

## 2. DEVELOPMENTS IN THE BANKING SECTOR

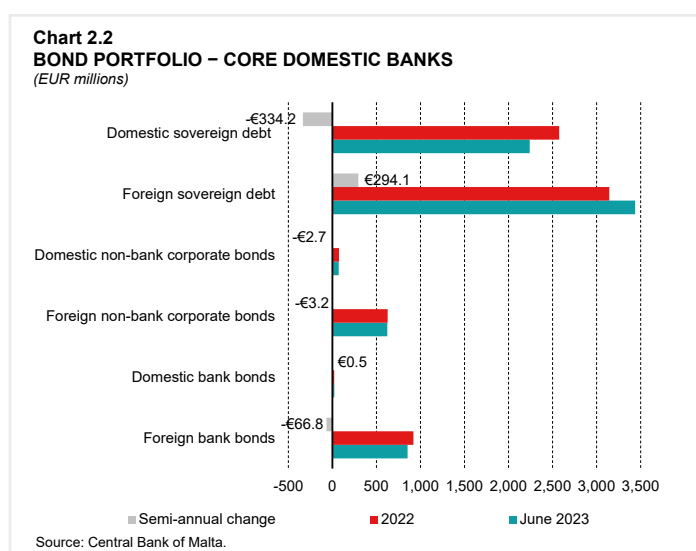
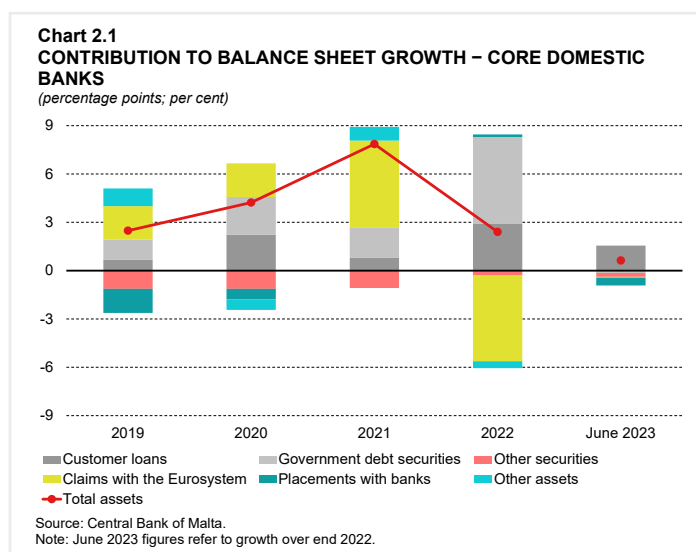
### 2.1 Core domestic banks

The balance sheet of the core domestic banks grew further during the first six months of this year, although at a more moderate pace of 0.6%, compared to 2.4% in the same period a year ago. As a result, total assets reached €28.6 billion, or 158.4% of GDP in June 2023 (see Chart 2.1).

Growth was almost entirely driven by higher customer loans, which rose by 3.2%, representing almost half of these banks' assets. This was mainly attributed to higher resident lending, particularly mortgages. Despite growing at a slower pace, mortgages expanded by 3.4% in the six months to June 2023. As a result, loan concentration risks remained present, with resident mortgages accounting for just above 55% of resident customer loans. Meanwhile, following three years of contractions, resident consumer credit grew by 2.0%, while resident lending to corporates rose by 3.3%, a slower pace compared to the same period last year. Lending to firms in the construction, transportation and storage, as well as professional, scientific and technical activities sectors grew, while lending towards public administration and defence, and real estate sectors declined. Non-resident lending increased to a lesser extent, up by 1.3%, mainly on the back of higher loans towards energy-related sectors.

In contrast, interbank placements declined by 10.0% to represent just 4.4% of total assets, largely held in the form of deposits with related institutions. Furthermore, placements with the Central Bank of Malta decreased marginally despite being remunerated. However, these continued to play an important role in the banks' balance sheet, accounting for about 16.1% of their total assets.

The overall bond portfolio shrank by 1.5% in the first half of the year, primarily driven by lower holdings of domestic government paper, and to a much lower extent, foreign bank bonds (see Chart 2.2). Following significant purchases of domestic government paper in 2022 to take advantage of rising yields, these fell by 13% during the first half of 2023 driven mainly by lower holdings of short-dated securities. Otherwise, holdings of foreign government bonds rose by 9.4%, primarily driven by higher purchases and, to a lower extent, favourable market price and exchange rate movements. Notwithstanding, sovereign debt remained the most preferred asset class, accounting for almost a fifth of total assets, and 78.3% of

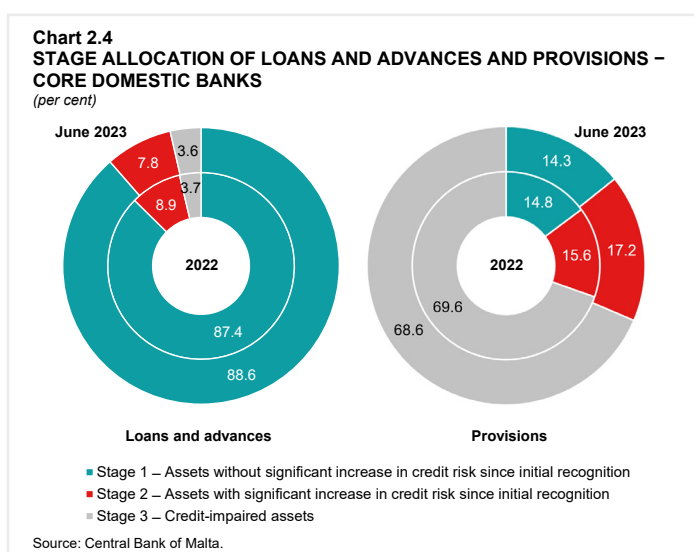
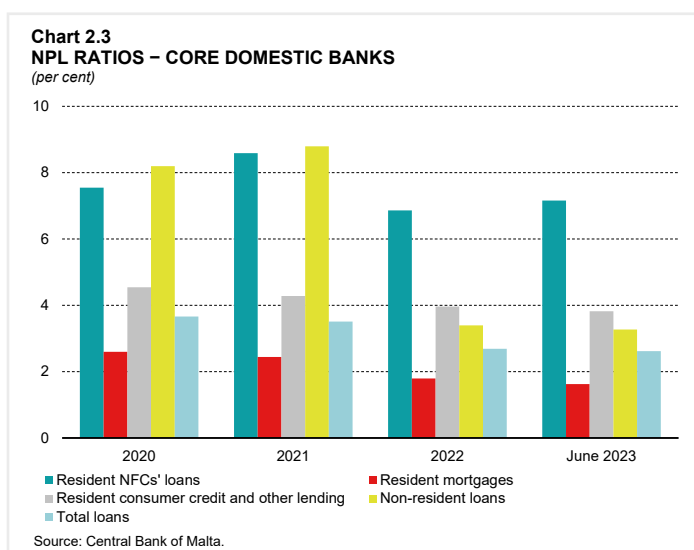


overall bond holdings. Meanwhile, holdings of debt securities issued by banks and corporates declined further due to both lower holdings and adverse price movements, accounting for 12.1% and 9.6% of the bond portfolios, respectively. These holdings remained largely skewed towards foreign entities, as holdings of domestic corporate and bank bonds remained limited.

The significant shift from domestic government bonds to higher-rated foreign sovereign bond portfolios improved the overall weighted ratings of the portfolio. Indeed, the lower holdings of Maltese government paper contributed to lower the share of medium-rated bonds to almost two-fifths of these banks' bond portfolio.<sup>1</sup> The higher investment in foreign government bonds were largely concentrated in high-rated bonds, which resulted in the share of these instruments to rise by 8.7%, representing almost half of the overall bonds. Although holdings of both low-rated and unrated/speculative bonds increased, their share in the overall bond portfolio remained relatively limited to 7.0% and 5.3%, respectively. Meanwhile, equities increased marginally by 0.9% to just 1.5% of these banks' overall assets.

