

SPECIAL FEATURE



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THE MALTESE FINANCIAL SECTOR'S EXPOSURE TO CLIMATE-SENSITIVE SECTORS

SPECIAL FEATURE: THE MALTESE FINANCIAL SECTOR'S EXPOSURE TO CLIMATE-SENSITIVE SECTORS¹

1. Introduction

The climate change debate has become increasingly topical on the international policy agenda as intense climate-related disasters from melting ice caps to devastating storms and intense heat waves have been on the rise. These observed changes in extreme weather-related events have prodded several governments to announce net zero carbon dioxide (CO₂) emission goals to be achieved by mid-century (UNFCCC, 2021). Nonetheless, according to the latest report published by the Intergovernmental Panel on Climate Change (IPCC), the rise in the average global temperature is still likely to reach and even surpass the 1.5°C average threshold within 20 years (IPCC, 2021). Consequently, immediate and concrete actions are being called for the reduction of greenhouse gas (GHG) emissions to limit the intensity and severity of weather-related events and their financial and social consequences.

Climate change used to be treated strictly as part of the Government's environmental policies, but regulators are gradually recognising that its effects could pose systemic risks to the financial sector, necessitating a thorough analysis and enhanced concerted mitigation efforts. The existing literature on the financial implications of climate-related risks identify two key financial risks, namely physical risk and transition risk (ECB, 2020).

The increased likelihood of extreme weather-related events give rise to physical risks that impact society both directly, through the destruction of properties that are located in high-risk areas, as well as indirectly, through disruptions in trade, adaptation costs or worsened macroeconomic conditions. From the financial institutions' perspective, the extent of their exposures subject to physical risks depend significantly on their geographical location and their sensitivity to natural hazards (BCBS, 2021). The deterioration or the complete wipe out of collateral values, higher credit losses incurred, and increased risk-weighting of assets, have the potential to affect the services offered by financial institutions and destabilize the banking sector. Financial consequences can also materialise in the non-bank financial sector, particularly in the insurance sector, through higher insured losses arising from extreme weather-related events. The European Environment Agency (EEA) estimated that weather and climate-related losses in the euro area between 1980 and 2019 totalled €446 billion (EEA, 2021). Furthermore, the vice chairman of BlackRock Inc. claimed that it will cost the global economy 25% of its overall gross domestic product (GDP) if the impacts from climate change over the next couple of decades are ignored (Bloomberg, 2021).

Financial institutions are also exposed to climate-related risks through the possible impairment of exposures to companies becoming economically unviable. The delayed transition to a greener economy may expose the financial sector to transition risk, primarily via credit and market risks, which as defined by the European Central Bank (ECB) refers to the "*institution's financial loss that can result, directly or indirectly, from the process of adjustment towards a lower-carbon and more environmentally sustainable economy*" (ECB, 2020). Transition risk can be derived from regulatory requirements and technological changes, as well as evolving consumer preferences and behaviour. While the transition to a greener economy is essential to limit the impact from physical risks, the transitional change could bring considerable economic, social, and regulatory challenges across some economic agents in the short-term. For instance, some businesses may not be financially capable to adapt to sustainable development goals set by authorities. Furthermore, businesses operating in sectors that are deemed to produce high GHG emissions could potentially incur higher financing costs, possibly affecting their viability. As the Network for Greening the Financial System (NGFS) climate scenarios indicate, the impact from transition risks is higher if the transition pathway is disorderly, particularly if climate policies are insufficient in addressing risks associated with climate change risk (NGFS, 2021). In September 2021, the ECB published the results of its first ever economy-wide climate stress test, where it highlighted the need for firms and banks to adopt green policies, in a bid to minimise costs arising

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from physical risks as well as transition risks by benefitting from an orderly and smooth transition to a net zero-economy (ECB, 2021).

