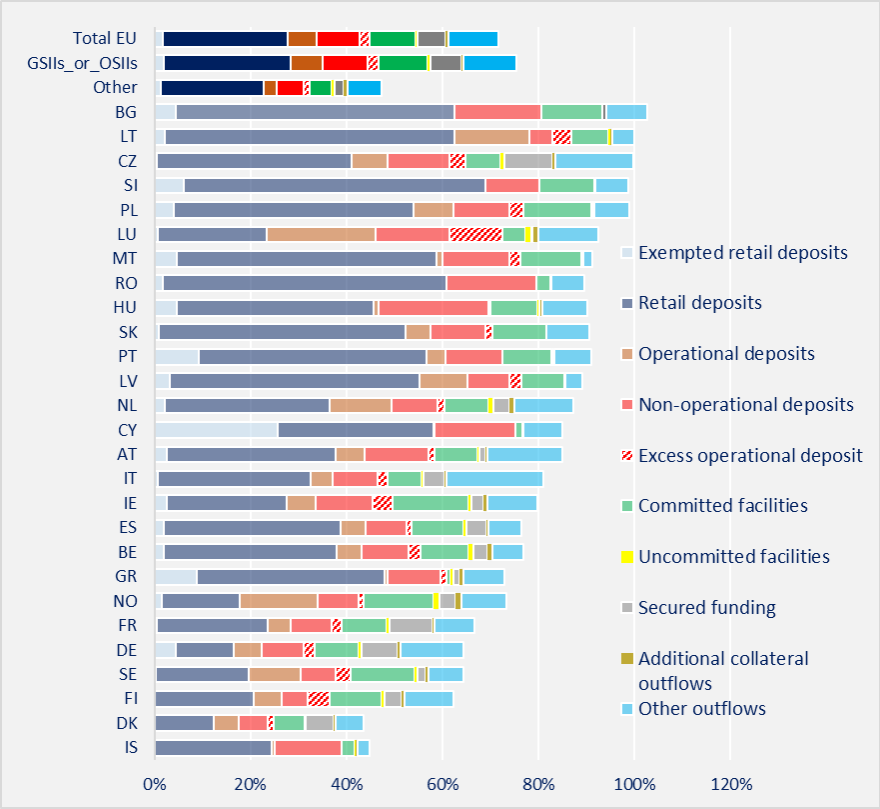


Figure 16 shows the share of cash outflows (pre-weight) over total assets. As expected and due to the high haircuts applicable to this category of outflows, outflows from retail deposits become the category with the highest share over total assets before the application of weights (around 26% of the total assets for GSIIs and O-SIIs and around 21% for 'other banks'). For both groups of banks, 2% corresponds to retail deposits that are exempted from the calculation of LCR outflows. The share of retail deposits exempted from the calculation of LCR outflows becomes important in some countries like Cyprus (26% of total assets).

[29] Article 33 of the LCR DR (with the approval of the competent authority, specialised credit banks may be subject to a cap of 90% on inflows, and these banks may be fully exempt from the cap on inflows if their main activity is leasing and factoring business).

Assessment of secured funding transactions with central banks

Central bank-related funding transactions have to be backed by eligible collateral. This means that they are considered to be secured funding transactions that may affect the LCR if the remaining maturity of the transactions is less than 30 calendar days. However, unlike interbank secured funding transactions, no cash outflows will be assigned to transactions where the lender is a central bank. The underlying implicit rationale is the assumption that, in times of stress, the central bank is expected to roll over any secured funding transactions, as long as the relevant collateral is central bank eligible, disregarding the LCR liquidity quality of these assets pledged as collateral.[30] In contrast, secured short-term transactions with other counterparties are subject to an outflow depending on the liquidity quality of the underlying collateral. In terms of the LCR, the impact of this differentiated treatment is significant where collateral is less liquid: an outflow rate of 0% is applied to all transactions with central banks, whereas in the case of transactions with other counterparties an outflow rate of 100% of the amount due is applied.

At June 2020, 97 banks reported secured funding transactions with any type of counterparty. Of these, 36 reported secured funding transactions with a central bank (26 were either GSIIs or O-SIIs, and 10 were classified as 'other banks').

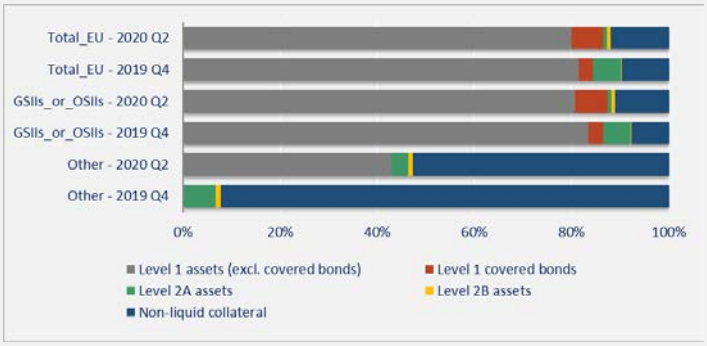
Given the preferential treatment of secured funding transactions with central banks in the determination of the net cash outflows, some banks may benefit from the difference between the list of central bank eligible assets for collateral and liquid assets in terms of liquidity coverage requirements. Banks that benefit from this treatment are those that use non-liquid assets as collateral to draw central bank funding. While an outflow rate of 0% is applied to these transactions with central banks, an outflow rate that is equivalent to the haircut of the underlying collateral is applied to transactions with other counterparties (e.g. 0% if the transactions are backed by Level 1 assets (excluding covered bonds), 7% if collateralised by Level 1 covered bonds, and up to 100% if collateralised by non-HQLAs).

In line with previous reports, the composition of the collateral posted for secured funding transactions maturing within 30 days[31] with central banks present material differences across banks. For GSIIs and O-SIIs, a large part of the collateral posted for these transactions is Level 1 assets, excluding EHQCBs (81% of the total in December 2019 and 80% in June 2020). The Level 1 covered bonds and the non-liquid collateral represent only 3%/7% and 7%/2% (December 2019/June 2020) of the total collateral posted, respectively. On the contrary, for 'other banks', the share of the collateral posted for these transactions that is Level 1 was 0% in December 2019 and increased to 43% in June 2020. Nevertheless, results should be interpreted with caution as only 10 'other banks' reported secured funding transactions with a central bank in June 2020.

[30] Still, these transactions affect the calculation of the unwinding of secured funding and lending transactions, which is relevant for the calculation of the cap on liquid assets. The latter may be relevant if the bank (i) conducts a significant amount of short-term central bank operations, (ii) provides less liquid collateral and (ii) has reinvested the cash received into illiquid assets.

[31] Information from COREP 73, which includes information of expected outflows in the following 30 days.

Figure 17: Composition of collateral posted for secured funding transactions with central banks — balanced sample



Banks would report higher cash outflows if they were to conduct secured funding transactions via interbank repurchase agreement (repo) markets. Nevertheless, the amount of repo transactions in the total assets for this category of banks is small, so the overall impact of such a change would still be limited.

The new LCR delegated regulation[32] applicable from 30 April 2020 introduced a corrigendum to the unwind mechanism with the aim to further recognise the role of the Central Bank in a situation of stress. Indeed, under Article 17 (4), the competent authority may, on a case-by-case basis, waive the application of the unwind mechanism.[33] As of June 2020, only two institutions reported secured funding waived from the unwinding mechanism. Nevertheless, the effective use of this provision by competent authorities should continue to be monitored in the coming reference dates, a longer time after the entry into force of the new regulation.[34]

Cash inflows relative to total assets for GSIIs and O-SIIs are 4.9% of total assets. This share is higher than for 'other banks' (2.1%). (Figure 18)

The results by country show heterogeneity in the composition of inflows, with 14 countries showing a higher share of financial customer cash inflows and 7 countries showing a higher share of other inflows. Cyprus shows the highest share of financial customer inflows (84% of total inflows), whereas Bulgaria has the highest share of other inflows (around 66%).

[32] COMMISSION DELEGATED REGULATION (EU) 2018/1620 of 13 July 2018 amending Delegated Regulation (EU) 2015/61.
[33] Article 17 (2) and (3)
[34] More details about the impact of the unwinding mechanism can be found in the EBA Report 'Analysis of the unwind mechanism of the LCR as per Art. 17(5) DR (EU) 2018/1620' published 19/11/2020.

Figure 18: Composition of cash inflows (post-weight and before the cap) relative to total assets (as of June 2020)

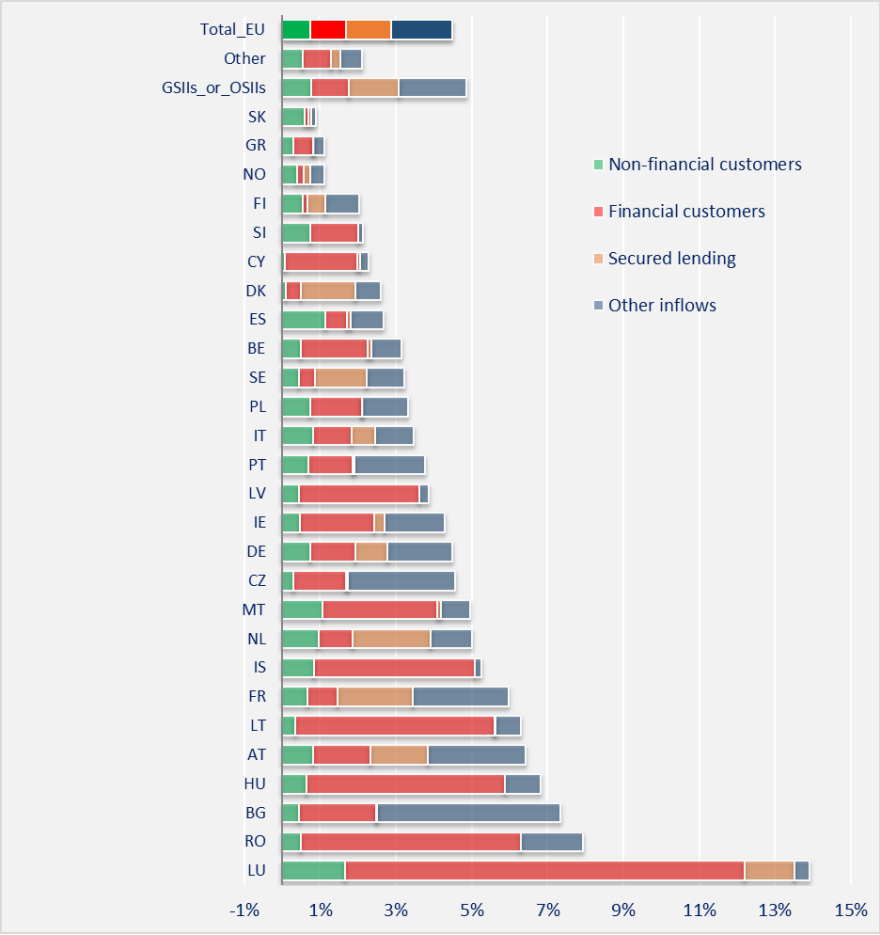


Figure 19 summarises the parameters of the LCR and shows the offsetting between outflows (indicated in dark blue) and inflows (indicated in grey) and then illustrates the extent to which the liquidity buffer exceeds the level of net liquidity outflows (portion above the dotted line).

