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ASSESSING CYCLICAL RISKS IN MALTA

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SPECIAL FEATURE 1: ASSESSING CYCLICAL RISKS IN MALTA

1. Introduction

Systemic risk is the serious failure of the entire financial system or a part thereof, with adverse effects on economic development. Conceptually, systemic risks could be seen as encompassing two types of sources of risk, namely cyclical and structural (Hodula et al., 2021). The structural component is related to the build-up of financial fragilities, potentially amplifying adverse economic shocks and impair the proper functioning of the financial system. The cyclical component of systemic risk, on which this Special Feature focuses, is related to the dynamic evolution of the financial cycle, capturing potential macro-financial imbalances. Academic literature suggests that cyclical risks start building up well before a financial crisis. In an expanding phase of the financial cycle, against a backdrop of lax financial conditions, credit growth and prices of financial assets and property rise sharply. In turn, the elevated asset prices increase the value of collateral and thus the amount of credit the private sector can obtain, until the situation becomes unsustainable, possibly resulting in a crisis. Structural and cyclical risks are not independent of each other, and the nature of their interaction may change over the course of the financial cycle, with the levels of structural risk possibly impacting the degree of cyclical and credit risk materialization (Hodula et al., 2021).

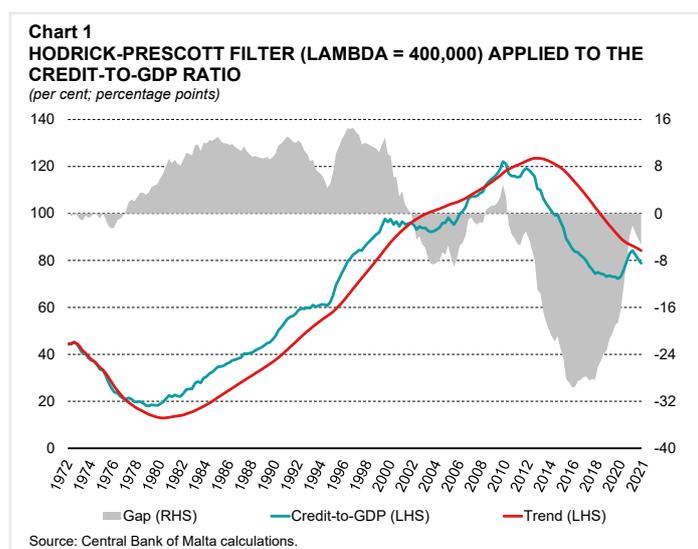
Prior to the pandemic, cyclical risk was rising, leading to 13 European countries to activate a positive CCyB rate in view of the increased vulnerabilities in the household and corporate sectors and the property market.¹ With the onset of the pandemic in early 2020, several countries released buffers to provide banks with additional capital headroom and support their lending activities.² As economies started to recover in 2021, credit growth accelerated, private sector indebtedness rose further, coupled with strong activity in the real estate market. This triggered once again fears of build-up of cyclical risks, with a few countries setting higher positive buffer rates, some re-introducing the buffer while others setting it for the first time in their history.³ However, other countries have maintained the rate at 0% after decreasing it during the pandemic or are yet to introduce one. The Russia-Ukraine war has heightened uncertainty, caused severe supply chain disruptions, and intensified inflationary pressures. Such developments forced some central banks to tighten their monetary policy stance. The latter could impact economic and credit growth prospects, thus countering the need for capital buffers targeting cyclical risks.

The Central Bank of Malta monitors cyclical risks and publishes its quarterly analysis on its website. However, recent post-pandemic developments highlight the importance of a deeper understanding and analysis of drivers of cyclical risks in Malta, particularly due to the possible transitory effects also stemming from the COVID-policy response. As a result, this Special Feature looks at historic trends of the major sources of systemic risks in Malta and presents an analysis of the headline and additional indicators most relevant for Malta grouped into three stretches.

2. Cyclical Risk Indicators

2.1 The headline indicator – the credit-to-GDP gap

The credit-to-GDP gap is widely used as an early warning indicator for a banking crisis (Borio and Lowe, 2002) while policymakers use it as a guide to activate the CCyB. As at the end of 2021, the bank credit-to-GDP gap in Malta remained in negative territory, standing at -5.35 percentage points (see Chart 1).⁴ This however has



narrowed significantly since 2016 to bottom out at -3.9 percentage points in the last quarter of 2020, with the drop in part hastened by the pandemic-induced decline in GDP.

However, this measure was criticised by several academics especially due to the use of the HP filter for the calculation of the trend which can change significantly as more data is made available (end-point bias). Furthermore, structural breaks can also affect the calculation of the trend. As highlighted by Grech (2015), the credit market in Malta has changed radically over the last decades. While in the 1970s and 1980s, most bank credit was channelled to firms, the financial liberalisation of the 1990's led to an expansion in bank credit, mostly in the form of mortgages, possibly contributing to the increase in house prices. The three years prior to EU accession also contributed to structural changes in the economy where house prices grew on average by 14% per annum. Furthermore, the economy's orientation towards service activities became more pronounced, while the importance of manufacturing continued to shrink, possibly also shaping the demand for corporate bank credit going forward. All these factors, make the use of the HP filter to extract gaps from Maltese credit data even more problematic.