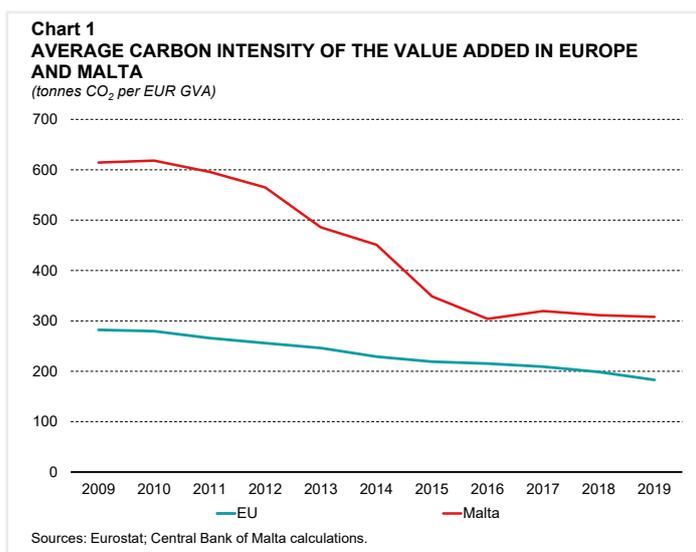
The quantification of these climate-related financial risks is still in progress given the limited methodological and existing data gaps, which do not permit an accurate assessment to be carried out successfully (BCBS, 2021). However, the European Commission is working on eliminating such data gaps by providing guidance on a common and consistent set of global disclosure requirements and the establishment of mandatory corporate sustainability reporting, which are yet to become applicable and fully harmonised. Despite these limitations, central banks and other stakeholders across the globe are joining forces to identify best practices, harmonise guidelines, and set environment-related business strategies with several organisations established, such as the Task Force for Climate-Related Financial Disclosures (TCFRD) and the NGFS. The Central Bank of Malta joined the NGFS in July 2019.

This Special Feature attempts to quantify the domestic financial sector’s exposure in their loans and securities portfolios to climate-sensitive sectors in a bid to provide a preliminary assessment of the Maltese financial sector’s level of exposure to potential climate-related risks. This analysis serves also to shed light on the potential transition paths that would need to be adopted by the reviewed financial institutions towards more environmentally-sustainable securities and loans portfolios, as well as provide the necessary foundations and preparatory work for stress testing applications in the future. Section 2 discusses the level of CO₂ emissions in the national atmosphere and describes the methodology for the identification of emission-intensive and hence climate-sensitive economic sectors, building on methodologies adopted by other international organisations and national central banks, including some limitations to the study. Section 3 discusses the exposures of the domestic banking and non-banking sectors particularly to the identified High CO₂ intensive sectors, while section 4 concludes.

2. Methodology for identifying emission-intensive sectors

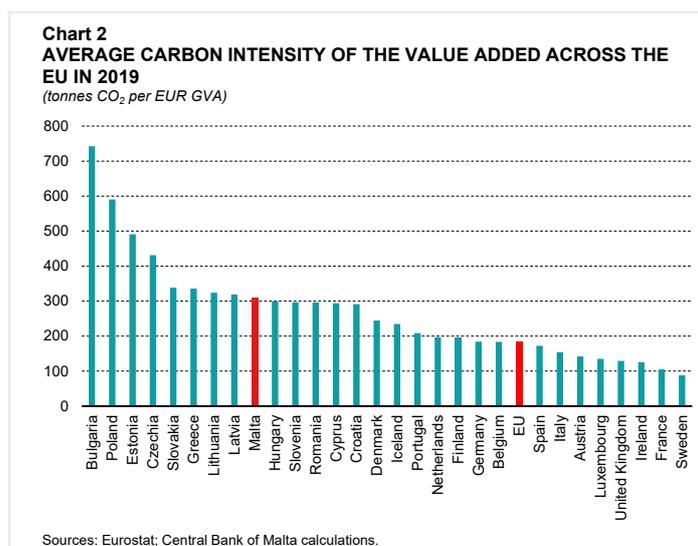
2.1 CO₂ emissions in Malta and metric for the selection of climate-sensitive sectors

According to Eurostat’s latest available data, CO₂ emissions in Malta in 2019 amounted to almost 3.9 million tonnes, accounting for 0.1% of the European Union’s (EU) emissions, putting Malta in last place in absolute terms. Yet, a more accurate measure of emissions is to quantify its intensity, by scaling it to the country’s gross value added (GVA).² As indicated in Chart 1, emissions have been on a downward trend between 2010 and 2016, remaining relatively stable thereafter. This was largely attributable to an increase in investments in more energy-efficient resources especially for energy-intensive industry activities such as fuel and electricity generation (Ministry for Finance and Financial Services, 2020). Indeed, Malta has markedly improved its energy efficiency over recent years as the increase in GVA significantly outweighed the increase in CO₂ emissions released in producing such level of output. This is mainly as those sectors registering the largest growth rates in GVA, including the construction sector, real estate activities, the information and communications sector, and financial and insurance activities, did not report an



² A sector might be a high CO₂ emitter given its larger size, and a big contributor to the economy but might be more energy-efficient compared to a significantly smaller sector which emits lower CO₂ compared to its contribution to the economy.

increase in CO₂ emissions to the same extent (Ministry for Finance, 2019). As a result, the increase in GVA did not constitute an increase in the amount of CO₂ emissions released, such that lower emissions are released in producing a larger level of output. While the overall drop in CO₂ emissions intensity has enabled Malta to narrow the gap vis-a-vis the EU, its emission intensity is still above the EU average, even on a per capita basis (see Charts 2 and A1 in the Annex).