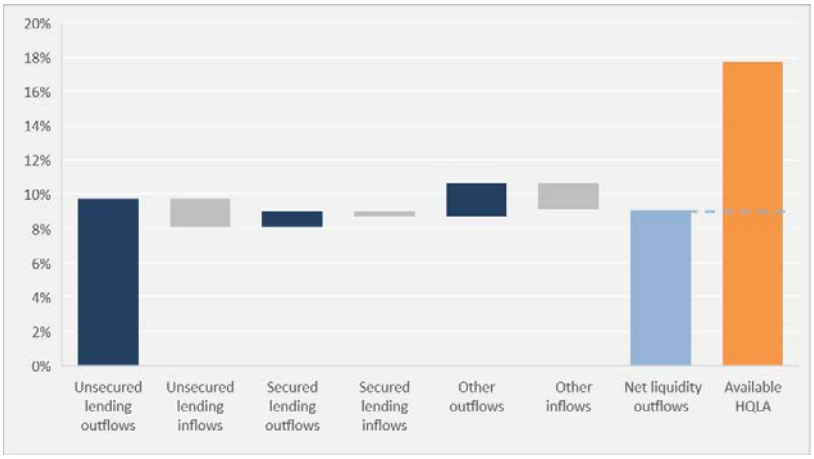
The largest element that reduces the LCR is outflows stemming from unsecured lending. This is in line with expectations for two reasons: unsecured funding, especially in the form of non-operational deposits, is a large part of banks' outflows; and the applicable outflow rates for these financial products are high.

In particular, outflows stemming from unsecured lending amount to almost 10% of total assets. Within this category, non-operational deposits – including excess operational deposits (which have high run-off rates)[35] – are the most important category (6.2% of total assets). Operational and retail deposits (which have lower run-off rates) account for only 3.4% of total assets.

[35] Article 28 of the LCR DR.

Only about 1.7 percentage points of unsecured lending (outflows) as a share of total assets are offset by inflows in the same category. Proportionally, the offsetting in this category is much lower than in the secured lending category.

Figure 19: Dynamics of the liquidity buffer, outflows and inflows (as a share of total assets)



The low share of outflows from secured funding relative to total assets (1.0%) is driven by two aspects:

- Secured funding transactions that are conducted with the central banks receive a 0% outflow rate (irrespective of the liquidity quality of the underlying collateral), hence the column in Figure 19 for outflows from secured lending represents only secured transactions in the interbank market.

- In addition, on average, most secured funding transactions that are conducted with other counterparties (and that fall into the LCR time horizon) are secured by liquid assets, with those transactions being subject to lower outflow rates (e.g. 0% outflow rate for secured funding transactions backed by Level 1 assets, and 15% outflow rate for secured funding transactions backed by Level 2A assets).

The final column represents the liquidity buffer that banks hold to meet their net liquidity outflows and also shows that banks hold, on average, an excess liquidity buffer of 8.7% of their total assets.

Analysis of the LCR by business models

The impact of the LCR may also differ depending on bank-specific business models, mostly because banks with different business models tend to follow different funding strategies. Therefore, the categorisation of banks by business model used in this report[36] also takes into account their specific funding structures. Table 1 indicates the main sources of funding that are generally used by banks in different business models, according to the aforementioned categorisation. Nevertheless, this list is not comprehensive and other sources of funding may be used by specific business models. Some of the business models defined in this report cannot be linked to any specific source of funding. If this is the case, the specific business model has not been included in Table 1.

Table 1: Main sources of funding by business model

Business model	Main sources of funding			
	Deposits from retail clients	Wholesale funding	Derivatives	Covered bonds
Cross-border universal banks	✓	✓	✓(+)	×
Local universal banks	✓	✓	✓(-)	×
Building societies	✓	×	×	×
Locally active savings and loan associations/cooperative banks	✓	×	×	×
Private banks	✓	×	×	×
Mortgage banks including pass-through financing mortgage banks	×	×	×	✓

Cross-border universal banks and local universal banks both use derivatives products as a source of funding, although this type of funding is generally more common for cross-border universal banks. In Table 1, if a source of funding appears with a cross for a specific business model, it means that banks of that specific business model are generally less expected to get funds through that specific source. Custody banks have a specific funding structure that relies predominantly on client operational deposits. The operational deposits are kept by clients at custodians for payment and securities settlement purposes.

A different funding strategy will determine the structure of the banks' liabilities and could affect their LCR levels via the net liquidity outflows that are linked to those liabilities (the denominator of the LCR). Indeed, the comparison between two banks with exactly the same size and composition of total assets but with different funding structures will (evidently) show different LCR levels. If a bank sources its funding predominantly from retail deposits, it shows a lower level of net liquidity outflows than if the bank uses wholesale funding. This is because the latter type of funding is subject to higher run-off rates.

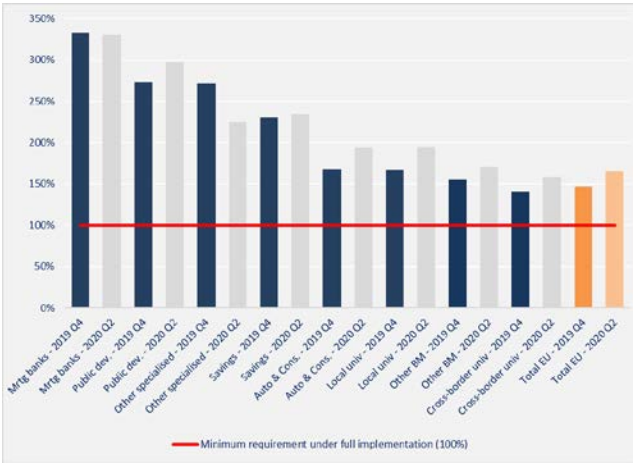
Data confirms that there is a wide dispersion in the LCR across different business models in the EU banking sector (Figure 20).

[36] See Table 6 in Annex 1 (business model categorisation).

A sample of 118 banks was used to analyse the impact of the LCR requirement across different business models. Subsidiaries are included in the analysis to take into account the diversity of business models within the overall banking groups (subsidiaries with the same business model as their parent company have been excluded from the analysis to avoid double counting). One caveat to the analysis is the representativeness of the sample, since there is a high concentration of banks in two of the business models.[37] Results should therefore be interpreted with caution and should be checked against the sample size of the relevant business model category.

For all business models, the LCR exceeds, on average, the minimum requirement of 100%. Mortgage banks (an average LCR of 332% in December 2019 and 330% in June 2020) and public development banks (an average LCR of 273% in December 2019 and 296% in June 2020) present the highest LCRs, well above the EU average. Cross-border universal banks (composed of large banks) show the lowest LCR below the EU average (LCR of 140% in December 2019 and 158% in June 2020).

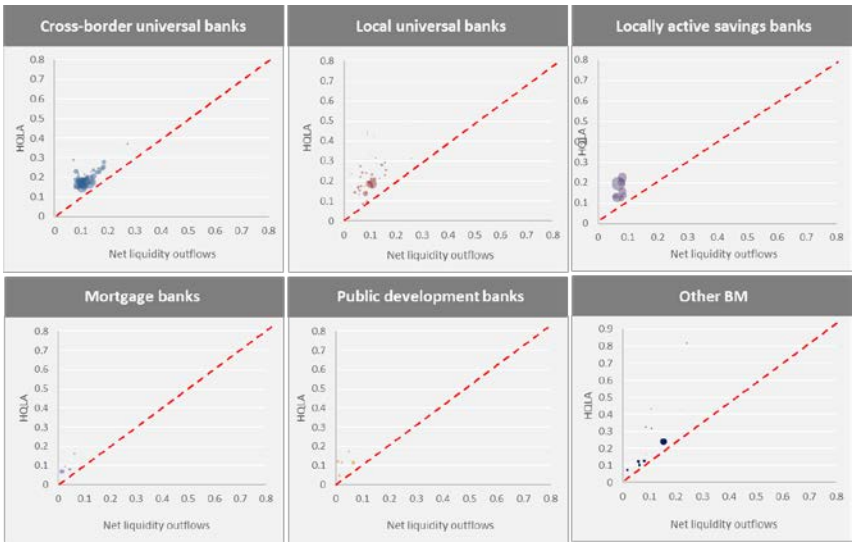
Figure 20: LCR across business models — balanced sample



Nevertheless, looking only at LCR levels, it is difficult to understand the implications of the different business models. The ratio of HQLA to net liquidity outflows shows which business models tend to primarily achieve their target LCR levels by adjusting HQLA levels as opposed to those particularly pursuing their LCR levels by adjusting net liquidity outflows. Cross-border universal banks and local universal banks show HQLA ranges from 10% to 30% of total assets and ratios of net liquidity outflows over total assets ranging from 10% to 20%. Other business models, such as mortgage banks and public development banks, show lower values for the two measures, as banks appear to be more concentrated near the axis intersection.

37 These are (i) cross-border universal banks and (ii) local universal banks. In aggregate, these banks make up 77% of the total sample. The sample broken down by business model category is shown in Table 10 in the Annex. The definitions of the business models are presented in Table 12 in the Annex.

Figure 21: HQLA and net liquidity outflows (as shares of total assets), per business model[38] (as of June 2020)



The composition of liquidity outflows may help to explain whether the structure of the LCR is influenced by the business model. Figure 22, shows the comparison between the composition of eligible LCR outflows before and after the application of haircuts. For local universal banks and savings banks the data confirms that the highest share of outflows is related to retail deposits (41.3% and 39.1%, respectively). This means that these business models see the highest reductions in outflows after the application of haircuts.

For savings banks and local universal banks, the data confirmed that the share of wholesale funding is also important. The share of non-operational deposits over total assets is 8.7% and 10.1% respectively. For cross-border universal banks, the data confirmed that the share of retail deposits is important (25.3% of total outflows), although lower than for local universal banks, and savings banks. Banks under this business model also show an important proportion of wholesale funding (the share of non-operational deposits in total outflows is 9.3%) and committed facilities (the share over total outflows is 10.6%). As a result, the reduction of liquidity outflows after the application of haircuts is somewhat less important for this business model than for those with higher shares of retail deposits.

For 'mortgage banks', the highest share of total outflows corresponds to retail deposits (15.0% of total outflows), and the reduction of total outflows after applying haircuts is therefore quite important.

Public development banks show the lowest reductions of outflows after the application of haircuts. These business models do not have outflows related to retail deposits that fall within the scope of the LCR, i.e. the 30-calendar-day time horizon. For this business model, the highest share of outflows is related to other outflows (6.5%), but committed facilities also play an important role in

[38] The size of the bubble indicates banks' weights in terms of total assets. The bigger the bubble, the larger the bank and the greater the weight it takes in the weighted average values within the same business model.

outflows (5.3%). Owing to this funding structure, the reduction of outflows for these business models after applying haircuts is lower than for other business models.