In addition, the assessment of cyclical systemic risks was also recently impacted by transitory elements, with governments and authorities introducing measures to support the economy during the pandemic. Such transitory elements may lead to a misinterpretation of the extent of cyclical risk, and thus would need to be further analysed when looking into the additional metrics.

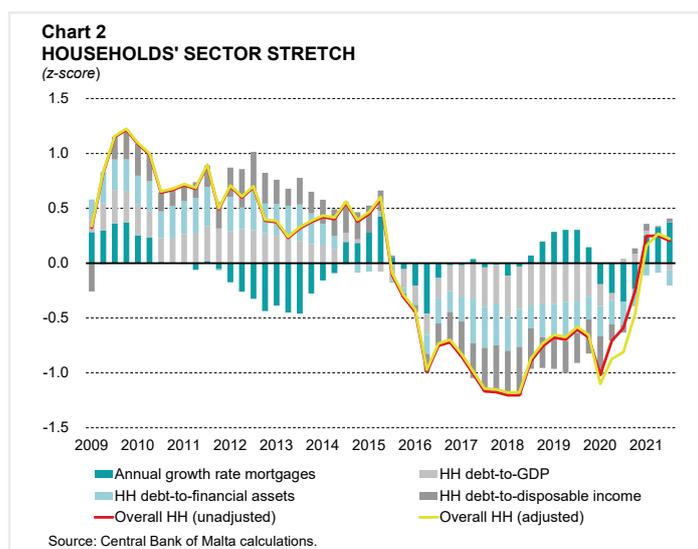
The analysis proceeds by looking into three stretches: the households' stretch, the NFCs' stretch and property market stretch, where indicators within each stretch are standardised and compared with their historic trend since June 2009. Indicators within each stretch are then aggregated to arrive to an overall score.⁵

2.2 The households' stretch

Potential vulnerabilities in the household sector were analysed using four metrics namely growth in outstanding loans, and debt metrics such as household debt as a share of GDP, financial assets, and disposable income.

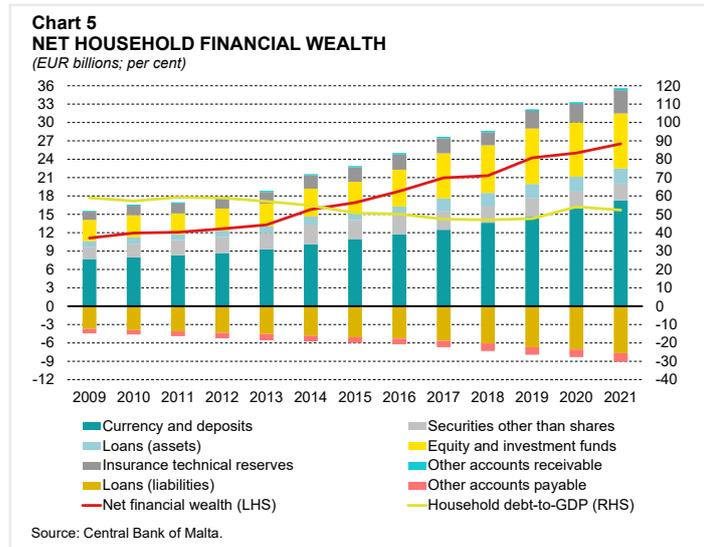
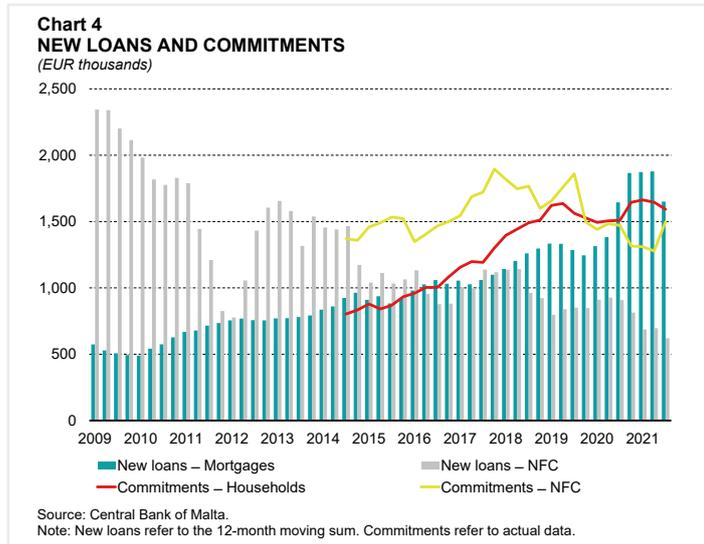
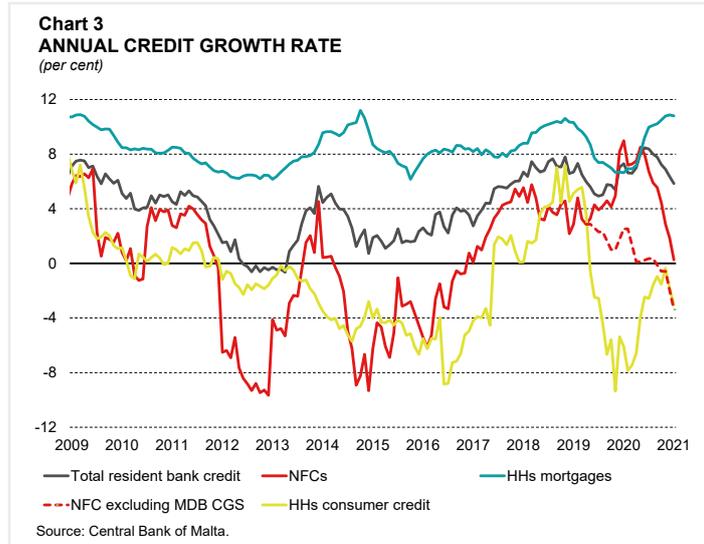
As can be seen in Chart 2, increasing risks were experienced soon after the great financial crisis, up until 2011 after which the overall household stretch score started to decline. In 2015, the score turned negative suggesting lower risks, as both credit and debt metrics declined. Such trend persisted until the first half of 2020, following which, both credit and debt picked up momentum.