Credit quality of these banks improved, with the overall stock of NPLs dropping further by 1.2%, which coupled with the increase in loans and advances, pushed the NPL ratio marginally down to 2.6% (see Chart 2.3). Similarly, excluding placements, the NPL ratio also improved, dropping to 3.6%. This decline was largely driven by non-resident NPLs, which fell by 7.9%, mainly spurred by corporate exposures operating in the professional, scientific and technical activities' sector. As a result, the non-resident NPL ratio stood slightly lower at 3.3%. Meanwhile, the resident NPL ratio remained relatively stable at 2.6%, due to a more muted decline in resident NPLs of just 0.4%. This reflected lower household NPLs which fell by 5.3%, with the resident household NPL ratio narrowing by 0.2 percentage point to 1.8%. In contrast, resident corporate NPLs rose by 4.2% mainly from health services and social work activities, and construction. Consequently, the resident corporate NPL ratio increased by 0.3 percentage point to 7.2% in June 2023, indicating some early signs of deterioration in credit quality.

The overall improvement in the quality of the loan book is reflected in the drop in Stage 2 loans, which fell by 10.0% to represent 7.8% of total loans (see Chart 2.4). Similarly, Stage 3 loans contracted by



<sup>1</sup> Investment-grade bonds carrying a rate of AA- or above are considered as 'high-rated bonds'. 'Medium-rated bonds' are those rated between A- and A+, whereas 'low-rated bonds' are those rated between BBB- and BBB+.

1.2%, to account for just 3.6% of the overall loan book. Otherwise, Stage 1 loans rose by 3.5% to account for 88.6% of overall loans.

The general improvement in asset quality resulted in lower provisions, which decreased by 2.1% over the first half of 2023. This was predominantly in the form of Stage 3 provisions, which fell by 3.6%, and to a lesser extent by their Stage 1 counterpart. In contrast, Stage 2 provisions rose by 7.9%, largely stemming from one bank which also reported higher Stage 2 loans. The higher drop in provisions compared to NPLs led to a lower coverage ratio of 46.0% in June 2023. However, when considering the additional collateral underpinning NPLs, the coverage increases to almost 100%, hence limiting somewhat credit risk for these banks.

Similarly, loans with forbearance measures continued their downward trend, as they decreased by 14.3%, to account for 2.9% of total loans. This drop was entirely driven by lower performing forborne loans which fell by almost a quarter. Meanwhile, non-performing forborne loans increased by just 1.8%, to account for about 43% of overall forborne loans.

The monetary policy tightening affected to a limited extent the banks' funding avenues, as more attractive investment opportunities became available to investors. Furthermore, other relatively smaller banks, including those classified as non-core domestic banks, raised interest rates on term deposits, thus offering more attractive returns. As a result, customer deposits of core domestic banks contracted by 0.4% in the first half of 2023, following several years of positive growth. Such drop was exclusively driven by lower resident customer deposits, which fell by 1.2%, solely due to withdrawals from both financial and NFCs, with a slight drop in resident government deposits also reported. In addition, resident household deposits grew at a slower pace of 2.2% in the first half 2023. Meanwhile, non-resident customer deposits increased by 10.4%, almost entirely from insurance corporations, pension funds and other financial institutions (OFIs), to represent 8.3% of overall customer deposits.

The above-mentioned environment also resulted in a shift in the composition of deposits, where term deposits grew by 6.2%, resulting in their share to increase to just below 15% of overall deposits. In contrast, withdrawable on demand deposits fell by 1.3%. However, since the latter still accounted for the largest share of overall deposit funding, which mainly remained unremunerated, the overall effect on the banks' funding costs was limited. The core domestic banks' balance sheet remained largely funded through customer deposits, financing 83.4% of their assets.

Despite the marginal drop in customer deposits, the liquidity position of this group of banks remained strong, owing to the 4.6% drop in net liquidity outflows which resulted in their LCR to strengthen by around 15 percentage points to almost 395% in June 2023. Meanwhile, liquid assets also declined, but at a relatively slower pace of 0.9% mainly owing to lower holdings of sovereign paper, and exposures to the public sector, though to a lesser degree. The net stable funding ratio (NSFR) contracted by 4.9 percentage points but remained above regulatory requirements at 182.2%, indicating a stable long term funding position. Such ample liquidity is also evident when looking at the level of unencumbered central bank-eligible counterbalancing capacity (CBC) assets. Indeed, CBC assets increased by half a percentage point to account for almost a quarter of these banks' balance sheet, equivalent to about 2.6 times the total net liquidity outflows. In line with the LCR framework, this implies that such assets could fund around 75 days of net cash outflows in a stressed scenario.

Capital and reserves also picked up momentum, up by 5.5% to account for 8.4% of these banks' assets. Repurchase agreements and other liabilities also increased, although to a lesser extent. Interbank exposures also diminished to just about 0.8% of total balance sheet size. Meanwhile, Eurosystem funding and debt securities issued remained stable, the former reflecting the tighter monetary policy stance, coupled with the fact that these banks already operate on the back of ample liquidity buffers.

The total capital ratio continued to strengthen, up by 0.4 percentage point to 23.4% in June 2023 (see Chart 2.5). Although RWAs increased by 1.2% mainly due to higher credit risk exposures, this was completely

offset by the rise in own funds, which went up by 2.7%, stemming mostly from stronger retained earnings. The risk profile of this group of banks remained conservative, with the share of RWA in total assets standing at 38.3%. Meanwhile, the LR stood at 7.4%, hence well above the regulatory threshold.

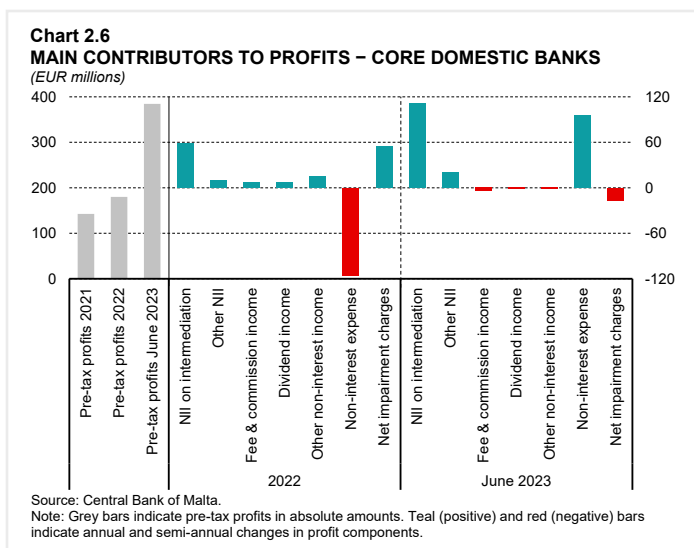
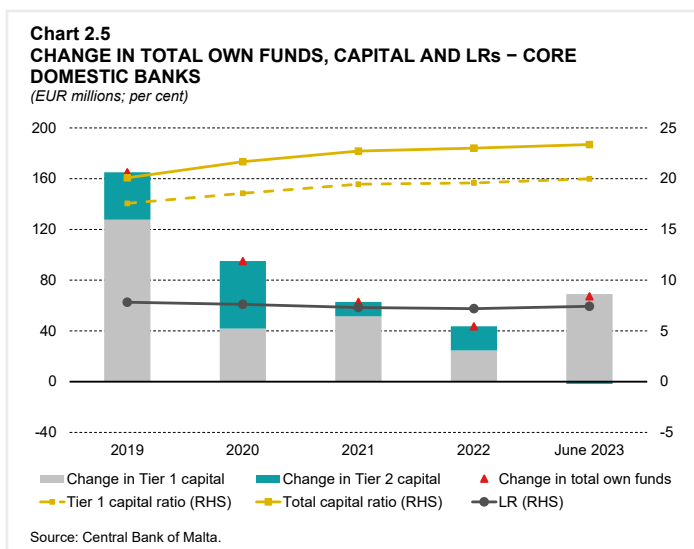
The core domestic banks also reported significant improvement in their profitability. Pre-tax profits more than doubled, and at €384 million, profits stood higher than pre-pandemic levels (see Chart 2.6).<sup>2</sup> As a result, the post-tax ROE and ROA increased significantly to 11.0% and 0.9% as at June 2023, from 5.4% and 0.4% in December 2022, respectively. Such ratios now exceeded those of European peers, which reported a weighted average ROE and ROA of 10.4% and 0.7%, respectively.<sup>3</sup>

Such growth is explained largely by the base effect of a one-off litigation cost incurred by one bank, which was settled in the first half of 2022. However, core domestic banks also reported an improvement in their operations, with the NII growing by 28.9%. This mainly reflected the higher interest received from placements with the Eurosystem, as these are now being remunerated.