Figure 22: comparisons of pre- and post-weight cash outflows relative to total assets, per business model

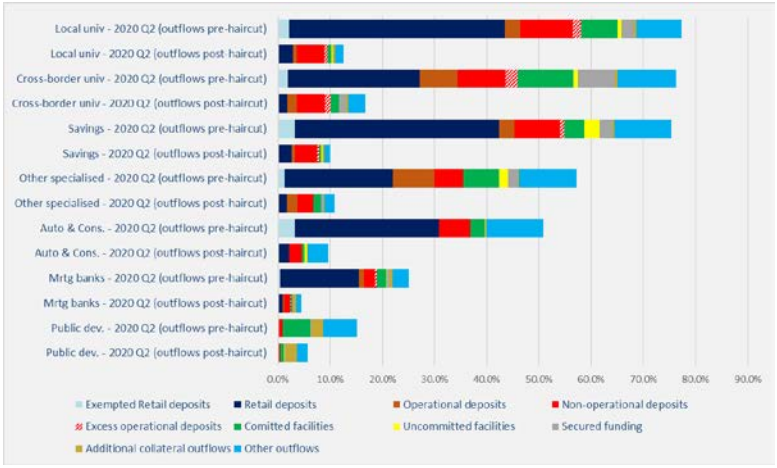
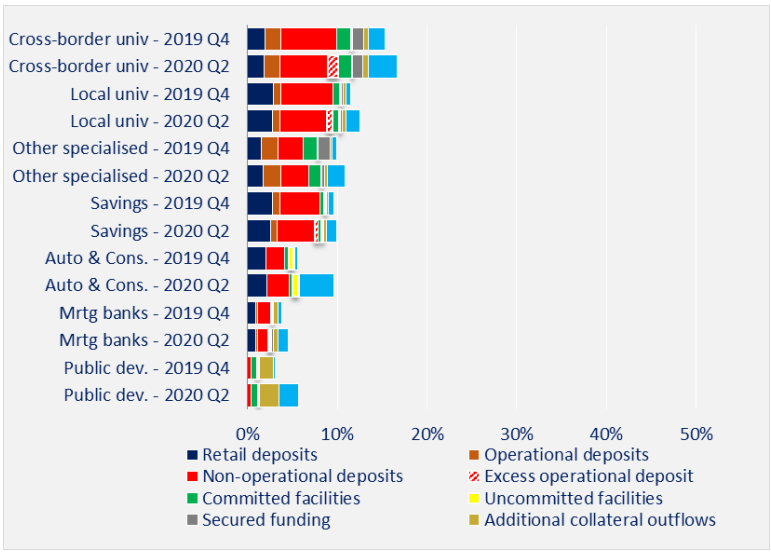


Figure 23 shows the evolution of cash outflows (post-weight) between December 2019 and June 2020.The composition of cash outflows remained stable within the two reference dates. Public development banks and automotive banks experience a significant increase in net-cash outflows between December 2019 and June 2020 (from 3.1% to 5.7% and from 5.6% to 9.6% respectively).

Figure 23: Composition of cash outflows (post-weight) relative to total assets by business model — balanced sample

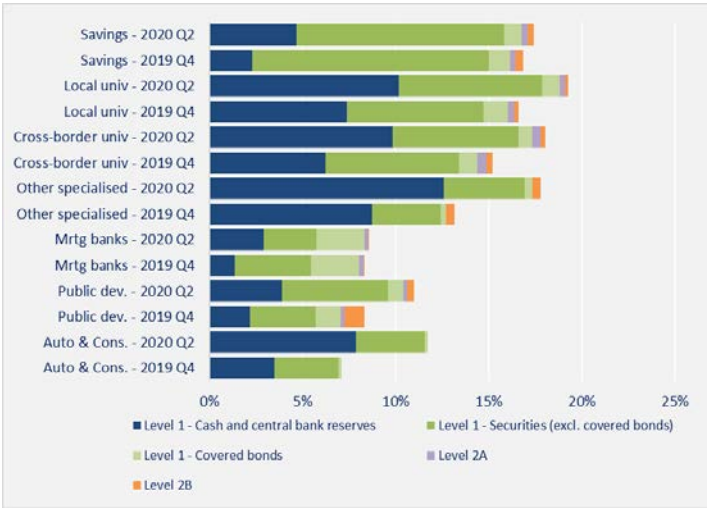


The share of cash inflows (post-weight and before the cap) relative to total assets, on average, is less than 5% across business models, except for cross-border universal banks (5.02% in June 2020). The share of inflows decreased significantly for other specialised banks (4.3% in December 2019 and 3.0% in June 2020) and savings banks 3.0% in December 2019 and 2.1% in June 2020.

Figure 24: Composition of cash inflows (post-weight and before the cap) relative to total assets, per business model — balanced sample

Overall, as of June 2020, the composition of liquid assets per business model (Figure 25) and the overall high level of the LCR confirm that the liquidity buffer is of high quality (as defined in the CRR). The composition of HQLAs shows a high share of Level 1 assets in all business models, and HQLAs constitute a similar share (between 8% and 19%) of total assets across most business models. Mortgage banks show the lowest share of HQLAs (8.3% over total assets). Also, mortgage banks use a higher proportion of Level 1 covered bonds than the remaining business models. For most categories of business models, cash and central bank reserves account for the higher share of total assets, except for savings banks and public development banks, for which Level 1 Securities are the main component.

Figure 25: Composition of liquid assets (post-weight and before the cap), relative to total assets, per business model — balanced sample



LCR — analysis of currency mismatch

Rationale for the analysis

Banks regularly finance their assets in a currency that is different from that in which the assets are denominated. There are several reasons for this, ranging from diversification, price and supply factors to structural drivers.

In the aftermath of the global financial crisis, currency mismatch in funding and the liquidity of asset buffers became important aspects to take into account. In 2011, the European Systemic Risk Board (ESRB) published two recommendations focusing on foreign lending (ESRB/2011/1) and significant currency-denominated funding of credit banks (ESRB/2011/2). In addition, Article 8(6) of the LCR DR requires banks to ensure that the currency denomination of their liquid assets is consistent with the distribution by currency of their net liquidity outflows. Where appropriate, competent authorities may require credit institutions to restrict currency mismatches by setting limits on the proportion of net liquidity outflows in a currency that can be met during a stress period and by holding liquid assets not denominated in that currency.

In normal times, it is expected that banks can easily swap currencies and can raise funds in foreign currency markets. However, the ability to swap currencies may be constrained during stressed conditions (as seen during the financial crisis). For instance, counterparty credit risk and currency-specific liquidity risk can cause significant dislocations in foreign exchange (FX) swaps markets, not allowing the banks to shift liquidity internally from one currency to another.[39]

During the COVID-19 crisis, central banks have taken actions to mitigate the effect of potential constraints to swap currencies by establishing central bank currency swap lines.[40] These swap lines let central banks of one country exchange their domestic currency reserves for those of the central bank of a foreign country, thus ensuring that central banks in different countries can provide funds to banks in foreign currencies in all circumstances. The swaps between the two central banks are then reversed after a pre-specified period.

Such arrangements may temporarily allow banks to mitigate their currency-related liquidity risks, as they will be able to make use of the swap lines. Nevertheless, the duration of the swap line arrangements may change in the upcoming years and it cannot be taken for granted that they will remain in place. Therefore, it is useful to study whether currency-related liquidity risk exists in the EU banking sector. Moreover, the analysis of the overall maturity mismatch and liquidity coverage between assets and liabilities across all currencies is useful to disentangle and assess possible large funding/outflow risks for some specific currencies. The risk profile of an institution in a specific currency could be blurred by different maturity mismatches across currencies and therefore LCR reports broken down by significant currencies allow for monitoring of the inherent currency risk in

[39] The EBA report on funding plans presents some data about the movements experienced by key variables in the FX swaps markets.
[40] See box Interactions between non-standard monetary policy measures and the LCR liquidity buffer.

the institution's LCR. The CRR does not require separate reports for items denominated in the reporting currency; however, a relevant number of banks seem to do this voluntarily.

The analysis below uses an indicator of the LCR ratio to compare total figures across all currencies against figures per individual significant (foreign) currency[41] (limited to euros, US dollars and pounds sterling). The indicator is the liquidity buffer over net cash outflows developed per significant currency and it studies any currency patterns in the liquidity profiles of banks. The analysis sheds light on the banks' liquidity coverage and stable funding by individual significant currencies.[42]

Analysis of the parameters of the LCR by significant currencies

The objective is to test whether there are any currency-specific patterns in the liquidity profiles of banks. The indicator demonstrates whether the difference between the ratio of the liquidity buffer and net cash outflows for a specific foreign currency is more pronounced than the same ratio for all currencies.

$$LCR\ by\ currency = \frac{Liquidity\ buffer_{currency}}{Outflows_{currency} - Min(Inflows_{currency}, 0.75 \times Outflows_{currency})}$$

Where currency = reporting currency (all currencies), euros, US dollars, pounds sterling.

Currency mismatches in EUR

A total of 33 banks reported euros as a significant (foreign) currency. There is some evidence of a different pattern when euros is the significant currency. 20 banks out of these 33 banks presented an LCR_{EUR} lower than the $LCR_{all\ currencies}$, but only 8 banks presented an LCR_{EUR} below 100%. These banks are located north-west of the diagonal line in Figure 26.

[41] Article 415(2) of the CRR indicates that a currency is considered significant if the currency-denominated liabilities are higher than 5% of total liabilities. The analysis is limited to foreign significant currencies, meaning that only significant currencies that are different from the legal currency in the country of origin of each individual bank are included, i.e. a UK bank with positions in euros, pounds sterling and US dollars over 5% of total liabilities will be considered in the analysis only for euros and US dollars but not for pounds sterling.

[42] The results are presented at an anonymised institution level and at aggregated level. An institution is included in the analysis under a specific indicator only if the relevant data is available for the total figures in the reporting currency and in at least one of the significant (and foreign currencies).