Mortgages grew at double digit rates until prior to the financial crisis but decelerated to 6.2% in 2013 with growth subsequently fluctuating between 6% and 11%. By end 2019, mortgages were growing by about 10.3%, but with the pandemic, growth slowed down reflecting the effect of social distancing measures which prevented physical viewings of properties. However, the prompt policy response and the tax relief scheme aided the recovery in the property market with growth in mortgages surpassing pre-pandemic figures and the long-term average of 8.5% since June 2009 to reach 10.8% by the end

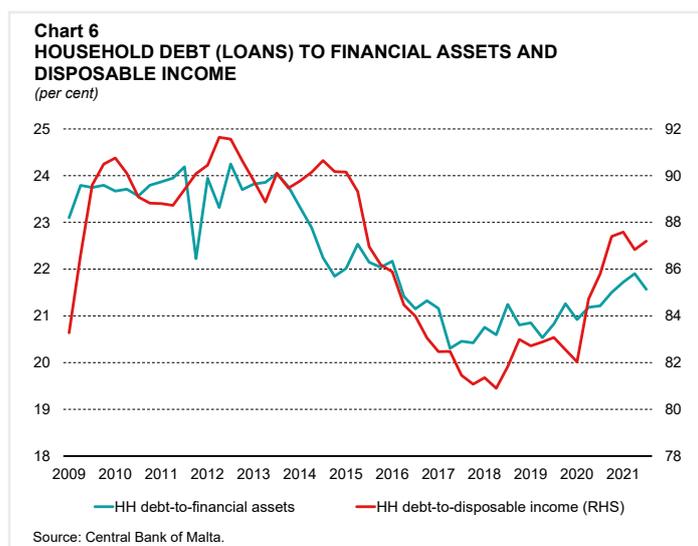


of 2021 (see Chart 3). Such strong lending dynamics have affected the structure of the banks' resident loan portfolio, with the share of mortgages soaring from around a quarter in 2004, to just over half by end 2021.⁶ Recent developments are deemed to be transitory, owing in part to the front loading of the decision by buyers and sellers to buy/sell their property to take advantage of such scheme. This front loading will persist in the data as parties eligible for tax benefits have till end September 2022 to sign the final deed for those promises of sales signed by end 2021. Furthermore, the impact of the scheme on mortgage lending is clearly visible by assessing new loans where these declined briefly in the first quarter of 2020 to increase significantly thereafter. Towards the end of 2021 the amount of new loans granted decreased indicating a possible slowdown in mortgages (see Chart 4). This is corroborated with off balance sheet commitments of banks which also slowed down during the initial stages of the pandemic to later resume their upward trend in early 2021 with a slight drop towards the end of the year.

Just before the COVID-19 pandemic, household debt rose on average by 6.1% annually between 2009 and 2019, albeit at a slower rate than GDP, resulting in the household debt-to-GDP ratio to drop from 59.0% in 2009 to 47.7% in 2019 (see Chart 5). Subsequently, as GDP contracted in 2020, the share increased to 54.1% while household debt increased at a slower pace of 5.6%. Accounting for the decline in economic activity by keeping GDP constant at the March 2020 level, the score for the overall household stretch would have risen at a slower pace with the household debt-to-GDP ratio standing just below 50%.⁷ In 2021, household debt resumed