Furthermore, NII from intermediation also grew, driven by strong lending volumes and higher interest rates; particularly for corporates, as otherwise the interest rate pass-through on mortgage lending has been limited so far. Indeed, while NII earned from NFC loans rose by 11%, growth in NII from household lending remained relatively stable, albeit at strong levels. The price effect of the improvement in NII from intermediation is explained by the higher increase in weighted average interest rate on loans than deposits, resulting in a wider margin, up by almost 0.3 percentage point.

Meanwhile, non-interest income declined by 4.0%, largely due to lower fee and commission income, as well as lower trading profits and dividends received. Although reversals of impairment charges remained substantial, these retreated by almost a quarter compared to December 2022, thus contributing negatively to profit growth.

The first half of this year has been positive for this group of banks, which although experiencing a slowdown in credit, they still reported higher profitability and better asset quality developments. Going forward, some of these banks may face increasing competitive pressures to attract new funding in an



<sup>2</sup> Profits are based on four-quarter moving sums.  
<sup>3</sup> Source: EBA Risk Dashboard Q2 2023.

environment of increasing bond yields coupled with potential higher interest rates. Nevertheless, to date the pass-through of interest rates on deposits has been slow, primarily due to the fact that the majority of the core domestic banks' funding comes from mostly unremunerated demand deposits. The future path of credit growth much depends on the future state of the economy and the possible pass-through of interest rates on mortgages. Although, a slight slowdown in mortgages has already been reported, higher promise of sale agreements should keep mortgage growth at strong levels. However, the sSyRB introduced in September still needs to permeate within the system. In light of this, the core domestic banks should continue adopting prudent lending practices and preserve their capital and liquidity buffers amid persistent inflationary pressures and an uncertain macroeconomic environment.

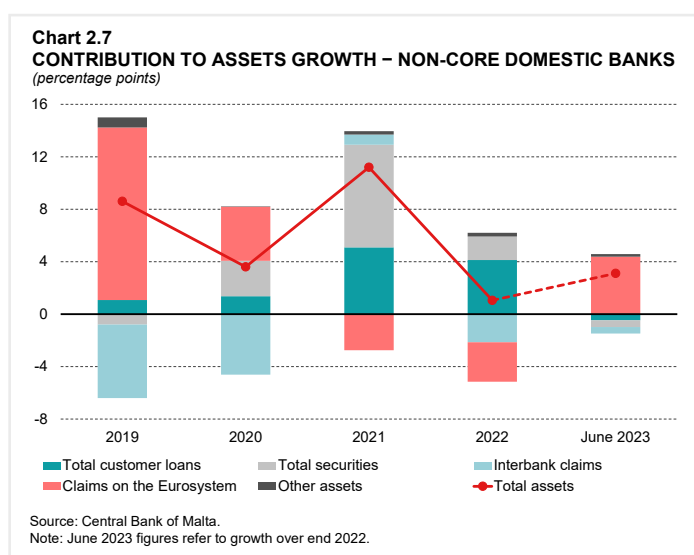
## 2.2 Non-core domestic banks

During the first half of 2023 the non-core domestic banks on aggregate still reported losses though at a much lower extent, and not broad based, as some banks reported improved profits. Indeed, pre-tax losses stood at €3.7 million in June 2023 compared to €11.9 million in December 2022. Consequently, the post-tax ROE and ROA improved from -3.4% and -0.4% in 2022 to -1.7% and -0.2%, respectively. The largest contribution for this improvement stemmed from NII, which increased by more than a third, mainly driven by higher income generated from the banks' securities portfolio, albeit higher interest income earned from their corporate lending activities also contributed. In contrast, income earned from non-interest-bearing activities fell by 20.7%, mainly reflecting lower dividend income, and to a lesser extent, lower fees and commissions. Concurrently, non-interest expenses rose by 4.0%, largely on the back of higher staff costs and other administrative expenses. Owing to a faster increase in operational income, the non-core banks' operational cost-to-income ratio strengthened by 4.9 percentage points to 76.1% in June 2023. Meanwhile, net impairment charges dropped by 10.8%, reversing some of the significant increase reported in 2022, thus contributing positively to these banks' performance.

Simultaneously, the non-core domestic banks' overall assets expanded by 3.1%, driven almost exclusively by higher placements with the Central Bank of Malta, which surged by 23.2%. Otherwise, the rest of the main asset components all decreased marginally during the first half of the year (see Chart 2.7).

The overall customer loan book contracted by 1.2% during the first six months of the year, but at 36.6% it continued to represent a significant share of assets. The drop stemmed exclusively from lower foreign loans, pushing down their share in overall customer loans from 61.2% to 54.8% in June 2023. From a sectoral point of view, this largely reflected lower loans from wholesale and retail trade, and to a lower extent from the information and communication sector (see Chart 2.8). Lending to foreign OFIs also declined, yet still accounted for a third of overall customer loans. In contrast, resident loans rose by 15.1%, mainly on the back of higher loans to NFCs operating in the construction and the real estate sector, as well as to resident households, and loans to OFIs.

Interbank placements also contracted during the first half of 2023, down by 6.8% over 2022 to represent 6.5% of total assets. Such drop was exclusively due to lower placements with unrelated credit institutions, mostly foreign entities.

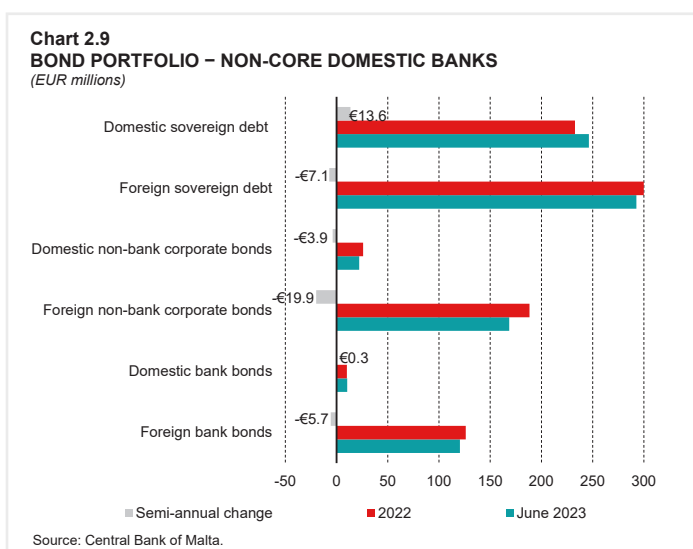
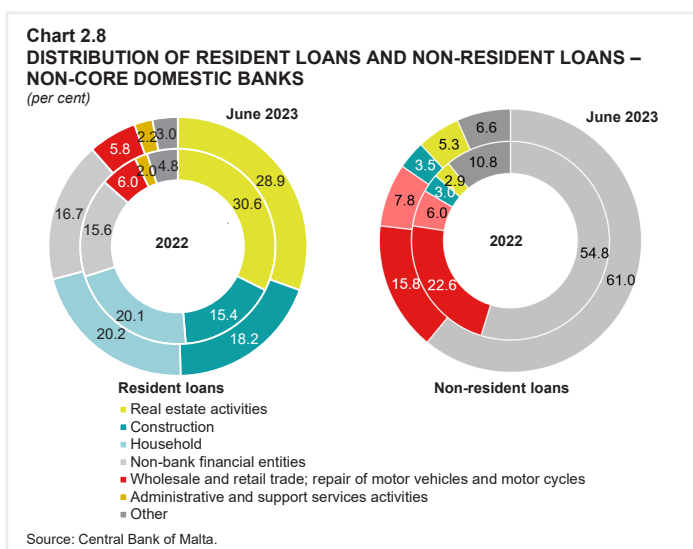


The securities portfolio decreased by 1.6% to 30.7% of overall assets. This was exclusively driven by lower bond holdings during the first half of 2023. Concurrently, equity holdings rose by 2.4%, mainly due to higher investment by one bank in non-money market funds (MMF) investment funds. As indicated in Chart 2.9, the drop in the bond portfolio was mainly attributed to foreign corporate bonds sales. In contrast, investment in Malta Government Stocks (MGS) saw a notable increase of 5.8%, predominantly driven by increased holdings. As a result, their share on the overall bond portfolio strengthened by 2.3 percentage points, reaching 28.6%.