Figure 26: Liquidity buffer over net cash outflows where the significant currency is euros (*x*-axis) compared with the same indicator for the reporting currency (all currencies; *y*-axis)

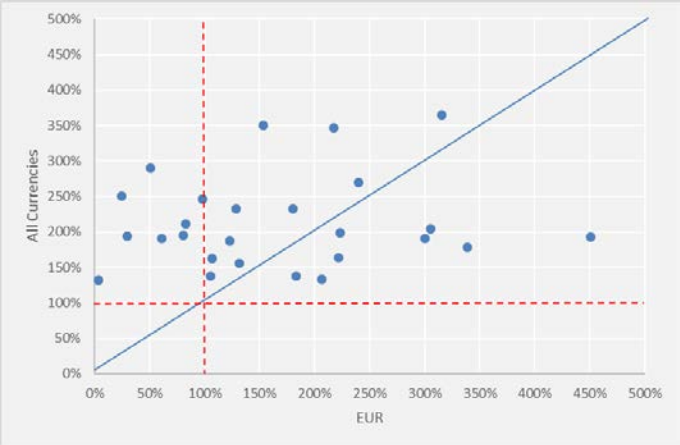


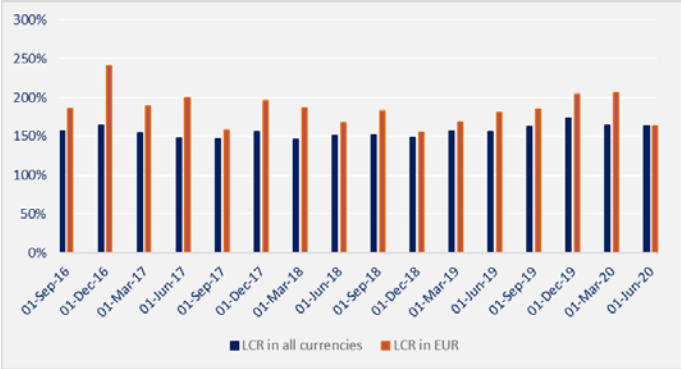
Figure 27 shows the evolution of the proportion of banks in the sample with LCR_{EUR} below $LCR_{all\ currencies}$ (blue line) and the proportion of banks in the sample with LCR_{EUR} below 100% (orange line). The chart shows a significant fluctuation over time in the relationship between LCR_{EUR} and $LCR_{all\ currencies}$. The proportion of banks with LCR_{EUR} below 100% has increased from 22% in September 2016 to 28% in June 2020.

Figure 27: Evolution of the comparison between the positions in LCR in EUR and LCR in all currencies — balanced sample [43]

Figure 28 analyses the average level of LCR_{EUR} and $LCR_{all\ currencies}$. Since September 2016, the average LCR_{EUR} has been higher than the average $LCR_{all\ currencies}$. This tendency has changed in June 2020 when the average LCR_{EUR} is 162.6% slightly lower than the $LCR_{all\ currencies}$ (162.7%).

[43] Results based on a consistent sample of 18 banks that reported LCR_{EUR} data across reference dates.

Figure 28: Evolution of average LCR in EUR vs average LCR in all currencies — balanced sample



Currency mismatches in USD

A total of 71 banks reported US dollars as a significant (foreign) currency. There is clear evidence of a different pattern when US dollars is the significant currency. 53 banks out of these 71 banks presented an LCR_{USD} lower than the $LCR_{all\ currencies}$, many of them with an LCR_{USD} close to 0%. 35 banks presented an LCR_{USD} below 100%. These banks are located north-west of the diagonal line in Figure 29.

Figure 29: Liquidity buffer over net cash outflows where the significant currency is US dollars (*x*-axis) compared with the same indicator for the reporting currency (all currencies; *y*-axis)

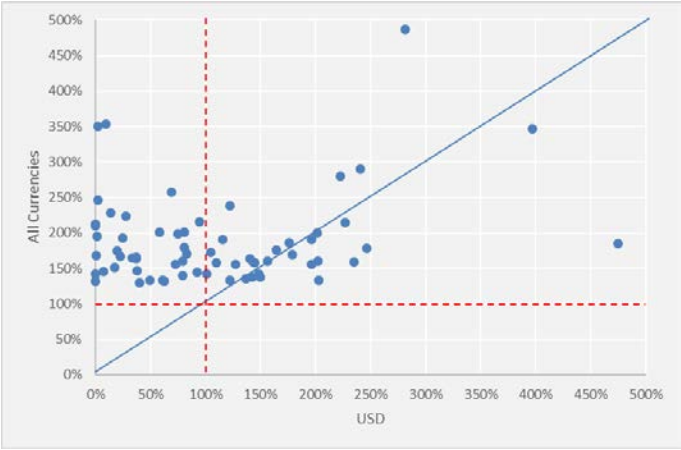


Figure 30 shows the evolution of the proportion of banks in the sample with LCR_{USD} below $LCR_{all\ currencies}$ (blue line) and the proportion of banks in the sample with LCR_{USD} below 100% (orange line). Since September 2016, there is a tendency of a reduction of the number of banks that have LCR_{USD} below $LCR_{all\ currencies}$. The proportion of banks with an LCR_{USD} below 100% also reduced between September 2016 and December 2019. This tendency changed in the last two reference dates, as a higher percentage of banks in the sample reported LCR_{USD} below 100%.

Figure 30: Evolution of the comparison between the positions in LCR in USD and LCR in all currencies — balanced sample [44]

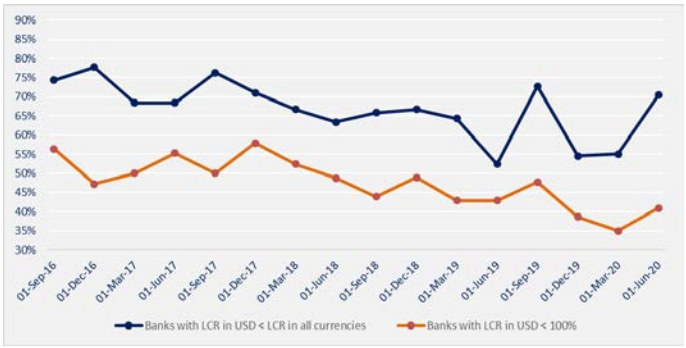
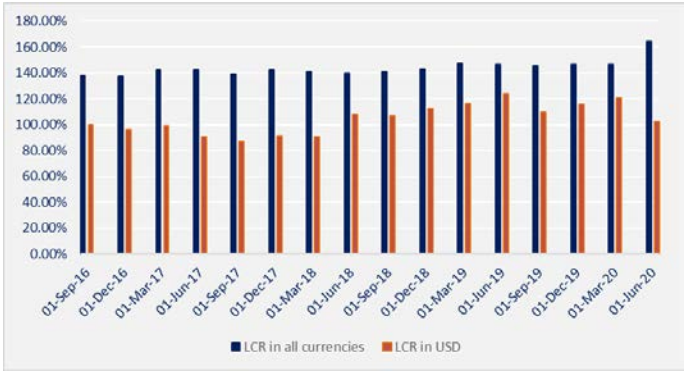


Figure 31 analyses the average level of LCR_{USD} and $LCR_{all\ currencies}$. Since September 2016, the average LCR_{USD} level has been lower than the average $LCR_{all\ currencies}$ level. The difference between the two ratios reduced significantly between June 2018 and March 2020 but increased on the last reference date (June 2020) when the average LCR_{USD} was 102%, thus significantly below the $LCR_{all\ currencies}$ (165%). Similarly to the LCR_{EUR}, LCR_{USD} showed a reduction in June 2020 even if central banks' measures, such as USD swap lines, have alleviated any potential stress in the USD funding market. [45]

Figure 31: Evolution of average LCR in USD vs average LCR in all currencies — balanced sample



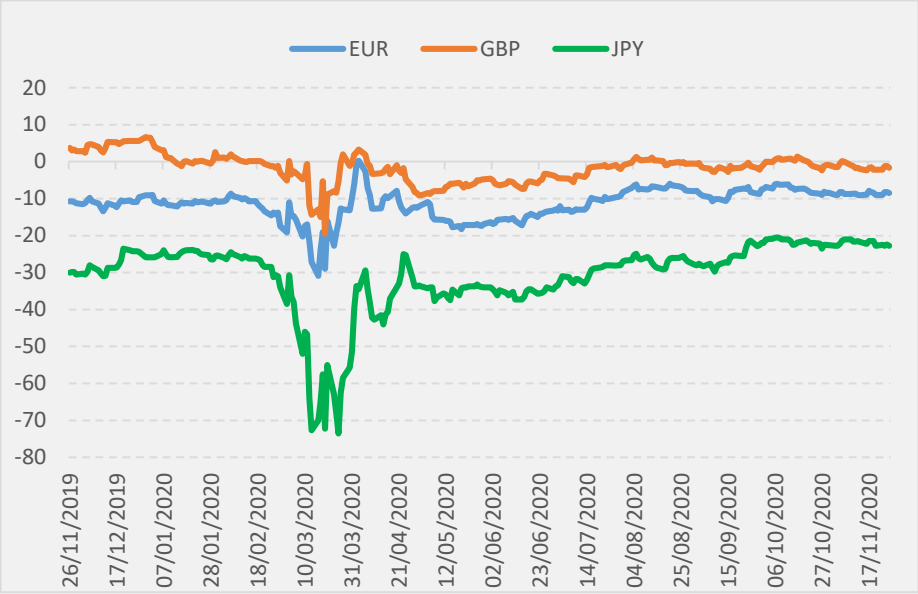
[44] Results based on a consistent sample of 44 banks that reported LCR_{USD} data across reference dates.
[45] See box EU Banks' Foreign Currency Liquidity Shortfalls and Central Bank Emergency Liquidity Measures.

EU Banks' Foreign Currency Liquidity Shortfalls and Central Bank Emergency Liquidity Measures during COVID-19 Crisis

The current and past issues of the EBA's LCR Report have highlighted that EU banks report sizeable shortfalls in their LCRs on significant foreign currencies, particularly in US dollars. These shortfalls have been driven both by lower USD liquidity buffers and higher USD net outflows when compared to the banks' domestic currency LCRs or the LCRs in other significant foreign currencies.[48] At the aggregate LCR level, the liquidity shortfalls in foreign currencies are typically offset by liquidity surpluses in the domestic currency, with the expectation that the banks will be able to swap part of the domestic liquidity surplus to foreign currency in the FX markets whenever needed. However, since the ability of banks to raise funds in the FX markets may be constrained during times of stress, the EBA has recommended that the competent authorities make greater use of their discretion to restrict the currency mismatches on the banks' balance sheets.