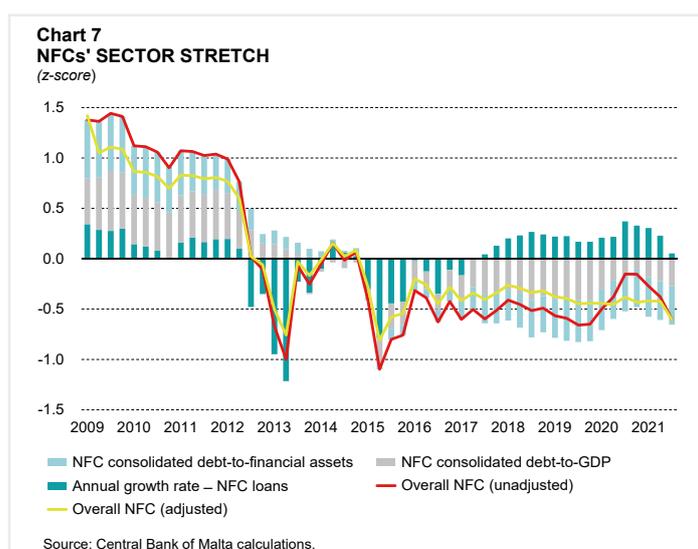
momentum, up by 8.6%, but since GDP recovered strongly, the household debt-to-GDP ratio fell to 52.3%, albeit higher than the 50% recorded in 2020 when maintaining GDP constant. This stood still below the euro area average of 60.8%. Notwithstanding supporting factors, such as the noted strong balance sheet indicators, possible concerns emerge, as the increase in household debt has been outstripping the growth in disposable income and their financial assets since 2017. As a result, the household debt-to-disposable income increased to reach 87.2%, while household debt-to-financial assets rose to 21.6% (see Chart 6). Such levels remained below the levels reported in and before 2015, but should the increasing trend persist, risks to the household sector could be amplified, negatively impacting households' debt servicing capabilities, especially for the more highly-indebted cohort, particularly in a scenario of rising interest rates. To some extent the latter is mitigated given the stressed debt servicing rates inbuilt in the BBMs.⁸



Going forward, the Bank expects mortgage growth to slow down somewhat at least until 2024, also in view to the potential rise in interest rates.

2.3 The non-financial corporations' stretch

As seen in Chart 7, the NFC risk score followed a downward trend since the global financial crises. The score remained generally in positive territory up until 2015 to turn negative thereafter. Unlike the household sector, recent developments point to further weakening. Between 2015 and 2017, both the credit and debt indicators contributed towards lowering NFC risks as credit to NFCs declined whilst debt indicators embarked on a downward trend. Despite the increase in debt throughout the years, as a share of GDP, NFC debt has been on a decreasing trend, standing at 228.9% as at end 2021. Similarly, consolidated NFC debt-to-GDP has been on a declining trend since 2009, except during the pandemic, to stand at 78.9% in 2021, compared to 105.8% in 2009. NFC leverage on a consolidated basis, defined as NFC debt as a share of their assets, narrowed to just below 30% and even lower than the euro area average (see Chart 8). Meanwhile, the annual growth for both new and outstanding NFC

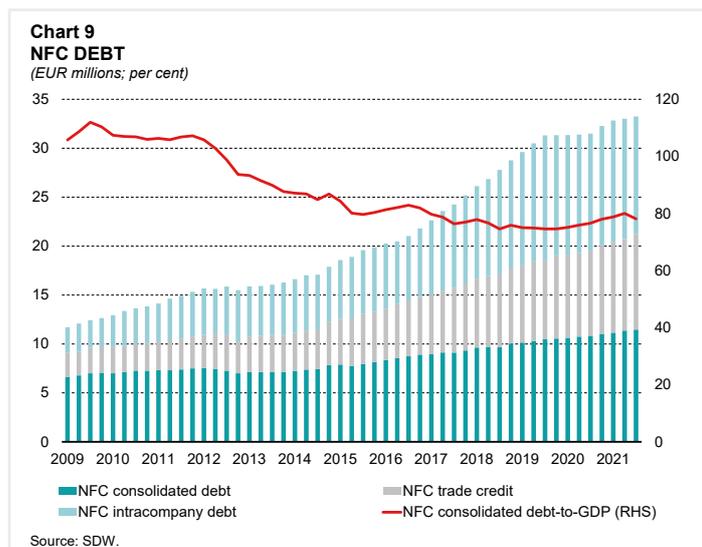
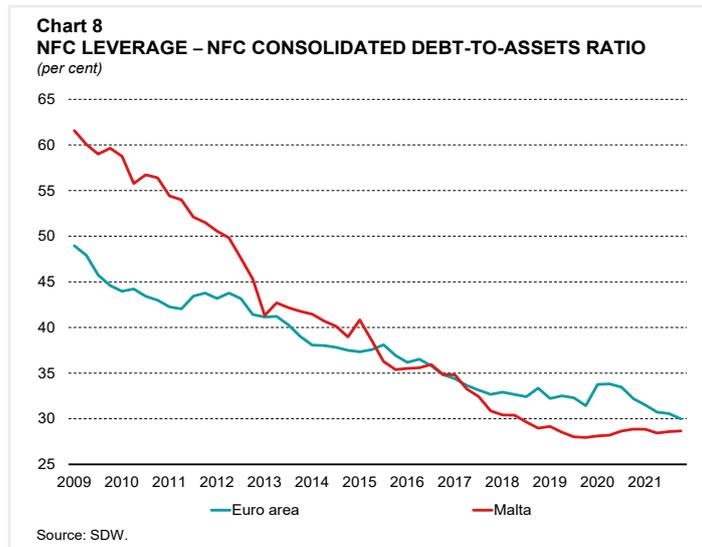