The overall bond portfolio remained significantly skewed towards medium-rated bonds, representing 43.1% of the overall bond holdings, a slightly higher share when compared to six months ago. This was largely offset by a small drop in investments in high-rated bonds, which accounted for 26.6% of overall holdings. The share of bonds rated as speculative/unrated or low remained somewhat unchanged at 21.4% and 9.0%, respectively.

Credit quality on the loan books of non-core domestic banks improved substantially, as the stock of NPLs contracted by almost 31% during the first six months of the year. This in large part reflected a write-off in non-resident NFC NPLs, predominantly those operating in the wholesale and retail trade, and manufacturing sectors. Coupled with an expansion in loans and advances, the NPL ratio shrank by 1.5 percentage points to 2.8%. Should placements be excluded, the NPL ratio would have fallen by 2.1 percentage points to 4.3%. Despite the significant drop in NPLs, the coverage ratio of non-core domestic banks deteriorated by 4.7 percentage points to 68.1%. This, as overall provisions fell by 35.3%, mostly related to Stage 3 loans. Nevertheless, these still constituted the biggest share in overall provisions, accounting for slightly more than 80% in June 2023. The remaining 20% were spread between Stage 1 and Stage 2 loans, as well as exposures which were already impaired when purchased or originated. Meanwhile, the forbearance ratio remained stable at 0.6% over the first half of 2023.

The balance sheet growth was mainly financed through customer deposits, which rose by 8.8% to finance almost three-fourths of these banks' overall assets. Such increase was mainly driven by foreign customer deposits, which rose by 9.2%, largely of OFIs and households to a lesser extent. As a result, foreign customer deposits continued to represent the bulk of funding, standing at 80.7% of the overall customer deposits, and financing almost 60% of the banks' total assets. Resident customer deposits also increased, up by 7.2%, on the back of higher deposits from private NFCs, non-MMF investment funds and households, in part mirroring a shift in customers' preference towards such banks given the higher rates offered.



In contrast, interbank funding fell by almost a third to finance just 5.1% of the banks' overall assets in June 2023. This drop was largely driven by lower placements from unrelated banks, particularly foreign counterparts, albeit such placements continued to account for most of the interbank funding. At the same time, intra-group funding fell by a significant 89.5%, driven exclusively by lower funding from these banks' subsidiaries, parent, and other related credit institutions.

Funding from term deposits rose by 15.2% over end 2022, accounting for 53.5% of total deposits, an increase of almost 3 percentage points, as interest rates on overall term deposits rose, mitigating somewhat rollover risks. This growing preference towards term deposits was observed across various economic sectors, especially among OFIs and households. Even NFCs, MFIs and non-MMF investment funds showed a relatively lower but still notable increase in preference towards such time deposits. Meanwhile, demand deposits also rose, at a more modest rate of 2.4%, with such increase driven predominantly by OFIs deposits. Concurrently, the non-core domestic banks reduced their Eurosystem funding by half during the first half of 2023. This was driven by reduced participation in three-month longer-term refinancing operations, and the repayment of outstanding amounts in pandemic emergency longer-term refinancing operations, as otherwise USD funding rose slightly. As a result, Eurosystem funding accounted for just 1.7% of assets in June 2023.

Liquidity remained abundant, with the LCR and NSFR each expanding by around 29 percentage points, to reach 344.6% and 202.9%, respectively. Such highly liquid standpoints were supported by the increased focus on liquid assets maintained by this group of banks, primarily in the form of withdrawable central bank reserves.

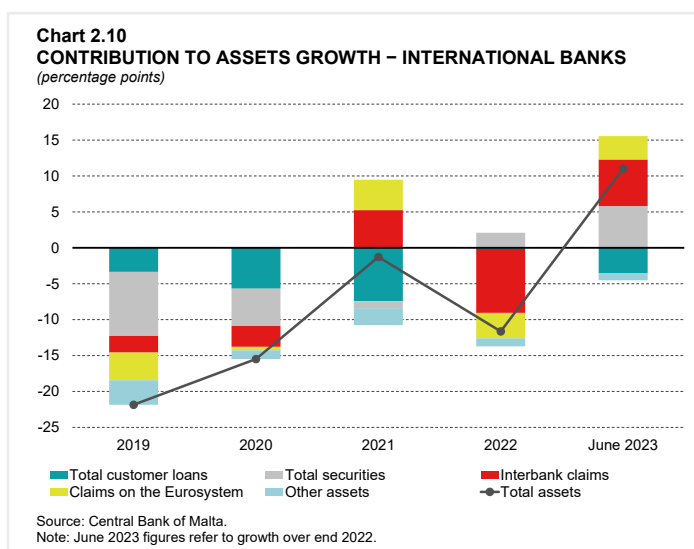
At the same time, the non-core domestic banks' operations continued to be backed by adequate capital positions. Total own funds increased by 4.1%, primarily in the form of Tier 1 capital, which pushed the total capital ratio by half a percentage point to 20.9%. This increase in capital ratios was also supported by a slower expansion in RWAs, as increases associated with credit risk were partly offset by declines in RWAs held on operational risk and foreign exchange risk. The rise in risk-free assets, including Eurosystem placements, drove a faster increase in corresponding assets, compared to RWAs, which resulted in a mild contraction in the LR which stood at 9.4% in June 2023.

The non-core domestic banks continued to be hampered by losses stemming from substantial provisions made late last year, which aided write-offs of NPLs during the first half of 2023. As a result, these banks have made significant progress in addressing asset quality. In addition, these banks continued to bolster their capital and liquidity positions. This should consequently provide such banks with a solid foundation to sustain restructuring initiatives, addressing structural issues on their balance sheets, enhance credit risk management, and improve their profitability prospects.

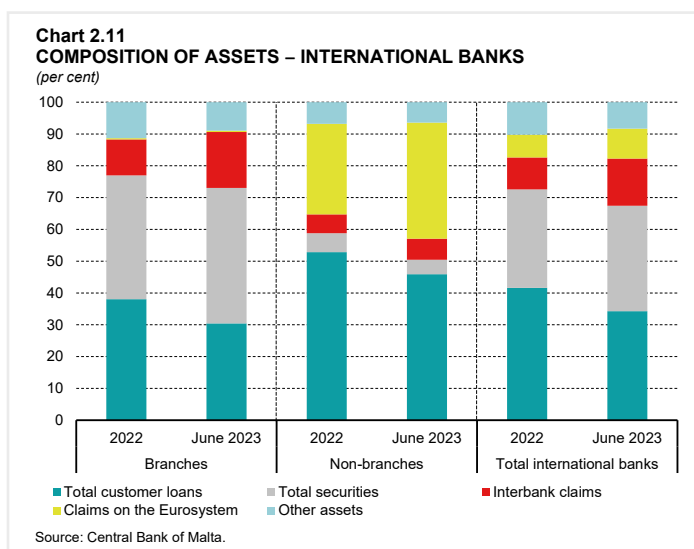
### 2.3 International banks

During the first half of 2023 the number of international banks remained unchanged, with five subsidiaries and stand-alone banks and four branches of foreign banks. Both sub-groups reported an expansion in their balance sheet, up by 14.6% and 9.9%, respectively. As a result, the overall assets of international banks grew by 11.0% over 2022, equivalent to 62.0% of GDP in June 2023.