After the global outbreak of the COVID-19 pandemic in Spring 2020, severe strains in offshore dollar funding markets emerged. In a global shift out of risky assets, many non-US corporates were unable to roll over their US dollar funding and were forced to sell dollar-denominated assets. The US dollar funding stresses also affected EU banks with significant short-term USD-denominated liabilities. In March and April 2020, the spreads of the USD basis swaps widened sharply, signalling major difficulties of banks in all major currency areas to access US dollar funding (Chart 1).[49] The conditions started to improve after the largest central banks established (or reactivated) bilateral FX swap lines to ensure that banks in all jurisdictions could satisfy their demand for funding in foreign currencies.[50,51,52]

Figure 32: Evolution of cross-currency basis in 2020

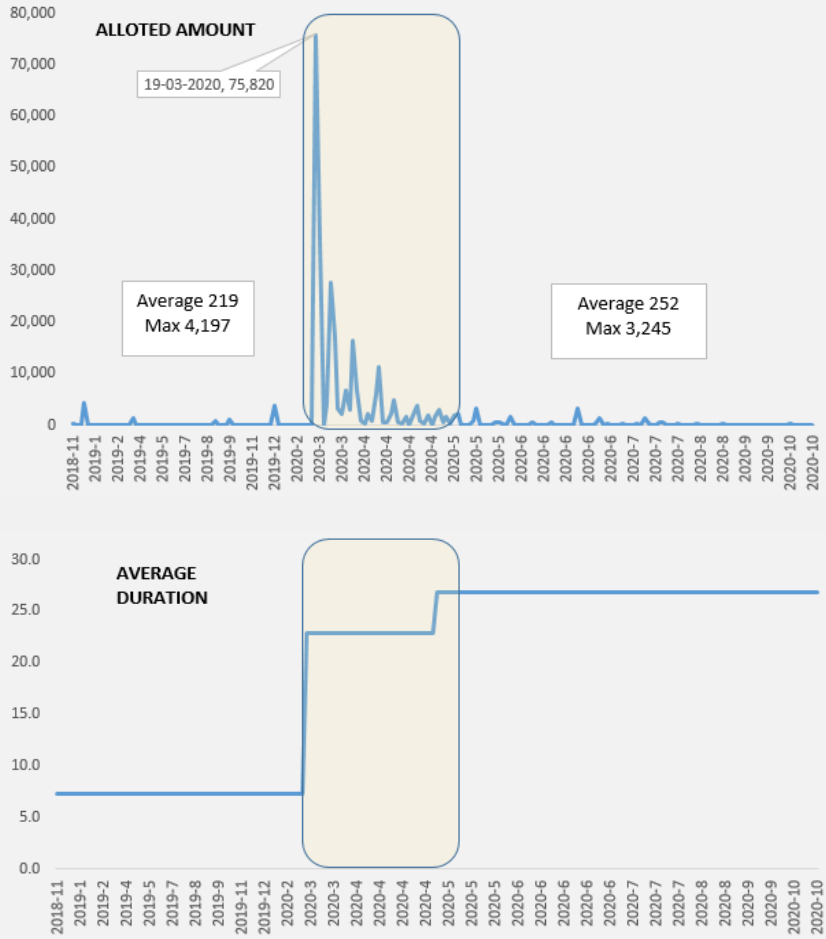


According to December 2019 data, prior to the COVID-19 crisis, nearly 1/3 of the EU banks which reported the US dollar as a significant foreign currency had an LCR_{USD} below 100% (Figure 31). Many of those banks showed an LCR_{USD} close to 0%. Since then, data shows that EU banks' LCR_{USD}

improved by around 5 percentage points by end of March 2020 (from an average LCR_{USD} of 115.7% in December 2019 to 120.5% in March 2020). It is likely that banks were able to improve their LCR_{USD} ratios by tapping into the central bank FX swap lines in late March, in which case the swap lines would have achieved their intended purpose in alleviating stresses in the FX funding markets. Nevertheless, as explained elsewhere in this report, the average LCR_{USD} again declined between March and June 2020 (to a level of 102.5%). It cannot be excluded that the presence of the central bank swap lines encouraged the banks to reduce their USD liquidity buffers once the market conditions improved.

To illustrate the point, Chart 2 shows data on the ECB FX operations since end-2018. It can be seen that after 20 March (the date when the central banks involved in the USD swap line arrangements announced that the operations would move from a weekly to a daily frequency), the allotted amounts in the ECB's USD operations increased substantially from 0.5 to 76 bn. The average maturity of the USD operations also lengthened materially, from 7 to 23 days, to protect the borrowing banks against further dislocations in the short-term FX funding markets. Before 20 March 2020, the longest observed swaps had maturities of one month whereas after that date operations up to three months were launched. From May 2020, while the maturities of the FX swap operations remained elevated, the allotted amounts started to come back to the pre-COVID levels. At the same time, the LCR USDs of the reporting EU banks declined to an average level of 102.5% as of June 2020 (Figure 31).

Figure 33: ECB FX operations between end-2018 and end-2020



A separate question is whether the turbulence in the foreign currency funding markets was actually fuelled by the EU banks rushing to cover their LCR USD shortfalls, and whether stricter compliance by the banks vis-a-vis their foreign currency LCRs *ex ante* could have contributed to a milder stress in the FX swap markets. The persistent foreign currency liquidity shortfalls observed throughout the past several years may have been based on optimistic expectations about the resilience of the private FX swap markets. They may also have reflected expectations that central bank swap lines will be swiftly established in periods of market turbulence, to prevent stresses in the banks' foreign currency funding morphing to more widespread liquidity stresses. Either way, the episode serves to reinforce the recommendation that competent authorities make greater use of their discretion to set limits on the proportion of net liquidity outflows in a currency that can be met during a time of stress by holding liquid assets denominated in another currency (as envisaged under Article 8(6) of the LCR DR).

[48] The higher USD net outflows generally reflect the large volumes of the US dollar denominated short-term funding held by the EU banks.
[49] The cross-currency basis is an indicator that captures the difference between the dollar interest rate in the money market and the implied dollar interest rate from the FX swap market, where a counterparty borrows dollars by pledging another currency as collateral. A widening of the basis (which is always measured against the US dollar) indicates tightening US dollar funding conditions against a given currency.
[50] Central bank swap lines are arrangements between central banks to exchange currency in order to maintain foreign currency liquidity when markets are distorted. Under normal circumstances, a bank in a non-US jurisdiction turns to the market if it needs funds in US dollars. When funding markets in US dollars deteriorate (funding costs become too high or if the market is disrupted), it becomes difficult for banks outside the US to fund their assets tied to US dollars. If the banks' home central bank has a swap line with the US Federal Reserve, however, the home central bank can provide its banks with the required liquidity in US dollars.
[51] Regarding USD funding, on 15 March, the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the Federal Reserve and the Swiss National Bank took coordinated action to enhance the provision of liquidity via the standing US dollar liquidity swap line arrangements in weekly operations. On 20 March 2020, the frequency of the operations was increased from weekly to daily operations.
[52] Additionally, the ECB has provided euro liquidity support to a number of non-euro central banks in the European Union. The measures include the introduction of swap lines and repo lines. Repo lines are used to provide euro liquidity to non-euro area central banks in exchange for euro-denominated collateral.

Currency mismatches in GBP

20 banks reported pounds sterling as a significant (foreign) currency. A majority of banks reported an LCR_{GBP} lower than the $LCR_{all\ currencies}$, and 10 banks reported an LCR_{GBP} lower than 100%, with a limited number of banks reporting an LCR_{GBP} close to zero. There is some evidence of a different pattern when pounds sterling is the significant currency, but this evidence is based on a reduced sample of banks that reported pounds sterling as a significant (foreign) currency.

Figure 34: Liquidity buffer over net cash outflows where the significant currency is pounds sterling (*x*-axis) compared with the same indicator for the reporting currency (all currencies; *y*-axis)

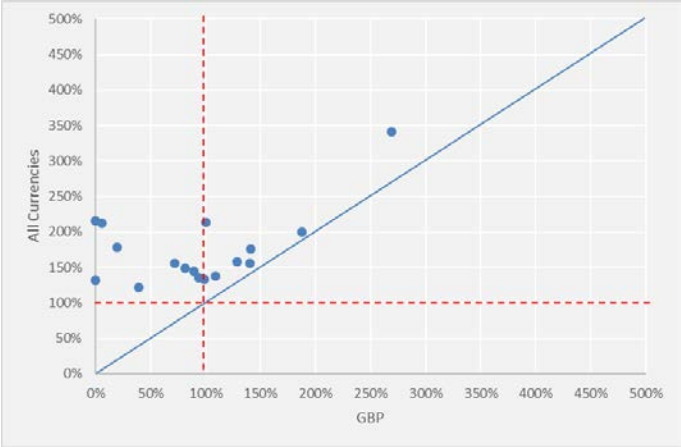
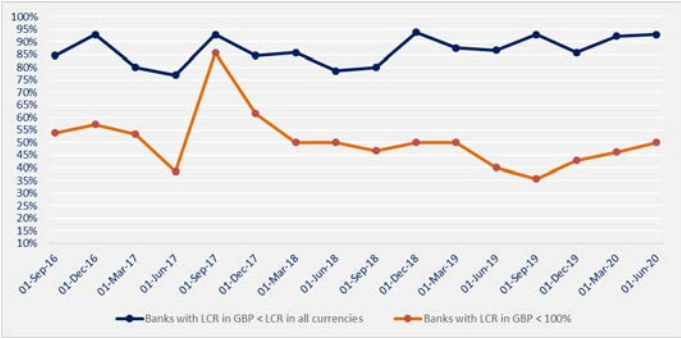


Figure 35 shows the evolution of the proportion of banks in the sample with LCR_{GBP} below $LCR_{all\ currencies}$ (blue line) and the proportion of banks in the sample with LCR_{GBP} below 100% (orange line). The evolution shows that the comparison of the two variables (LCR_{GBP} and $LCR_{all\ currencies}$) has remained constant between December 2017 and June 2020. The proportion of banks with LCR_{GBP} below 100% shows a slow but downward tendency between September 2016 and March 2020, but this tendency has changed in June 2020 when the proportion of banks reporting LCR_{GBP} below 100% increased to 50%.

Figure 35: Evolution of the comparison between the positions in LCR in GBP and LCR in all currencies — balanced sample [46]



[46] Results based on a consistent sample of 14 banks that reported LCR_{GBP} data across reference dates.

Figure 36: Evolution of average LCR in GBP vs average LCR in all currencies — balanced sample

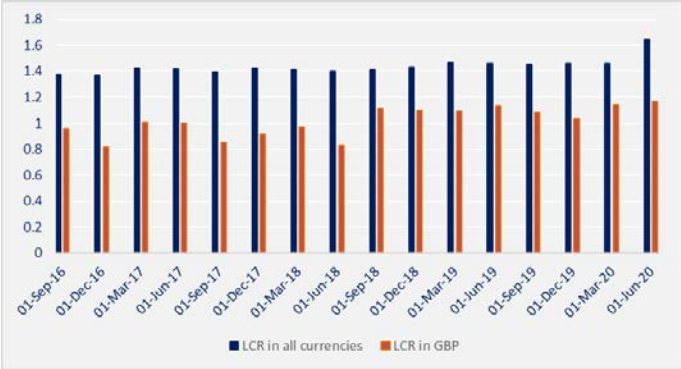


Figure 36 analyses the average level of LCR_{GBP} and $LCR_{all\ currencies}$. Since September 2016, the average LCR_{GBP} level is below the average level of $LCR_{all\ currencies}$. As of June 2020, the average LCR_{GBP} is 117% significantly below the $LCR_{all\ currencies}$ (165%).

For the majority of the banks, the ratio for total figures (reporting currency, i.e. across all currencies) is higher than the same ratio when considering only each individual significant currency (euros, US dollars and pounds sterling). This implies that banks are likely to hold a higher liquidity buffer in relation to their net cash outflows in the national currency than in significant (foreign) currencies. Thus, at aggregate level, the surplus in liquidity coverage in all currencies offsets (or dominates) the liquidity shortfall in other significant currencies.

Low levels of LCR in one significant currency may create problems during stress periods when liquidity sources may be constrained and the FX swaps markets may become difficult to access. Amid the COVID-19 crisis, central banks have established or reactivated FX swap lines to ensure that they can meet increased demand of funding in foreign currencies. These measures have partially alleviated stress in the FX funding market even if average LCR levels in foreign currency show some signs of deterioration. As the duration and extension of these currency swap lines is unknown, banks need to ensure consistency between liquidity buffers and net outflows by currency.