credit turned positive in 2018, with the latter picking up momentum and peaking at 9.0% in 2020. This mainly reflected the MDB CGS, introduced in April 2020 to meet new working capital requirements for businesses experiencing cash-flow shortages, with around €263 million disbursed in 2020 and an additional €152 million in 2021.⁹ However, while the availability of such scheme was extended up until June 2022, demand for such loans dwindled with only €12 million in loans disbursed in the first quarter of 2022. Growth in NFC lending decelerated significantly to just 0.3% as at end 2021. Furthermore, had the scheme not been in

place, NFC credit would have contracted. Accounting for this scheme and the decline in GDP, the aggregate score would have been lower in 2021. These trends are corroborated by new NFC loans granted as well as off-balance sheet commitments to extend credit to NFCs, both of which embarked on a declining trend.

Historically, consolidated NFC debt, accounted for a significant share of outstanding debt, standing at around 56% in 2009. Although the level of consolidated debt did increase across the years, the largest rise was due to higher trade credit and intracompany debt. This may have policy implications going forward, as macroprudential measures such as the CCyB do not specifically target trade credit and intracompany debt. Since the latter two are the most common funding sources for NFC, such measures may prove to be ineffective if the need arises to implement them.

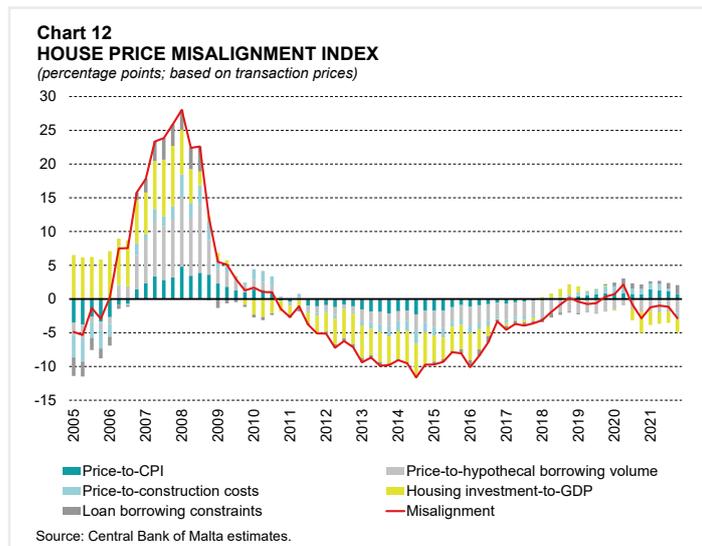
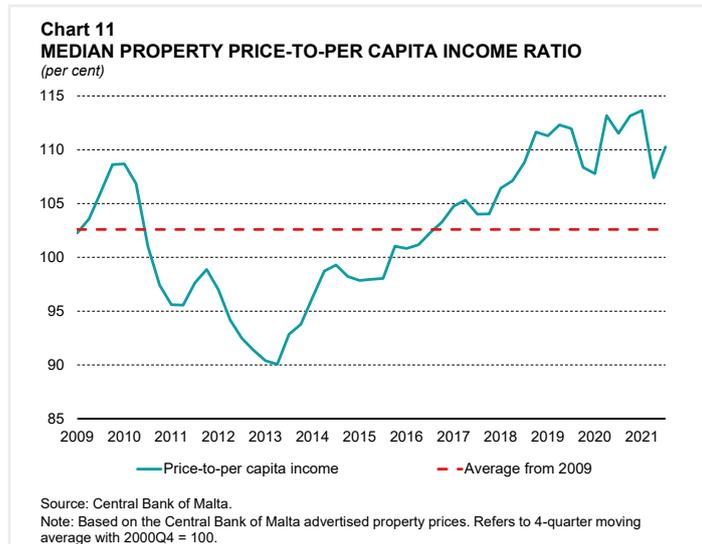
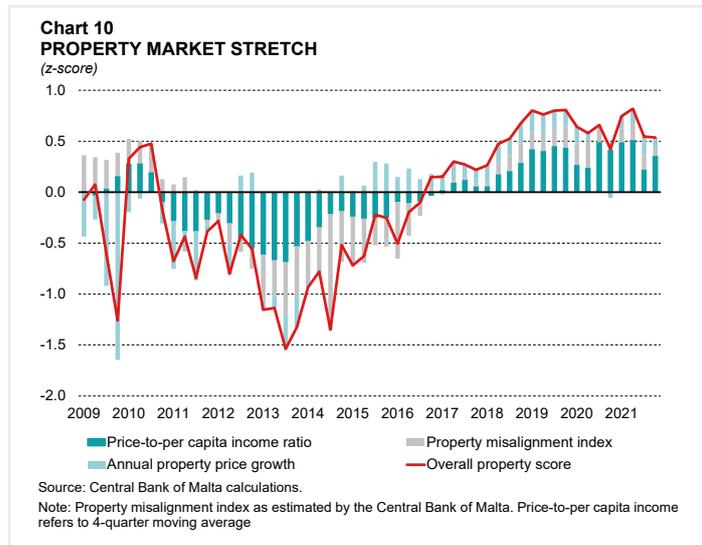
As the economy was growing at a fast pace, companies sought to finance their operations and capital expenditures from internal funds rather than through bank loans¹⁰ (see Chart 9). As a result, the share of consolidated NFC debt on overall NFC debt – which includes trade credit – fell to 34.5% as at end 2021. Meanwhile intracompany funding became the most important funding source, accounting for 36.1% of total debt (2009: 22.5%), while trade credit grew to represent 29.4% (2009: 21.1%). From 2009 to just before the pandemic, NFC debt was rising on average by around 10% annually. However, in 2020, NFC debt grew only marginally as intracompany lending fell by almost 6% – reflecting a contraction in cashflow availability, which however led to higher trade credit. The economic recovery of 2021 also coincided with a pick-up in NFC debt, though at 5.6%, growth in NFC debt remained below pre-pandemic levels. As a result, cyclical risks derived from the NFC sector are perceived to be in check with the aggregate NFC score staying well below historic trend.