Interbank claims were the largest contributor to the growth in assets. Spurred exclusively by placements, their share of overall assets went up by 4.8 percentage points to 14.9% (see Charts 2.10 and 2.11). This

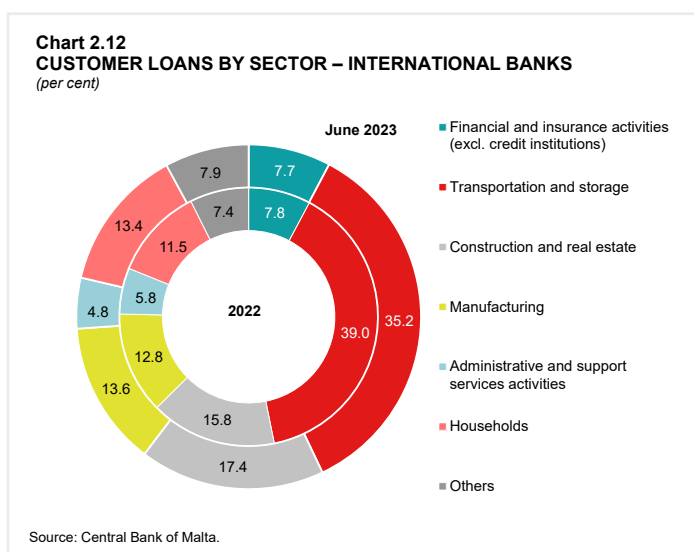


development was largely experienced by branches, which reported higher placements both within their group and to a much lower extent with other unrelated credit institutions. The latter was also observed among non-branches, although the share on their overall assets remained more contained. Such placements remained almost exclusively held with non-residents, as only 0.9% of the overall interbank claims were held with other domestic banks. Claims with the Eurosystem also rose, up by 45.4%, mostly reflecting the excess liquidity of the non-branches, where such placements represented 36.5% of their balance sheet. Overall, such claims accounted for 9.4% of the international banks' assets in June 2023, up from 7.2% six months earlier.



At the same time, driven exclusively by bond holdings, the securities portfolio of international banks expanded by 18.8% over end 2022, to account for around a third of their overall assets. The bond holdings of the branches rose by 20.3%, entirely driven by higher holdings of foreign sovereign bonds. Although to a much lower extent, the subsidiaries of foreign banks and stand-alone banks also reported higher bond holdings. This was solely driven by higher holdings of foreign NFCs bonds as otherwise investments in MGS dropped. Given that the bond portfolios of branches, which represented the bulk of the bond holdings, are skewed towards bonds issued in their home countries, the international banks' bond portfolio continued to consist primarily of speculative/unrated debt, although high-rated bond holdings increased, to account for 16.0% of such holdings. Meanwhile, equity holdings dropped by just above a quarter, as one subsidiary bank continued to dispose some of its investment in foreign companies.

In the first six months of the year international banks reported a decline of 8.5% in their customer loan books, with the share in overall assets declining to 34.3% from 41.6% in 2022. Such a contraction mainly reflected lower lending activity by the branches, with their customer loan book declining by 12.1%, as otherwise the contraction reported by the rest of the international banks was more contained at just 0.4%. The overall drop reflected lower lending to NFCs, down by 10.7%, largely in the transportation and storage sector and administrative and support services activities, as well as lower loans to OFIs, down by 9.1% (see Chart 2.12). On the other hand, household loans rose by 6.8% over 2022, accounting for 13.4% of the overall customer loans in June 2023. Lending activity remained almost exclusively focused on non-residents, with resident loans accounting for just 0.1% of their total assets in June 2023.

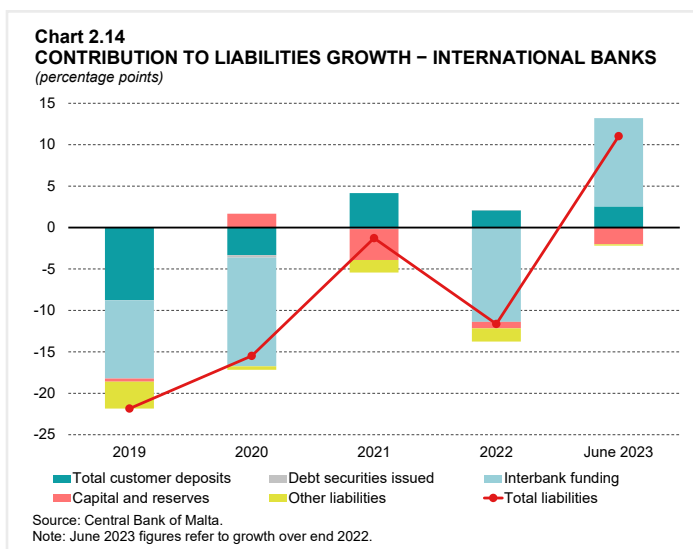
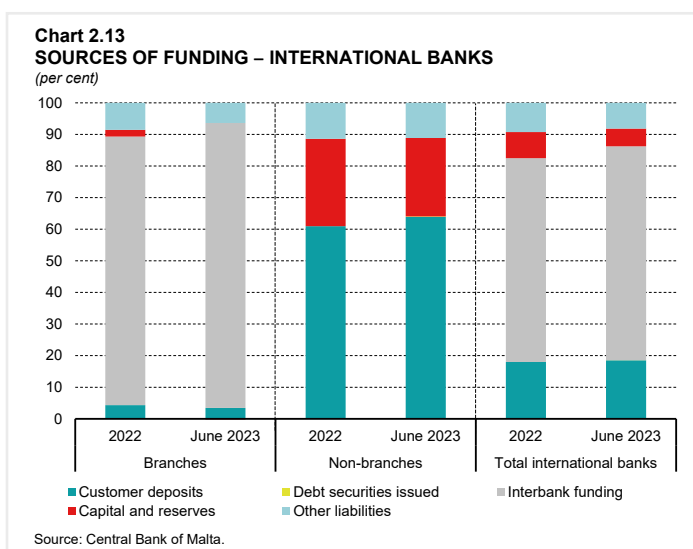




At the same time, the NPL ratio remained stable at 1.3%, as the 7.6% increase in NPLs was offset by higher Eurosystem placements. Should placements be excluded, the NPL ratio would increase by 0.2 percentage point, but would remain low at 1.9%. The deterioration in NPLs was exclusively reported by the non-branches driven by higher NPLs from consumer credit, which represented almost the entire NPL stock of these banks. In contrast, the branches reduced their stock of NPLs by nearly 17%, mostly arising from corporate debt. Despite declining by 7.5 percentage points, international banks continued to record a high overall coverage ratio of 182.1%. Such strong coverage reflected the significant provisions set as Stage 2 and 1, constituting almost 46% and 24% of overall provisions, respectively. Should only Stage 3 provisions be considered, which are the provisions related to already impaired loans, the coverage ratio would stand at about 55%. Such ratio rose by 4.5 percentage points over December 2022. Meanwhile, forbore loans for this group of banks dropped substantially to represent just 1.1% of their loan portfolio, significantly below the level reported during the pandemic. This came exclusively from performing forbore loans, which continued to represent the bulk of forbore loans.

Branches continued to be mainly financed through foreign interbank funding, which rose by 16.5%, backing 90.1% of their assets in June 2023 (see Charts 2.13 and 2.14). The growth was reported only from unrelated credit institutions as otherwise funding obtained from their head office fell. Meanwhile, the expansion of the subsidiaries of foreign banks and stand-alone banks was funded mainly from customer deposits, which rose by 20.1%, largely driven by higher deposits from foreign OFIs and households. As a result, customer deposits financed 63.9% of the non-branches' assets. This is in sharp contrast with branches where their overall customer deposits dropped by 12.4%, to cover just 3.5% of their assets. At 77.3%, deposits of overall international banks are largely term deposits with demand deposits falling by 5.0%. Capital and reserves contracted during the first six months of 2023, driven by lower reserves, although such source remained critical in the funding structure of the subsidiaries and stand-alone banks.