In the absence of an internationally-harmonised list of sectors sensitive to climate risks, most analyses carried out by supranational authorities and national central banks have considered the emission intensity metric at a sectoral level using the NACE Rev. 2 classification.^{3,4} The European Banking Authority (EBA) and the ECB used firm-level data on emissions, which were standardised using the firm's revenues. These companies were then allocated in the respective NACE sector.

As an example, using data provided by 29 participating EU banks, the EBA calculated the individual emission intensity of 8,500 companies by analysing their level of GHG emissions and their annual consolidated revenues (CO₂ emissions/USD million revenues) (EBA, 2020). Banks' exposures were then classified into six equal ranges based on the distribution of CO₂ intensities. Such an approach was supplemented with another methodology where exposures were reallocated into sub-sectors at the four-digit NACE level originally identified by Battiston et al. (2016) as climate policy-relevant sectors (CPRS) (see Table A1).⁵ Similar to the EBA, in its first estimate of the financial system's exposures to climate-related risks, the ECB looked at firm-by-firm level data on emissions and their revenues to calculate their emission intensity and established three ranges using percentiles (ECB, 2021). In this manner, firms were classified as low, medium or high emitters according to their level of CO₂ emissions vis-à-vis the revenues they generated.⁶ This classification has been recently refined in its stress test methodology to further differentiate between high and very high emitting firms.⁷ Based on this updated classification, the ECB outlined that in the case of Malta, just above 30% of loan exposures are concentrated in firms that are high emitters, of which around 15% classified as very high emitters. Around 25% of Maltese banks' loan portfolio is towards low emitting firms (ECB, 2021).

2.2 Methodology for the identification of climate-sensitive sectors

In a first attempt to assess the potential extent of exposures to climate-sensitive sectors, this Special Feature adopts a similar methodology to the ECB's. However, in the absence of firm-specific data, this study looks at the CO₂ emitted by each sector of economic activity in producing one unit of GVA.⁸ This specifically

³ The various studies available vary in the extent of exposures covered, as some have placed their focus on bank loan exposures while others have also considered the securities portfolio of the non-banking sector.

⁴ See NACE Rev. 2 Statistical classification of economic activities in the European Community for entire classification. Source: <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

⁵ The CPRS sectors are broadly categorised to be – (1) fossil, (2) utilities, (3) energy-intensive, (4) transport, (5) buildings and (6) agriculture – a list which has been refined and updated since the paper's publication.

⁶ Firms considered to be low-emitting were firms which were located at the 33rd percentile or below which stood at 309 CO₂-equivalent tonnes per million USD revenue, while firms considered to be high emitters were firms located beyond the 66th percentile and thus firms with more than 1,068 CO₂-equivalent tonnes per million USD revenue.

⁷ According to the refined methodology, exposures are categorised as very high emitters, if a firm's relative emissions are above the 90th percentile, and high emitters when above the 70th percentile. Meanwhile, exposures are categorised as low emitters if a firm's relative emissions are below the 30th percentile.

⁸ Data on CO₂ emissions and the respective GVA of each sector of economic activity at NACE Rev. 2 classification were obtained from Eurostat.

includes emissions that are released as a direct result of the entities' owned assets for example, through the use of equipment and vehicles, which are referred to as Scope 1 emissions. As a result, any indirect emissions generated throughout the entities' value chain and in the consumption of activities produced are not being considered (see Section 2.3 for further information). Whenever granular data was available, sectors were allocated at the most granular level (refer to Section 2.3 for a more detailed explanation of possible implications).⁹ This resulted in the classification of a total of 44 sectors or sub-sectors.¹⁰

Akin to the ECB's methodology, the percentile approach was used to classify sectors into High, Mid or Low CO₂ intensive. High CO₂ intensive sectors were those with more than 29.04 CO₂-equivalent tonnes per million EUR GVA (at the 66th percentile), while Low CO₂ intensive sectors were those sectors with emissions of less than 14.52 CO₂-equivalent tonnes per million EUR GVA (at the 33rd percentile). Those sectors with CO₂ emissions relative to GVA falling between these two thresholds were identified to be Medium CO₂ intensive. In line with this methodology, 15 sectors were classified as High CO₂ intensive emitters, 14 as Mid CO₂ intensive emitters while the remaining were classified as Low CO₂ intensive emitters (see Table 1 and Chart 3). The sectors identified as Low CO₂ intensive emitters were the main drivers behind the growth registered in GVA in 2019, accounting for almost 60%. As evident in Chart 3, the CO₂ emissions of these sectors are contained given their GVA, especially when seen in comparison with other sectors. Meanwhile, the High CO₂ intensive sectors contributed to just 14% of the overall GVA.