2.4 The property market stretch

Another important source of a potential build-up of cyclical risks is the property market, where overheating could expose the banking sector to vulnerabilities, as strong house price growth could compromise borrowers' affordability. In contrast, a sudden correction in property prices may affect the collateral value of banks' exposures and their asset quality. Therefore, the aggregate property market stretch risk score comprises of the annual growth in property prices, the price-to-per capita income ratio, and the house price misalignment index.

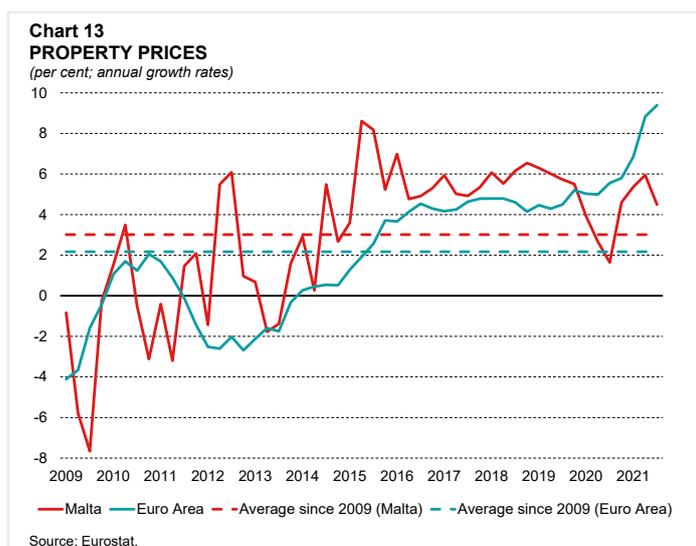
As can be seen in Chart 10, the risk score hovered below average between 2010 and 2016 primarily driven by the price-to-per capita income as well as the Central Bank's house price misalignment index which indicated that property prices were below their fundamental level (see Charts 11 and 12). Since 2017, the aggregate stretch score turned positive, peaking in 2019 largely on the back of rising property prices. However, just before the onset of the pandemic, property prices started to decelerate, picking up momentum during the pandemic, ending 2020 with a growth of just 1.6% (see Chart 13). Such developments contributed to a slight drop in the overall score, yet remained in positive territory. Subsequently, property prices recovered as demand picked up supported by tax incentives. Chart 10 highlights that the higher relative growth in house prices coupled with upticks in the misalignment index and the price-to-per capita income, are all contributing to potential vulnerabilities in the real estate market, standing at around 0.5 standard deviations, which however may come under further pressure



should economic growth prospects deteriorate going forward.

3. Concluding Remarks

The financial sector plays a fundamental role in the financing of the economy but may also propagate strong swings in economic activity. Cyclical risks which are associated with the financial cycle, tend to build up gradually well in advance of financial crises and are normally measured by credit and asset price dynamics. In the upswing of a financial cycle, firms and households tend to become more indebted, and prices of financial assets and immovable property rise sharply. Peaks of financial cycles have historically tended to cause serious macroeconomic imbalances.