The non-branches' capital position improved as a drop in total own funds of 1.0% was more than offset by a reduction in their overall RWAs, enabling the total capital ratio to expand by 0.7 percentage point to 41.8% by June 2023. Lower RWAs were exclusively related to credit risk reflecting the drop in customer lending over the same period. As Tier 1 capital deteriorated, the LR of this group of banks shrank by 4.3



percentage points to a still significant 28.0%. In terms of liquidity, the non-branches continued to operate with robust liquidity positions. In comparison to end 2022, both the LCR and the NSFR expanded, up by 1.6 and 14.6 percentage points, respectively, to 385.3% and 132.9% surpassing regulatory requirements.

Turning to profitability, pre-tax profits dropped by 8.9% cover 2022, leading the post-tax ROA to decline by 0.2 percentage point to 2.4%. The drop in profits was however exclusively driven by the branches of foreign banks, with their pre-tax profits declining by slightly more than one fifth. This mainly reflected lower NII, mainly from non-intermediary activities, as otherwise impairment charges and operational expenses fell. In contrast, the pre-tax profits earned by the subsidiaries and stand-alone banks improved by 62.7% as income generated from non-interest-bearing activities strengthened, predominantly on the back of a substantial increase in trading profits, reflecting gains on financial assets at fair value (FV), and fees and commission income. Otherwise, their NII fell by 9.8%, while their non-interest expenses rose by 12.1% owing to higher administrative expenses and impairment charges increased by 7.5%. The cost-to-income ratio of all international banks rose by 4.4 percentage points to 49.5% in June 2023.

International banks, particularly those dependent on interbank funding, continued to weather challenges related to possible withdrawal of funds during uncertain macroeconomic conditions and monetary policy tightening. In contrast, the non-branches face fewer funding risks as they primarily rely on stable customer deposits, largely term deposits. While their asset quality is currently adequate, it remains essential to monitor customers' affordability amidst rising inflationary pressures. Nonetheless, international banks are expected to maintain robust solvency positions, which safeguarded them during recent economic challenges.

## SPECIAL FEATURE: A MEASURE OF THE CREDIT GAP FOR MALTA<sup>1</sup>

Policymakers observe data about the economy, sometimes with considerable lags, and analyse that data to infer whether any corrective policy action is required. This data, in its raw form, may not always give clear signals on whether any policy intervention is called for. To this end, policymakers employ an array of analytical tools, from simple data transformations to complex modelling. In the case of macroprudential policy, one such tool of analysis is the Basel gap, which measures the deviation of a country's aggregate credit to GDP ratio from its trend, to gauge the likelihood of excessive borrowing and risk-taking. The Basel Committee on Banking Supervision established the use of the Basel gap as a common reference guide in the setting of the Counter-Cyclical Capital Buffer (CCyB), the latter being an element of the Basel III framework (Basel Committee, 2010).<sup>2</sup> This gap is a proxy for the financial cycle, which is what policymakers aim to track. The trend used in this calculation is unobserved and is therefore estimated using a one-sided Hodrick Prescott (HP) filter, calibrated to deliver a very smooth trend.<sup>3</sup> This method is statistical in nature but incorporates economists' views that the underlying financial cycle is three to four times longer than business cycles. Drehmann et al. (2010) and more recently Drehmann and Yetman (2018) document that this indicator can perform well in the prediction of systemic banking crises relative to other univariate approaches.<sup>4</sup>

However, the Basel gap is not without its shortcomings. Since it involves expressing credit as a ratio of GDP, it has been negatively correlated with GDP growth for some countries in the past, suggesting tighter capital requirements during periods of slow growth, and vice versa.<sup>5</sup> This potentially amplifies rather than dampens the pro-cyclicality between downturns and risk. The use of the one-sided HP filter also has a well-known 'over-shooting' problem; following a strong rise in the credit to GDP ratio, the trend becomes biased upwards even if the credit-to-GDP ratio stabilises or falls (Lang and Welz, 2017).<sup>6</sup> This leads to large and persistent negative gaps for several countries, including Malta, and limits its use. In Malta this effect is caused by the financial liberalisation which took place in the 1990s, which led to strong credit growth relative to GDP, causing the credit-to-GDP ratio to rise significantly. This rise then partly reversed during the strong economic boom which started in the mid-2010s, lowering the ratio from a peak of around 120% in 2012 to around 75% by the start of 2023.

Although the Basel gap is used to calibrate the CCyB, the Basel Committee on Banking Supervision highlights that any such assessment should not rely entirely and mechanically on this gap but should be supplemented with judgement, taking into account any other relevant information.<sup>7</sup> Indeed, the Central Bank of Malta publishes updates to its assessment of the appropriate CCyB rate every quarter, which include the estimated Basel gap on bank credit data together with an array of supplementary indicators to justify its conclusions.<sup>8</sup> Nevertheless, other methods to uncover the financial cycle are being studied at the Central Bank of Malta.<sup>9</sup>

This article presents estimates of a semi-structural credit gap which is derived using a multivariate filter.<sup>10</sup> Like the HP filter, this methodology decomposes observed data into (unobserved) trend and cycle components.

<sup>1</sup> Written by Dr William Gatt Fenech, Manager of the Financial Stability Research Office. The author would like to thank Mr Oliver Bonello, Mr Alexander Demarco, Mr Alan Cassar, Dr Aaron G. Grech and Ms Wendy Zammit for their helpful comments and suggestions.

<sup>2</sup> Basel Committee (2010). Guidance for national authorities operating the countercyclical capital buffer. Basel, Switzerland.

<sup>3</sup> This decision follows the analysis of several indicators by Drehmann, M., Borio, C. E., Gambacorta, L., Jimenez, G., and Trucharte, C. (2010). Countercyclical capital buffers: exploring options. BIS Working paper no. 317, who find that this indicator outperforms other measures, such as credit growth, asset price growth and banking sector profits and losses.

<sup>4</sup> Drehmann, M., Borio, C., Gambacorta, L., Jiménez, G. and Trucharte, C. (2010). Countercyclical capital buffers; exploring options. *BIS Working Paper No. 317*, and Drehmann, M., and Yetman, J. Why you should use the Hodrick-Prescott filter — at least to generate credit gaps. 2018. *BIS Working Paper no. 744*.

<sup>5</sup> See Repullo, R. and Saurina, J. (2011). The countercyclical capital buffer of Basel III: A critical assessment. *CEMFI Working Paper No. 1102*.

<sup>6</sup> Lang, J. H. and Welz, P. (2017). Special Feature B: Measuring credit gaps for macroprudential policy, in *Financial Stability Review*, May 2017, European Central Bank.

<sup>7</sup> Furthermore, the principle governing the use of this gap measure as a common reference guide across countries nevertheless states that the gap need not play a dominant role in driving buffer decisions. See Basel Committee (2010). Guidance for national authorities operating the countercyclical capital buffer, Basel, Switzerland, p. 3.

<sup>8</sup> These assessments can be viewed on the [Central Bank of Malta website](#).

<sup>9</sup> See Vella, S. (2023). Box 1: A cyclical Systemic Risk Indicator for Malta, in *Financial Stability Report 2022*, Central Bank of Malta.

<sup>10</sup> More technical details will be published in Gatt, W. (forthcoming), A semi-structural credit gap for Malta: A multivariate filter approach, *Central Bank of Malta Working Paper*.