Therefore, Article 8 of the LCR DR states that competent authorities may limit significant excesses of net outflows denominated in a significant or reporting currency (Article 8(6) of the LCR DR). Possible specific limits or quantitative restrictions may be implemented to correct mismatches in material cases.

LCR — impact on lending

Rationale of the analysis

In its 2012 position paper, the EBA Stakeholder Group raised the concern that banks could be forced to channel a meaningful part of their funding towards LCR eligible assets (for example, through acquisition of government securities or holdings of additional deposits with the central bank) rather than towards lending to the non-financial sectors. Indeed, banks have two ways of improving their LCR: either by increasing the amount of HQLA by acquiring additional eligible liquid instruments, or by replacing non-LCR eligible assets, such as loans, with HQLAs.

This section focuses on the second possibility by trying to identify a relationship between the banks' lending behaviour and the minimum LCR requirements as introduced in Basel III. In particular, the focus is on lending to households (mortgage loans and consumer loans) and to non-financial companies (NFCs). As in the other sections in this Report, the analysis is based on COREP/FINREP data.

The task is not a straightforward task given that banks' lending activity can be influenced by several additional factors such as regulatory requirements on the capital side, banks' financial health and the general macroeconomic conditions. Moreover, the ongoing expansionary monetary policy measures introduced by several central banks within the EU reduce the constraints from the liquidity side.

A standard empirical approach for the evaluation of the impact of the introduction of a new regulation is the Difference in Difference method (DiD). This approach requires data about a treatment group (banks subject to the new regulation) and a control group (banks not subject to the new regulation) observed before and after entering into force of the new rules. For example, in the BIS working paper 473/2014, the authors exploit data regarding UK banks. They take advantage of the fact that already in 2010 the UK Financial Services Authority introduced a regulation requiring the holding of a sufficient stock of HQLAs but not all banks were made subject to this liquidity regulation.

Two practical problems prevented the adoption of the DiD for this Report. First, the LCR entered into force in 2015 but banks started to report the LCR figure in COREP only in 2016. While in 2015 the minimum LCR was set to 60% (increased up to 100% in 2018), we know that in September 2016 (the first reference date available in COREP) most of the banks were already compliant with 100% (the weighted average LCR in September 2016 was 136%). This means that working with COREP data, we could not define the control group either because at the first available reference date all the banks were subject to the LCR and we don't have information regarding the period prior to the introduction of the LCR. Second, the DiD approach is known for having high *internal validity* but lower *external validity* that is, while this approach provides a robust estimation of the effect at the

moment of the shock, it is not so easy to extend the results far from that moment. While it is certainly interesting to know if the introduction of the LCR had an effect on lending at the time of its introduction, it would not be possible to infer from there that the LCR still has an effect nowadays. In other words, the DiD does not fit the needs for a monitoring exercise.

This report showed that the LCR level has continued to increase every year, even after most of the banks' have reached the regulatory minimum (Figure 9). This suggests that the banking industry could be pursuing a target level for LCR higher than the regulatory minimum. This could be due to a number of reasons. If the banks indeed choose to target an LCR higher than the regulatory minimum, it is still possible that liquidity constraints have an impact on the banks' lending decisions even if the minimum LCR is seemingly met.

The main risk in regression analysis is that the identified empirical relationship only establishes a correlation failing to identify a causality relationship. Indeed the problem of endogeneity and simultaneity is ubiquitous in econometrics and affects also non-linear models like the logistic regression that has been used in this case. In general terms, the cause-effect relationships are very complex to establish in an empirical analysis of economic data. If we observe a high correlation between two variables, we can only say that they have a tendency to move together. But it could be the first that causes the second or vice versa or it could be both influenced by a third variable. Sometimes, however, it is possible to rely on a definition of causality based on the general principle that the cause precedes the effect.[47] In practice, a standard approach to circumvent the endogeneity and simultaneity problem is to rely on lagged variables.[48]

We analyse the relationship between the variations of the stock of bank lending[49] at a given point in time with the level of the LCR that was observed at the beginning of the period. The underlying economic intuition is that banks need some time to react to eventual liquidity problems so that the possible impact on the lending side can be observed only after a while. Non-performing exposures have been excluded from the analysis so that changes in the loan aggregates can be more easily considered as proxies of the banks' lending policy. The purpose of this bivariate analysis is to investigate whether the variation in the banks' lending is statistically independent from the level of the LCR. We present different versions of the same model by introducing in the underlying data some filters to control for outliers or other phenomena. This approach permits on one hand to observe the results obtained on the original data set and on the other to do some sensitivity analysis. We also used the Chamberlain (1980) estimator to account for potential fixed effects.[50] In

[47] This idea was introduced by Granger in the seventies.
[48] While in a model like $y_t = \beta x_t + e_t$ there exists the possibility that x_t and e_t are not independent or that the causal relationship between y_t and x_t could go in the opposite direction (i.e. it is x_t that causes y_t), in a model like $y_t = \beta x_{t-1} + e_t$ the problem is less material because in this case the explanatory variable x_t is preconditioned in respect to both e_t and y_t.
[49] The lending to real economy, or the stock of lending activities, has been defined as the amount of outstanding performing loans to households and NFCs. The amounts have been obtained from FINREP as the sum of both components.
[50] While in the context of linear models with panel data, it is possible to resort to the within or the first difference transformation to account for fixed effects, for non-linear models this is no longer the case. For the specific case of logistic models, Chamberlain (1980) derived an estimator that is asymptotically unbiased also in the presence of fixed effects. The main drawback of the Chamberlain estimator is that it exploits only the observations for which the target variable has changed from one period to another. These are called the informative observations and their number is usually lower compared with the sample size.

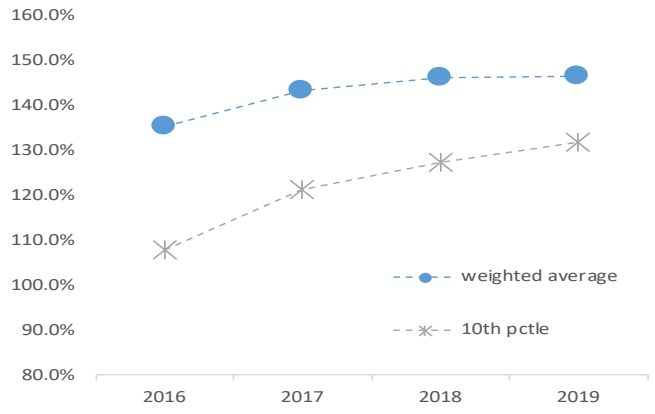
a second step, a multivariate analysis was performed to verify whether the relationship potentially identified in the first step is robust.

Data

The analysis is based on 116 banks[51] from 24 countries that reported FINREP and COREP data within the period 2016-2019 excluding subsidiaries. In COREP, the LCR is reported on a monthly basis; however, for the purposes of this study, only the December figures have been considered. UK banks are included in the sample.

Against the minimum LCR requirement of 100%, the weighted average LCR for this sample of banks was 135.4% at the end of 2016 and 146.4% in 2019. It is important to note that already starting from end-2016, 90% of the banks reported an LCR above 110% and at the end of 2019 the same percentile was 130%. For each of the years, there is a huge variation in the individual bank-level LCRs (ranging from 0% to over 700%).

Figure 37: Average weighted LCR and 10th percentile



The aggregate stock of outstanding loans to the real economy (performing loans toward households and NFCs) for the 116 banks was EUR 12.5 trillion at the end of 2016. It increased by 11.7% between 2016 and 2019. At bank level, it can be observed a huge variability of the lending growth rate can be observed. This fact is partially explained by merger and acquisition operations but also by the presence in the sample of banks that have a limited level of loans towards households and NFCs so that small variations in nominal terms can produce high variations in relative terms.

Table 2: Distribution of the 1-year ($\frac{y_t - y_{t-1}}{y_{t-1}}$) and 2-year ($\frac{y_t - y_{t-2}}{y_{t-2}}$) variation of the stock of loans to households and NFCs at bank level

	1-year variation	2-year variation
1st pctle	-59.5%	-64.7%
10th pctle	-4.3%	-7.8%
25th pctle	0.0%	0.1%

[51] See detailed sample in Table 12

Median	**4.0%**	**9.1%**
75th pctle	7.6%	16.3%
90th pctle	14.4%	34.3%
99th pctle	521.9%	544.8%

Bivariate analysis

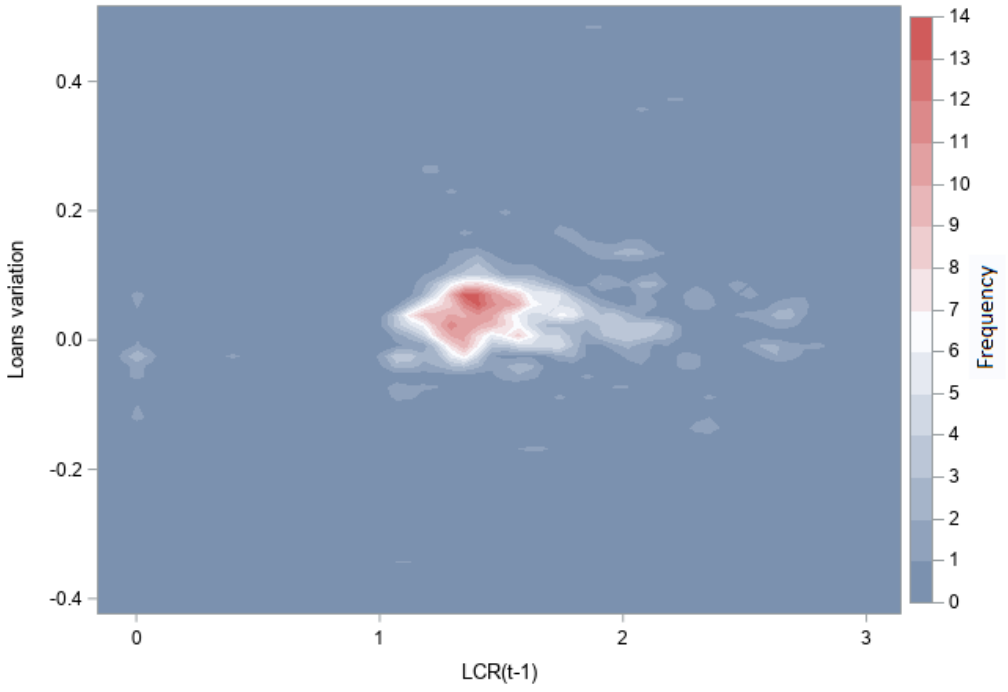
Although for both the LCR and the variation of the loans it is possible to observe anomalous values, most of the observations are found (see the chart below) in a range for the LCR going from 100% to 200% and for the variation of the loans from -10% to 40%. In our analysis, we reduce the variation of the loans and the LCR to indicator variables:

$$y_t = \begin{cases} \mathbf{1}\ if\ \dfrac{Loans_t - Loans_{t-1}}{Loans_{t-1}} < 4\% \\ \mathbf{0}\ if\ \dfrac{Loans_t - Loans_{t-1}}{Loans_{t-1}} \geq 4\% \end{cases}$$

$$LCR_t < 132\% = \begin{cases} \mathbf{1}\ if\ LCR_t < 132\% \\ \mathbf{0}\ if\ LCR_t \geq 132\% \end{cases}$$

In this way, the effect on the estimates of the eventual outliers is reduced without the need to eliminate observations from the data set.