The assessment of indicators complementing the standard credit-to-GDP partially indicate a possible build-up in cyclical risks locally. These are found to be driven by the household and property stretches as otherwise the NFC sector's score remained in negative territory. This highlights the diverging trends being reported across the three main stretches assessed. Any decision to activate measures to counter any identified risk also depends on whether the current trends persist once the transitory elements driven by the pandemic fade away. Indeed, resident NFC lending has already weakened after the slight pick-up driven by the MDB CGS. NFC debt measures, both as a share of GDP as well as in relation to their assets, declined throughout the years, indicating that the NFC sector does not seem to be propagating any cyclical risks. On the other hand, the pandemic left its mark on the property market as valuation metrics stand above their long-term average, as well as the household sector, with mortgages resuming strong growth momentum after a short lull in the initial period of the pandemic. Such lending dynamics have contributed to higher household indebtedness. As fiscal incentives expire, a slowdown in mortgage lending is expected to materialize, which to some extent could already be detected in both the extent of new mortgage loans granted as well as in the number of promises of sale agreements, which fell in the first four months of 2022 compared to the same period in 2021. However, should the current growth rates be sustained, cyclical risks as measured by the household and property market stretches could increase further. Furthermore, given an already overheating credit cycle, persistent growth rates would likely contribute to the materialization of risks, possibly even if such dynamics occur at a somewhat lower than average trend growth. Persistent elevated growth contributes also towards heightened structural vulnerabilities in terms of concentration risks, as mortgages and other property-related loans would continue to dominate the banks' resident lending book.

Against this backdrop, taming the cycle in the upswing can prove very challenging for macroprudential policy, especially in the context of the recent gradual phasing out of expansionary monetary policy and the diverging growth trends in some sectors. Furthermore, care should be taken not to jeopardise credit growth going forward, especially in areas where credit growth is anaemic, such as in the case of NFC lending, or which could be currently affected by transitory factors related to the pandemic and temporary fiscal measures. As discussed in this Special Feature, the sources of NFC vulnerabilities are currently emanating from aspects of corporate funding that are not ideally addressed through capital-based macroprudential policies. This also in the light of the significant rise in geopolitical tensions, particularly with the war in Ukraine, which are derailing economic recovery. As a result, these elements impact not only the timing of when measures should be implemented, but also the type of measures that best target any identified vulnerabilities.

Notes

¹ The countries with a positive CCyB buffer rate by end 2019 were Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Iceland, Ireland, Lithuania, Luxembourg, Norway, Slovakia and Sweden with rates varying from 0.25% to 2.5%.

² The countries which decreased their CCyB buffer rate during 2020 were Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Iceland, Ireland, Lithuania, Norway, Slovakia and Sweden.

³ The countries which have announced an increase in their CCyB buffer rate during 2021 and early 2022 were Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Iceland, Norway, Romania and Sweden.

⁴ As at March 2022, the credit-to-GDP gap stood at -5.95 percentage points.

⁵ Each stretch is composed of several indicators which are standardised using the z-score to be able to compare how many standard deviations each indicator is from its mean. These z-scores are given an equal weight and summed into a composite indicator for each stretch.

⁶ This contributed to the share of property related loans to rise by over 23 percentage points to 65.2% as at end 2021, of which the share of lending to the construction and real estate sectors decreased to around 13% in 2021.

⁷ GDP levels as at March 2020 are based on 4-quarter moving sum and reflect the highest GDP prior to the pandemic-induced contraction.

⁸ The BBMs are governed by CBM Directive No.16. <https://www.centralbankmalta.org/site/About-Us/Legislation/Directive-16-2021.pdf>

⁹ Furthermore, around €24 million and €13 million were granted respectively in 2020 and 2021 to the financial sector.

¹⁰ See *Financial Stability Review 2017*, Box 2: NFC loans from other corporates – evidence from Malta's financial accounts statistics. <https://www.centralbankmalta.org/site/Financial-Stability/WP-Other-Studies/box2-fsr-2017.pdf>