However, it is considerably more flexible and allows for the joint determination of trends and cycles of many variables simultaneously. More importantly, it also allows for the incorporation of economic relationships among unobserved variables, which can discipline the estimates relative to statistical filters, such that it allows for a better narrative. The model includes several Maltese macroeconomic variables, namely real GDP, the unemployment rate, inflation, real house prices, real bank credit to households, real bank credit to firms, the respective interest rates on household and firm credit, as well as euro area real GDP, euro area inflation and a proxy for the ECB's monetary policy stance.<sup>11</sup> The multivariate filter posits the following system of equations for each variable in the model as follows:

$$X_t = \bar{X}_t + \tilde{x}_t + v_t \quad (1)$$

$$\bar{X}_t = \bar{X}_{t-1} + g_t^{\bar{X}} + [\text{other terms}] + \epsilon_t^{\bar{X}} \quad (2)$$

$$g_t^{\bar{X}} = \tau g_{t-1}^{\bar{X}} + (1 - \tau)g + \epsilon_t^g \quad (3)$$

$$\tilde{x}_t = \rho \tilde{x}_{t-1} + [\text{other terms}] + \epsilon_t^{\tilde{x}} \quad (4)$$

Equation (1) defines the observed variable  $X_t$  as the sum of a trend  $\bar{X}_t$  and a cycle  $\tilde{x}_t$  component, as well as measurement error  $v_t$ . This measurement error picks up volatility in the data which the model does not attribute to either the trend or the cycle. Equation (2) states how the trend component evolves over time, such that its one period change is a function of a time-varying growth rate  $g_t^{\bar{X}}$  as well as other terms. These other terms could be movements in the estimated trend or cycle of another variable in the model. This time-varying growth rate is assumed to be a persistent autoregressive process of order 1 (AR(1)) around a long-run fixed growth rate  $g$  in equation (3).<sup>12</sup> Finally, equation (4) states that the cycle  $\tilde{x}_t$  is also modelled as AR(1) process, but additionally can be driven by developments in trends or cycles of other variables in the model. The trend, its growth rate and cycle can be hit by random disturbances  $\epsilon_t^{\bar{X}}$ ,  $\epsilon_t^g$  and  $\epsilon_t^{\tilde{x}}$ , respectively. A strength of this approach is that credit gaps are informed by developments across the macroeconomy, which can improve their usefulness compared to univariate approaches.<sup>13</sup> For instance, the trend and cycle for real household credit are also a function of developments of the trend and cycle in real house prices, capturing a collateral channel, as well as developments in potential output, the output gap, the trend and the cycle of the household interest rate, capturing demand factors. Similar demand determinants are present in the trend and cycle for real credit to firms. The resulting cycles represent the credit gaps in the household and corporate sectors, respectively and are aggregated to form the economy-wide semi-structural credit gap.

The parameters of the model as well as the variances of the disturbances are calibrated or estimated using Bayesian techniques, using data spanning the period 2000Q1 to 2019Q4. Given a set of parameters, the model is used to derive the estimates of the underlying trend and cycle components using all available data via the Kalman filter. A key advantage of using a Bayesian framework is that the results are derived in terms of a probability distribution, which reflect the inherent uncertainty in these latent variables.

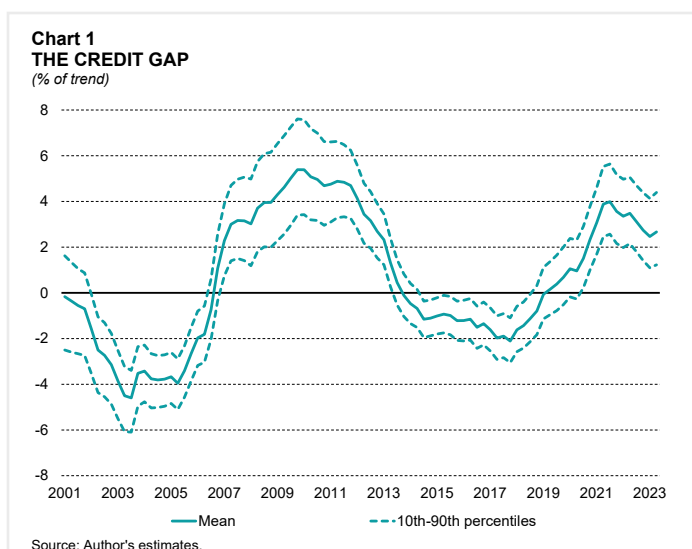
<sup>11</sup> House prices and household credit are deflated using the HICP, while firm credit is deflated using the GDP deflator.

<sup>12</sup> The system of equations for stationary variables such as the unemployment rate, inflation rates and interest rates does not include this equation, and the trend equation follows an AR(1) process instead of a random walk with drift.

<sup>13</sup> See Behn, M., Detken, C., Peltonen, T. A., and Schudel, W. (2013). Setting countercyclical capital buffers based on Early Warning Models: Would it work? *ECB Working Paper No. 1604*, Detken, C., Weeken, O., Alessi, L., Bonfim, D., Boucinha, M., Castro, C., Frontczak, S., Giordana, G., Giese, J., Jahn, N., Kakes, J., Klaus, B., Lang, J. H., Puzanova, N., and Welz, P. (2014). Operationalising the countercyclical capital buffer: indicator selection, threshold identification and calibration options. *ESRB: Occasional Paper Series, No. 2014/5*, and Drehmann, M. and Yetman, J. (2021). Which credit gap is better at predicting financial crises? A comparison of univariate filters. *International Journal of Central Banking*, Vol.17, No.4, pp. 225-255.

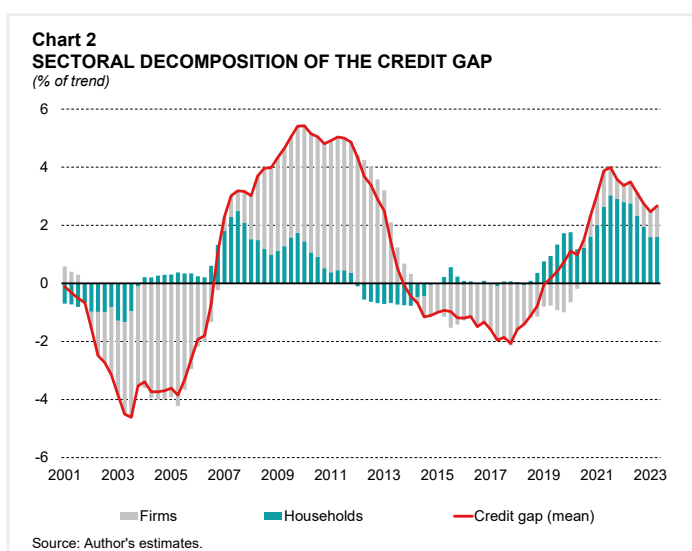
## The semi-structural credit gap

Chart 1 shows the distribution of the estimated credit gap for Malta from 2001Q1 to 2023Q2 using the multivariate filter approach. The semi-structural credit gap is defined such that a gap of say 2% implies that the actual level of credit outstanding is 2% above the estimated trend.<sup>14</sup> The credit gap is cyclical, with an average duration of 13 years per cycle, which is in line with the literature on financial cycles.<sup>15</sup> It indicates that total credit was below trend in the early 2000s, turning positive later that decade, after which it turned negative although at low levels in absolute terms during most of the 2010s. The gap turned sharply positive again in 2020 and remains positive, although on a declining trend up until 2023Q2.



The chart also shows the uncertainty around the mean credit gap estimate, proxied by the 10<sup>th</sup> and 90<sup>th</sup> percentiles of the underlying distribution, which is a commonly used measure of uncertainty. The latter reflects underlying uncertainty about the values of the parameters of the model and the distribution of historical shocks which may have affected the gap, either directly or indirectly via other variables in the model. This allows for a probabilistic assessment of the credit gap. For example, the model estimates an 80% probability that the gap was between 1.2% and 4.4% in 2023Q2, with a mean estimate of 2.7%. This conveys a clear signal that the gap was well within the positive range, with credit being above fundamentals. Conversely, even though the mean credit gap stood at -0.7% in 2006Q3, the 80% probability interval puts the gap at being between -2.0% and 0.6%, with less than a 30% probability that the gap is positive. This probability measure communicates the underlying uncertainty around the estimate of an indicator – the fundamental level of credit at any point in time – which is inherently unobservable.

The model can also be used to investigate the dynamics of sectoral credit gaps and assess their contribution to the aggregate gap. Chart 2 decomposes the credit gap shown in Chart 1 into contributions from households and firms, focusing only on the mean estimates for ease of reference. Throughout most of the period under study, developments in lending to firms were the key driver of the aggregate credit gap. This is due to two



<sup>14</sup> Note that the semi-structural credit gap is defined relative to the trend level of credit, not trend level of credit-to-GDP. This helps to remove the potential for the gap to be affected neither by the effects of financial liberalisation nor the strong growth in GDP, as discussed above.