Figure 38: Scatter plot: variation in the stock of loans vs LCR



Considering the period 2016-2017, there are 70 banks that increased by less than 4% (that is the median of the annual growth rate of these types of loans – see Table 3) the amount of performing exposures towards households and NFCs. Considering the period 2017-2018, the number of banks that increased the exposures towards household and NFCs by less than 4% is 57 and 48 for the period 2018-2019. The following table shows the result of a logistic regression where the modelled event is the probability that a bank increases the stock of loans towards households and NFCs by less than 4%. This probability has been conditioned on the level of the LCR at the beginning of each period. Since the sample is constituted by banks not homogenous in terms of size, a variable controlling for the size has been included and in particular the logarithm of the Total Assets.

Table 3 shows the results of the logistic regression. The estimated parameter associated with the dummy variable built from the LCR is positive and statistically significant (P-value ≈ 2%). The accuracy (AUC) of this simple model is 60%. In particular, from the odds-ratio analysis it can be seen that banks with an LCR lower than 132% showed a probability of increasing their stock of loans by less than 4% that was near 2 times higher than the banks which had LCR higher than 132%. The model also includes a size variable, namely the natural log of the bank's Total Assets at the beginning of the period. The positive coefficient associated with this variable suggests that larger banks have a higher probability of increasing their lending activities by less than the median growth rate.

Table 3: Logistic regression Pr(reducing lending over 2 years) vs LCR and size

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	P-value
Intercept	-3.6112	1.9121	3.5669	0.0589
LCR(t-1) < 132%	0.6149	0.267	5.3027	0.0213
ln_TA(t-1)	0.1382	0.076	3.3091	0.0689

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
LCR(t-1) < 132%	1.849	1.096	3.121
ln_TA(t-1)	1.148	0.989	1.333

We ran two alternative regressions by filtering the data. In the first case, we excluded banks having a structurally low (<1%) share of loans towards households and NFCs compared with the Total Assets and banks that in the period considered were involved in merger and acquisition operations (M&A). In the second case, we excluded outlier values defined as variation of the stock of loans lower than the first percentile of the distribution or higher than the 99th percentile and for the LCR

values higher than 300%. We also ran a regression using the Chamberlain (1980) estimator that is known to be asymptotically robust against the possible presence of individual (fixed) effects.

Table 4 shows that the parameter associated with the dummy variable built from the LCR is always significant. For the Chamberlain estimator, the number of informative data points is 186 against 348 available observations (116 banks observed for three years).

Table 4: Logistic regression Pr(reducing lending over 2 years) vs LCR and size, different samples and estimators

Variable	Model	Parameter Estimate	Standard Error	Wald Chi-Square	P-value
Lcr(t-1) <132%	base model	0.6149	0.267	5.3027	0.0213
	exluding banks with low loan ratio and M&A	0.7055	0.289	5.9568	0.0147
	excluding outliers	0.6072	0.275	4.8752	0.0272
	Chamberlain (1980) estimator	1.6275	0.5773	7.9487	0.0048

Multivariate analysis

The relationship identified between the lending activity and the LCR could be spurious in the sense that the LCR could be correlated with other explanatory variables. In other words, in the bivariate analysis above, the LCR could arise as a significant explanatory variable simply because it may capture the characteristics of some omitted relevant variables. To control for this, we also carried out a multivariate analysis to verify the robustness of the relationship.

The control variables added to the logistic regression are related to the banks' capital position (CeT1 ratio); profitability (ROE); riskiness of the assets (RWA density and NPL ratio); business model (Total Loans over Deposits) and structure of the passivity (share of secured funding). We also included a variable defined at the country level that measures the annual variation of the GDP level.

Table 54 shows the results of the logistic regression. The parameter associated with the dummy variable LCR<134% is still positive, denoting an increasing probability that the bank increases its lending activity by less than 4%. However, its impact is now less statistically significant. The accuracy (AUC) of this model is 67% that falls to 66% if the variable referring to the LCR threshold is removed. For example, Figure 36 shows how the probability to increase lending by less than 4% varies with the CeT1 ratio and the NPL ratio. For a low level of CeT1 ratio the probability is higher than 50% and it decreases with the increase of the level of capitalisation.

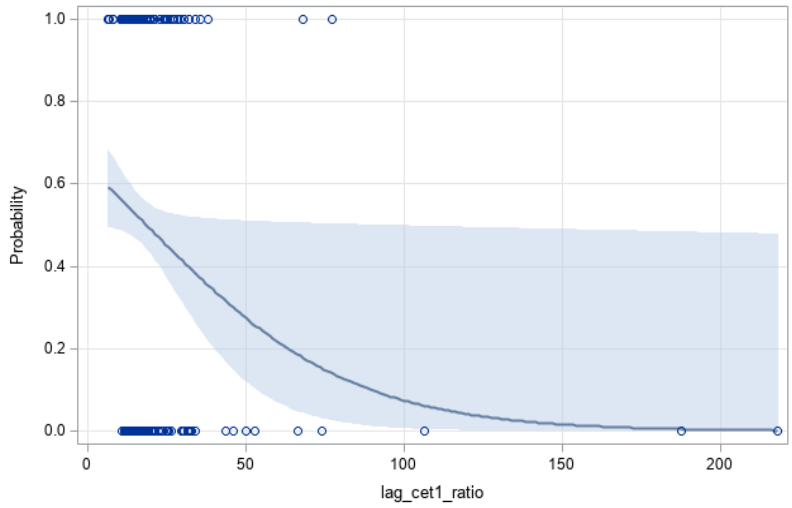
Table 5: Logistic regression Pr(reducing lending over 2016 – 2018) vs LCR and control variables

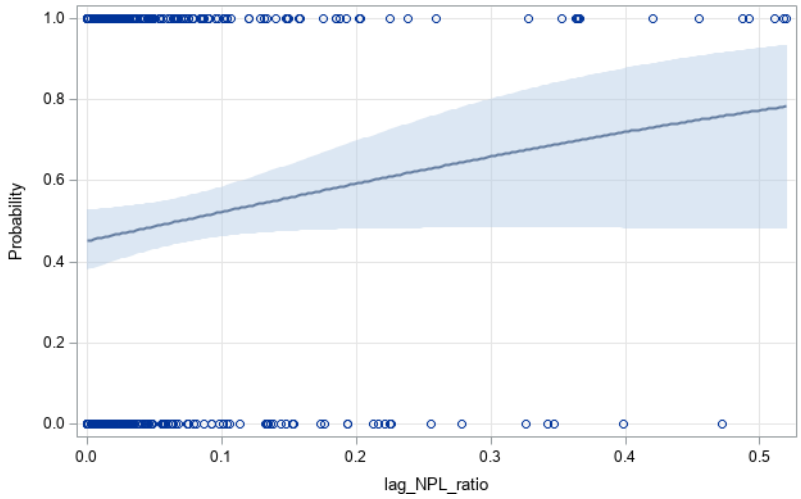
Variable	Parameter Estimate	Standard Error	Wald Chi-Square	P-value
Intercept	1.275	0.563	5.135	0.024
LCR(t-1) < 132%	**0.469**	**0.287**	**2.662**	**0.103**
ROE(t-1)	-3.551	1.477	5.780	0.016
CeT1 ratio (t-1)	-0.036	0.015	5.578	0.018
RWA density (t-1)	-2.786	0.925	9.079	0.003
NPL ratio (t-1)	2.842	1.519	3.502	0.061
Loan / Deposit (t-1)	0.056	0.037	2.303	0.129
%Secured Funding (t-1)	-0.971	0.882	1.211	0.271
Δ GDP	9.070	7.925	1.310	0.252

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
LCR(t-1) < 132%	1.598	0.91	2.805

Figure 39: Estimated probability of increasing lending by less than 4%





To better understand the relationships described in Table 4, imagine that we first run a logistic regression that uses only the control variables. We then use the results of this model to compute the predicted probability (call it *Pr*) that a given bank will increase the number of loans by less than 4%. Finally, we would set an arbitrary threshold to this probability, for example 50%, and use it to classify the banks. In practice, by following this strategy we are using the control variables to set up a prediction model. Table 65 provides a comparison between the prediction and the realisation. The share of banks with more than 50% probability of increasing loans by less than 4% and which indeed experienced a loan increase lower than 4% is 63.5%, clearly higher than the 39.5% share of banks with *Pr* below 50% (see last column of the table). Furthermore, by classifying the banks on the grounds of the LCR level (and setting the threshold at 132%) it is possible to see that the observed frequency of banks increasing their lending by less than 4% is always higher when LCR<132% (even if we controlled for *Pr)*. This suggests that the LCR does contain some additional relevant information to predict the direction of the variation of lending activities.

Table 6: Control variables vs LCR

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	P-value
Intercept	-0.378	0.359	1.112	0.292
LCR(t-1) < 132%	**0.309**	**0.286**	**1.162**	**0.281**
Factor 3	-0.703	0.324	4.707	0.030
Factor 4	0.344	0.126	7.448	0.006
Factor 5	0.227	0.119	3.616	0.057
Factor 6	-0.496	0.142	12.211	0.001
Δ GDP	9.200	7.851	1.373	0.241

It is possible that by introducing further explanatory variables the explanatory power of the LCR decreases. However, as we are working with a relatively small sample, increasing the number of parameters that must be estimated can reduce the reliability of the estimates. For this reason, we followed a different approach. Compared with the previous models, we included 9 additional variables (all lagged by one year): cost to income, net interest income, relative share of residential mortgages, relative share of derivatives, share of encumbered assets, the coverage ratio of non-performing loans, the staff expenses, the ratio between total loans and total assets and we added back the logarithm of the total assets. Then we employed a factor analysis to reduce these 15 variables to a lower number of indicators.

The analysis showed that the first 6 factors are able to explain more than 70% of the total variance of the 15 variables, but only the factors from 3 to 6 resulted statistically significant in explaining the probability that the annual increase of the loans toward households and NCS is lower than 4%. The following table shows the results of the logistic regression where these 4 factors are included together with the LCR and macroeconomic variable. The parameter associated is still positive but no more statistically significant.