References

- Bernanke, B., Gertler, M., & Gilchrist, S. (1999). *The financial accelerator in a quantitative business cycle framework*. Available at: https://www.nber.org/system/files/working_papers/w6455/w6455.pdf
- Borio, C., & Lowe, P. (2002). Special Feature – Assessing the risk of banking crises, *BIS Quarterly review*, December 2002. Available at: https://www.bis.org/publ/qtrpdf/r_qt0212e.pdf
- Central Bank of Malta. (2020). *Directive No. 11 – Macro-prudential Policy*. Available at: <https://www.centralbankmalta.org/site/About-Us/Legislation/Directive-11.pdf>
- Central Bank of Malta. (2021). *Directive No. 16 – Regulation on Borrow-Based Measures*. Available at: <https://www.centralbankmalta.org/site/About-Us/Legislation/Directive-16-2021.pdf>
- Clausen, J. R., & Kandil, M. (2005). On Cyclicity in the Current and Financial Accounts: Evidence From Nine Industrial Countries, *IMF Article in Eastern Economic Journal*. Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/On-Cyclicity-in-the-Current-and-Financial-Accounts-Evidence-from-Nine-Industrial-Countries-18067>
- Dell’Ariccia, G. (2012). *Property Prices and Bank Risk-taking*”, in Heath, A., Packer, F., & Windsor, C. (eds.), *Property Markets and Financial Stability Reserve Bank of Australia, RBA Annual Conference Volume*. Available at: <https://www.rba.gov.au/publications/confs/2012/pdf/dellariccia.pdf>
- Drehmann, M., & Tsatsaronis, K. (2014). The credit-to-GDP gap and countercyclical capital buffers: questions and answers, *BIS Quarterly Review*. Available at: https://www.bis.org/publ/qtrpdf/r_qt1403g.htm
- Edge, R., & Meisenzahl, R. (2011). *The Unreliability of Credit-to-GDP Ratio Gaps in Real Time: Implications for Countercyclical Capital Buffers*. Available at: <https://www.ijcb.org/journal/ijcb11q4a10.pdf>
- European Systemic Risk Board (2022). *Vulnerabilities in the residential real estate sectors of the EEA countries*. Available at: https://www.esrb.europa.eu/pub/pdf/reports/esrb.report220211_vulnerabilities_eea_countries~27e571112b.en.pdf
- Grech, A.G. (2015). *The Evolution of the Maltese Economy since Independence*. Available at: <https://www.centralbankmalta.org/file.aspx?f=11217>
- Hodula, M., Janků, J., Pfeifer, L. (2021). Interaction of Cyclical and Structural Systemic risks: Insights from around the world and after the Global financial crisis, *Czech National Bank – Research and Policy Notes 3/2021*. Available at: https://www.cnb.cz/export/sites/cnb/en/economic-research/.galleries/research_publications/irpn/download/rpn_3_2021.pdf
- Iossifov, P., & Dutra Schmidt, T. (2021). Cyclical Patterns of Systemic Risk Metrics – Cross-country Analysis, *IMF Working Paper WP/21/28*. Available at: <https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpiea2021028-print-pdf.ashx>
- Jordà, Ò., Schularick, M.H.P., & Taylor, A. M. (2011). When Credit Bites Back: Leverage, Business Cycles, and Crises, *National Bureau of Economic Research Working Paper Series, No. 17621*. Available at: https://www.nber.org/system/files/working_papers/w17621/w17621.pdf
- Lang, J. H., & Welz, P. (2017). Measuring credit gaps for macroprudential policy. *ECB Financial Stability Review*. Available at: https://www.ecb.europa.eu/pub/pdf/fsr/art/ecb.fsrart201705_02.en.pdf

- Lang, J. H., & Forletta, M. (2020). Cyclical systemic risk and downside risks to bank profitability. *ECB Working Paper Series*. Available at: <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2405~0a7c3a35f7.en.pdf>
- Lang, J. H., Izzo, C., Fahr, S., & Ruzicka, J. (2019). Anticipating the bust: a new cyclical systemic risk indicator to assess the likelihood and severity of financial crises. *ECB Occasional Paper Series*. Available at: <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op219~7483083881.en.pdf>
- McCarthy, Y., & McQuinn, K. (2017). Credit conditions in a boom and bust property market: Insights for macro-prudential policy, *The Quarterly Review of Economics and Finance*, Vol. 64, pp. 171-182. Available at: <https://doi.org/10.1016/j.qref.2016.08.002>
- Mian, A.R., Sufi, A., & Verner, E. (2015). Household debt and business cycles worldwide, *National Bureau of Economic Research Working Paper Series*, No. 21581. Available at: https://www.nber.org/system/files/working_papers/w21581/w21581.pdf
- Minsky, H. P. (1982). *The Financial Instability Hypothesis: Capitalist Processes and the Behaviour of the Economy*. Kindleberger, C. P., & Laggargue, J. P. (eds). *Financial Crises: Theory, History, and Policy*. Cambridge University. Available at: https://digitalcommons.bard.edu/cgi/viewcontent.cgi?article=1281&context=hm_archive
- O'Brien, E., O'Brien, M., & Velasco, S. (2018). *Measuring and mitigating cyclical systemic risk in Ireland: The application of the countercyclical capital buffer*. Available at: [https://www.centralbank.ie/docs/default-source/publications/financial-stability-notes/no-4-measuring-and-mitigating-cyclical-systemic-risk-in-ireland-\(o'brien-o'brien-and-velasco\).pdf?sfvrsn=8](https://www.centralbank.ie/docs/default-source/publications/financial-stability-notes/no-4-measuring-and-mitigating-cyclical-systemic-risk-in-ireland-(o'brien-o'brien-and-velasco).pdf?sfvrsn=8)
- Official Journal of the European Union (2013). *Council Regulation (EU) No.1024/2013 conferring specific tasks on European Central Bank concerning policies relating to the prudential supervision of credit institutions*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1024&from=EN>
- Official Journal of the European Union (2019). *Directive (EU) 2019/278 of the European Parliament and of the Council – Article 136(7)*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0878&from=EN>
- Repullo, R., & Saurina, J. (2011). The Countercyclical Capital Buffer of Basel III: A Critical Assessment, *CEMFI Working Paper No. 1102*. Available at: <https://www.cemfi.es/ftp/wp/1102.pdf>
- Schularick, M., & Taylor, A. M. (2012). Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008, *American Economic Review*, 102(2), pp. 1029-61. Available at: <https://www.aeaweb.org/articles/pdf/doi/10.1257/aer.102.2.1029>