<sup>15</sup> See, for instance, Lang, J. H. and Welz, P. (2018). Semi-structural credit gap estimation. *ECB Working Paper No. 2194*, and Strohsal, T., Proaño, C. R., and Wolters, J. (2019). Characterizing the financial cycle: Evidence from a frequency domain analysis. *Journal of Banking & Finance*, Vol. 106, pp. 568-591.

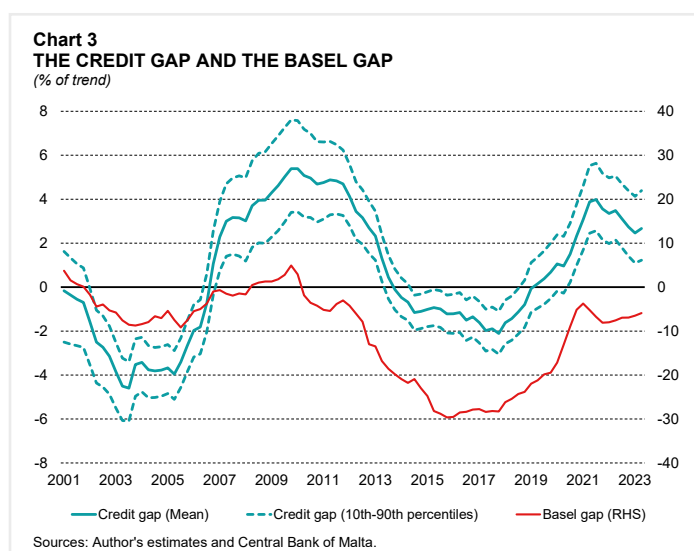
factors. First, the share of loans to firms represented the bulk of loans issued, representing more than 70% of total bank lending in the early 2000s. This ratio fell progressively over the sample period, as growth in household mortgages outstripped growth in loans to firms, reaching 50% by mid-2013, with the share of corporate loans stabilising at around 40% by the end of the sample period. This large historical share attributes more weight to developments in the corporate sector in the overall credit gap. Second, developments in loans to firms were historically more volatile, leading to a gap with higher peaks and lower troughs relative to the household credit gap.

The chart also shows that the household and firm credit gaps are not totally synchronised, with the household gap tending to lead the firm gap. Nevertheless, from 2020 onwards, both gaps were simultaneously positive, although the aggregate credit gap was driven mostly by developments in the household sector, which started registering a small but positive credit gap since 2019. Mortgage growth during this period was supported by strong activity in the housing sector, following the introduction of fiscal incentives during the COVID-19 pandemic. At the same time, credit guarantees to firms, as well as strong activity in the construction and real estate market likely explain the low but positive contribution to the aggregate credit gap. The model's ability to decompose the aggregate credit gap by sectors is a very useful feature, as it can indicate whether rises in risk are broad-based or sector-specific, thereby guiding policymakers on the appropriate macroprudential policy response.

### Benchmarking with existing indicators

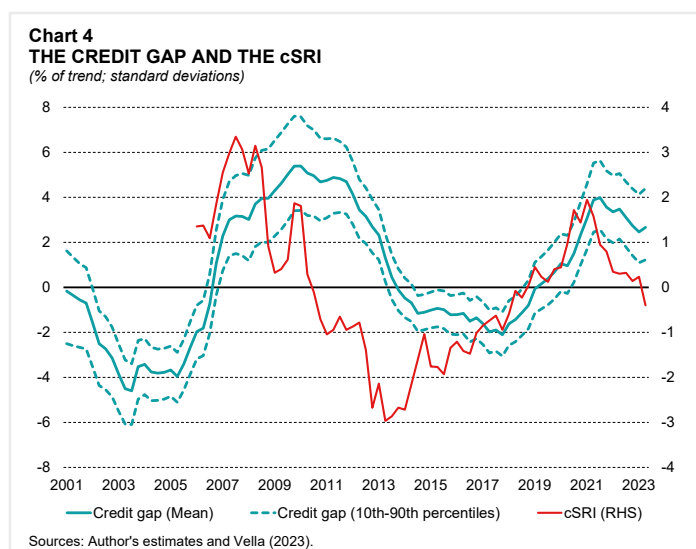
The semi-structural credit gap is an addition to the Central Bank of Malta's cyclical analysis toolbox, complementing other indicators such as the Basel gap and the cyclical systemic risk indicator (cSRI), amongst others.<sup>16</sup> The cSRI is a composite indicator which captures the underlying movements in bank credit, the house price-to-income ratio, the debt service-to-income ratio and total debt relative to their long run behaviour. It is instructive to compare the credit gap with both indicators to assess the likelihood that they convey the same signal. Chart 3 shows that the Basel gap for Malta somewhat agrees with the credit gap up to the first half of the sample period, identifying a negative gap in the period 2001-2007 which turns positive in the late 2000s. However, it turns negative again shortly after, reaching a trough of -30% by 2016, and remains negative through mid-2023. This leads to the conclusion that, according to this indicator, the potential accumulation of financial stability risks remains muted. This finding is at odds with the conclusions drawn from the semi-structural credit gap, which indicates rising risk starting from 2019 (mainly in the household sector, as discussed above), and therefore the need for corrective action. The 'over-shooting' property of the one-sided HP filter is the culprit for the Basel gap remaining persistently negative, since the credit-to-GDP ratio reached a peak of around 120% in 2010 and then fell to and stabilised around 75% from 2018 onwards, but the smooth one-sided HP filter takes a long time to 'catch-up'.

Turning to the other key indicator, Chart 4 shows that the cSRI is more likely to flag turning points in the financial cycle that line up with or even anticipate those identified by the semi-structural credit gap. Indeed, the cSRI correlates well



<sup>16</sup> See Central Bank of Malta (2023). *The Countercyclical Capital Buffer Rate*, June 2023 for the latest estimate of the Basel gap and supplementary analysis, and Vella, S. (2023). Box 1: A cyclical Systemic Risk Indicator for Malta. In *Financial Stability Report 2022*, pp. 19-22, for the cSRI. The latter is only available from 2006 due to data limitations. The Central Bank of Malta started reporting the Basel gap as a measure of the financial cycle in 2016.

with the household component of the credit gap, and therefore leads the firm credit gap, following the discussion above.<sup>17</sup> Towards the end of the sample the cSRI is affected by the incidence of high inflation, which dampens the dynamics of real bank credit and real total debt growth in that framework, leading to a negative value in 2023Q2. On the other hand, the credit gap based on the multivariate filter is more robust to this, as the model decomposes the level of real credit, rather than its yearly growth rate in deviation from its long run mean. However, the cSRI also conveys the potential for the accumulation of risks when the effect of inflation is controlled for, consistent with the credit gap.



## Conclusion

Macroprudential policymakers face several challenges in the conduct of their mandate. They observe data with a lag, which they then need to analyse and assess with respect to macroeconomic and financial theory and a thorough understanding of an economy's functioning. They then face a dilemma related to the need to act and, if warranted, deliberate on the timing of such implementation. The credit gap presented in this article goes some way towards addressing these challenges in Malta. By filtering credit developments through a semi-structural macroeconomic model, it yields economically meaningful measures of trends, against which the data is assessed. By presenting a distribution of outcomes for the state of the financial cycle, it paradoxically reduces the uncertainty around the need for action, as the probability of the credit gap exceeding any given threshold can be readily evaluated and used to inform judgement. This is in line with recent advances in policymaking which place emphasis on the monitoring of tail risk events.

Over the past few years, the credit gap turned positive through the lens of the semi-structural multivariate filter, as credit growth rose above fundamental growth. The cSRI also points towards similar dynamics in recent years, collectively hinting at rising cyclical risks. Moreover, the credit gap is being driven primarily by the household sector. These findings, together with the low contribution of the corporate sector in the credit gap and the concentration of strong credit growth in the construction and real estate sectors, affirm the appropriateness of the sSyRB on domestic mortgages secured by RRE, which was announced and introduced earlier this year.<sup>18</sup>

<sup>17</sup> The contemporaneous correlation coefficient between the cSRI and the household credit gap is 0.78 over the period 2006Q1 to 2023Q2.

<sup>18</sup> See the full communication of this [macroprudential policy decision](#).