Table 7: Logistic regression Pr(reducing lending over 2016 – 2018) vs LCR and factors extracted from 15 control variables

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > |t|
Intercept	-0.378	0.359	1.112	0.292
LCR(t-1) < 132%	**0.309**	**0.286**	**1.162**	**0.281**
Factor 3	-0.703	0.324	4.707	0.030
Factor 4	0.344	0.126	7.448	0.006
Factor 5	0.227	0.119	3.616	0.057
Factor 6	-0.496	0.142	12.211	0.001
D GDP	9.200	7.851	1.373	0.241

Conclusions

For the period 2016-19, a sample of major EU banks showed LCR ratios well above the 100% minimum requirement. This notwithstanding, it was possible to identify a relationship between the probability of increasing the lending activities by less than 4% and the level of the LCR. Out of the total of 348 observations available (banks per years), 175 banks registered an annual growth rate of the loans to households and non-financial corporations lower than 4%. Even if for most of the banks considered the LCR was above the minimum requirement during all the observed periods, it was possible to verify that banks with LCRs lower than 132% had a higher probability of experiencing a growth rate of the loans lower than 4%. However, once additional control variables were accounted for, the relationship appears no more statistically significant. This analysis suggests

the possibility that banks are facing a target for the LCR that is higher than the regulatory minimum and that in some circumstances this can represent a driver of their lending policies.

Conclusions

Liquidity coverage requirements are an important aspect of the EU regulatory framework. COREP data shows that banks have significantly increased their HQLA holdings since September 2016 and that this is the main driver behind the upward trend in the average LCR levels. Results show that, in general, both the average and the bank-level LCRs are well above the fully phased-in requirement of 100% (which has been in place since 1 January 2018) under full implementation. This tendency continued at end-June 2020 even if the COVID-19 crises exerted severe stress on the banks' liquidity positions. Data shows that the main reason behind the increases of LCR levels in June 2020 is the access to additional liquidity via central bank funding from the ECB and other EU central banks. In addition, the activation in March 2020 of the FX swap lines among the major central banks mitigated the stresses in the FX funding markets and supported the banks' foreign currency LCRs. The use of the various central bank facilities by banks generated supplementary excess liquidity that is held by banks in the form of central bank reserves. As of June 2020, no bank showed LCR shortfalls.

The average levels of LCRs across different business model categories are also above the minimum requirements. As could be expected, there are significant differences across business models in the composition of LCRs and LCR parameters. The different funding strategies applied by banks following different business models could have an impact on their LCR structures. Business models which rely relatively more on wholesale funding sources show higher levels of net liquidity outflows and HQLAs. Nevertheless, results by business models should be interpreted with caution since the sample has a relatively high concentration of banks in two business models.

Additionally, the analysis shows that banks are likely to hold a higher liquidity buffer, in relation to their net cash outflows, in their domestic currency than in other significant (foreign) currencies. At the aggregate level, the surplus in liquidity coverage in all currencies offsets the liquidity shortfall in other significant currencies. However, low levels of LCR in one significant currency may generate problems during stress periods during when liquidity may be constrained and the FX swaps markets may become difficult to access. While in spring 2020, central banks acted proactively to mitigate such concerns, banks in general need to ensure consistency between liquidity buffers and net outflows for each currency where they operate. Against this background, competent authorities should consider making greater use of their discretion to restrict currency mismatches. This can be done e.g. by setting limits on the size of the net liquidity outflow in a foreign currency that can be met by holding liquid assets not denominated in that currency.

For the period 2016-19, a sample of major EU banks showed LCR ratios well above the 100% minimum requirement. This notwithstanding, it was possible to identify a relationship between the probability of increasing the lending activities by less than 4% and the level of the LCR. Out of the

total of 348 observations available (banks per years), 175 banks registered an annual growth rate of loans to households and non-financial corporations that was below 4%. Even if for most banks the LCR was above the minimum requirement during all periods, it was possible to verify that banks with LCRs lower than 132% had a higher probability of experiencing a growth rate of loans lower than the other banks. However, once accounted for additional control variables, the relationship appears no more statistically significant. This suggests that the banks may be pursuing LCR targets that are higher than the regulatory minimum, and being below those target levels can have a negative impact on their lending policies.

Annex 1

Table 8: Number of banks included in the June 2020 analysis[52]

Country	ISO code	All banks	*Of which: subsidiaries*	GSIIs/O-SIIs	*Of which: subsidiaries*
Austria	AT	7	1	3	1
Belgium	BE	8	2	6	2
Bulgaria	BG	4	3	4	3
Cyprus	CY	3	0	2	0
Czech Republic	CZ	3	3	3	3
Germany	DE	18	0	8	0
Denmark	DK	4	0	4	0
Estonia	EE	2	0	0	0
Spain	ES	12	0	5	0
Finland	FI	4	0	3	0
France	FR	11	0	6	0
Greece	GR	4	0	4	0
Croatia	HR	0	0	0	0
Hungary	HU	3	2	3	2
Ireland	IE	13	5	6	2
Iceland	IS	3	0	3	0
Italy	IT	11	0	4	0
Lithuania	LT	3	2	3	2
Luxembourg	LU	5	0	4	0
Latvia	LV	3	2	3	2
Malta	MT	4	1	3	1
Netherlands	NL	6	0	5	0
Norway	NO	3	0	1	0
Poland	PL	3	1	3	1
Portugal	PT	6	1	5	1
Romania	RO	3	2	3	2
Sweden	SE	7	0	3	0
Slovenia	SI	3	1	2	1
Slovakia	SK	3	3	3	3
Total	EU	159	29	102	26

[52] Results that are shown by total/group of banks (total EU/GSIIs, O-SIIs and others) do not include subsidiaries. However, results by country do include subsidiaries.

Table 9: Number of banks included in the evolution analysis[53] if the balanced sample criterion applies

Country	ISO code	All banks	GSIIs/O-SIIs
Austria	AT	5	2
Belgium	BE	6	4
Bulgaria	BG	1	1
Cyprus	CY	1	1
Germany	DE	14	8
Denmark	DK	4	4
Estonia	EE	1	0
Spain	ES	12	5
Finland	FI	3	3
France	FR	9	6
Greece	GR	4	4
Hungary	HU	1	1
Ireland	IE	3	3
Italy	IT	10	4
Luxembourg	LU	2	1
Malta	MT	2	2
Netherlands	NL	4	4
Norway	NO	2	1
Poland	PL	1	1
Portugal	PT	5	4
Romania	RO	1	1
Sweden	SE	5	3
Slovenia	SI	2	1
Total	EU	98	64

[53] All evolution analyses are shown by group of banks (total EU/GSIIs, O-SIIs and others) and, therefore, they exclude subsidiaries.

Table 10: Number of banks included in the analysis by two reference dates[54] if the balanced sample criterion applies

Country	ISO code	All banks	*Of which: subsidiaries*	GSIIs/O-SIIs	*Of which: subsidiaries*
Austria	AT	7	1	3	1
Belgium	BE	8	*2*	6	*2*
Bulgaria	BG	4	*3*	4	*3*
Cyprus	CY	2	*0*	1	*0*
Czech Republic	CZ	3	*3*	3	*3*
Germany	DE	14	*0*	8	*0*
Denmark	DK	4	*0*	4	*0*
Estonia	EE	2	*0*	0	*0*
Spain	ES	12	*0*	5	*0*
Finland	FI	4	*0*	3	*0*
France	FR	9	*0*	6	*0*
Greece	GR	4	*0*	4	*0*
Croatia	HR	0	*0*	0	*0*
Hungary	HU	3	*2*	3	*2*
Ireland	IE	6	*0*	3	*0*
Iceland	IS	3	*0*	3	*0*
Italy	IT	11	*0*	4	*0*
Lithuania	LT	3	*2*	3	*2*
Luxembourg	LU	3	*0*	2	*0*
Latvia	LV	3	*2*	3	*2*
Malta	MT	3	*1*	3	*1*
Netherlands	NL	5	*0*	5	*0*
Norway	NO	3	*0*	1	*0*
Poland	PL	3	*1*	3	*1*
Portugal	PT	6	*1*	5	*1*
Romania	RO	3	*2*	3	*2*
Sweden	SE	6	*0*	3	*0*
Slovenia	SI	2	*0*	1	*0*
Slovakia	SK	3	*3*	3	*3*
Total	**EU**	**139**	***23***	**95**	***23***

[54] Results that are shown by total/group of banks (total EU/GSIIs, O-SIIs and others) do not include subsidiaries. However, results by country do include subsidiaries.

Table 11: Number of banks submitting liquidity coverage data (by business model)

Business model	All banks	*Of which: subsidiaries*
Automotive, consumer credit banks	3	0
Cross-border universal banks	42	*2*
Custody banks	2	*0*
Local universal banks	47	*20*
Locally active savings and loan associations/cooperative banks	11	*0*
Merchant banks	1	*0*
Mortgage banks including pass-through financing mortgage banks	4	*0*
N/A	10	*2*
Other specialised banks	3	*0*
Public development banks	5	*0*
Total	**128**	***24***

Table 12: Number of banks included in analysis in section 'LCR — impact on lending'

Country	**ISO code**	**Banks**
Austria	AT	4
Belgium	BE	5
Bulgaria	BG	1
Cyprus	CY	1
Germany	DE	13
Denmark	DK	4
Estonia	EE	1
Spain	ES	11
Finland	FI	2
France	FR	9
United Kingdom	GB	11
Greece	GR	4
Hungary	HU	1
Ireland	IE	3
Italy	IT	9
Luxembourg	LU	1
Malta	MT	2
Netherlands	NL	5
Norway	NO	3

Poland	PL	1
Portugal	PT	4
Romania	RO	1
Sweden	SE	6
Slovenia	SI	3
Total		**105**

Table 13: Definition of business models

Name	Description
Automotive and consumer credit banks	Banks specialising in originating and/or servicing consumer and/or automotive loans to retail clients.
Building societies	Banks specialising in providing residential loans to retail clients.
CCPs	Banks specialising in setting trading accounts, clearing trades, collecting and maintaining margin monies, regulating delivery and reporting trading data.
Cross-border universal banks	Cross-border banking groups engaging in several activities, including retail, corporate and investment banking and insurance.
Custody banks	Banks specialising in offering custodian services (i.e. they hold customers' securities in electronic or physical form for safe keeping so as to minimise the risk of loss). These banks may also provide other services, including account administration, transaction settlements, collection of dividends and interest payments, tax support and foreign exchange.
Local savings banks	Banks focusing on retail banking (payments, savings products, and credit and insurance for individuals or SMEs) and which operate through a decentralised distribution network, providing local and regional outreach.
Local universal banks	Banks specialising in originating and/or servicing consumer loans to retail clients and SMEs.
Merchant banks	Banks engaging in financing domestic and international trade by offering products, such as letters of credit, bank guarantees and collection and discounting of bills.
Mortgage banks	Banks specialising in directly originating and/or servicing mortgage loans.
Other specialised banks	Other specialised banks, such as promotional banks and ethical banks.
Private banks	Banks providing wealth management services to high net worth individuals and families.
Public development banks	Banks specialising in financing public sector projects and/or the provision of promotional credit or municipal loans.
Security trading houses	Banks facilitating trading done in derivatives and equities markets by guaranteeing the obligations in the contract agreed between two counterparties and/or by holding securities and other assets for safe keeping and record keeping on behalf of corporate or individual investors.

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