The activities that fall under the transportation and storage sectors, specifically related to water, land and air transport (H49-51), as well as energy-related sectors (D) are the greatest pollutants considering the emissions they release vis-à-vis the GVA they produce, which indeed made up almost 2% of GVA in 2019

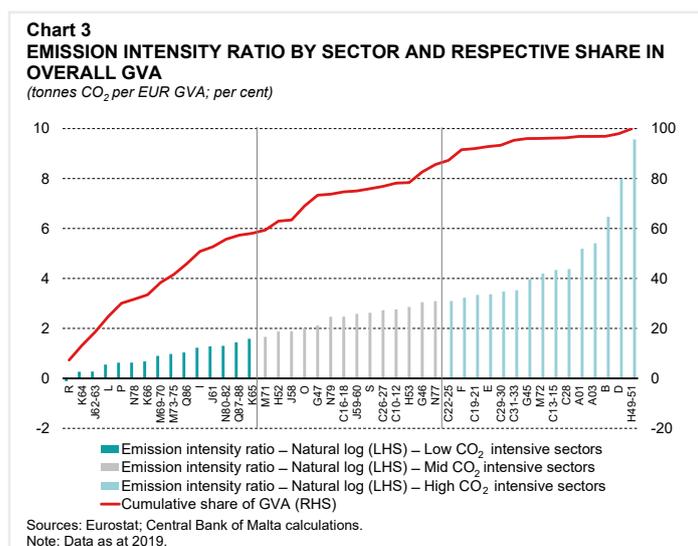
NACE Code	Sector	NACE Rev. 2 classification		
		High CO ₂ intensive sectors	Mid CO ₂ intensive sectors	Low CO ₂ intensive sectors
A	Agriculture, forestry, and fishing	A01, A03		
B	Mining and quarrying	B		
C	Manufacturing	C13-C15, C19-C21, C22-C25, C28, C29-C30, C31-C33	C10-C12, C16-C18, C26-C27	
D	Electricity, gas, steam and air conditioning supply	D		
E	Water supply; sewerage waste management and remediation activities	E		
F	Construction	F		
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	G45	G46, G47	
H	Transportation and storage	H49-H51	H52, H53	
I	Accommodation and food service activities			I
J	Information and communication		J58, J59-J60	J61, J62-J63
K	Financial and insurance activities			K64, K65, K66
L	Real estate activities			L
M	Professional, scientific, and technical activities	M72	M71	M69-M70, M73-M75
N	Administrative and support services activities		N77, N79	N78, N80-N82
O	Public administration and defence; compulsory social security		O	
P	Education			P
Q	Human health and social work activities			Q86, Q87-Q88
R	Arts, entertainment and recreation			R
S	Other services activities		S	

Sources: Eurostat; Central Bank of Malta.

⁹ Some sectors were aggregated by their respective NACE section as for B, D, E, F, I, L, O, P, R and S.

¹⁰ Households (T) are being excluded given they are end-consumers, while Activities of extraterritorial organisations and bodies (U) are being excluded as they produce no emissions and GVA domestically.

(see Chart 3). This is also supported by their level of emissions in absolute amount, which accounted for 87.8% and 9.5% of total emissions in 2019, respectively (see Chart A2). The former reflects the geographical characteristics of the Maltese islands, where, due to their physical separation from mainland Europe, trade with other countries may only be carried out by sea or by air (Ministry for the Environment, Climate Change, and Planning, 2021). These two sectors were also identified to be climate-sensitive in studies carried out by the Banca d'Italia and Banco de España, and form part of the CPRS list devised by Battiston et al. (2016).¹¹



Despite energy being a high emission-intensive sector, the production of renewable energy, particularly from solar-related activities in Malta has recently been on the rise, and therefore progress is already being made on a national level to reduce the level of carbon footprint associated with such activities (Central Bank of Malta, 2021). In addition to this, the ECB estimated that under the NGFS orderly scenario, Malta's energy mix would continue to ease key environmental burdens by shifting from fossil fuels to non-biomass renewables, with the latter expected to account for more than 70% of total energy sources by 2050, up from around 10% in 2020 (ECB, 2021). Considering the worst-possible scenario, the share of non-biomass on total energy sources would drop to just 30% in 2050.

Sectors identified to be High CO₂ intensive are considered to be the most susceptible to any policy changes targeted at achieving net zero emissions, given the relatively high emissions compared to the value added in the economy.¹² Nevertheless, given the inevitable interconnectedness among certain sectors, such as the use of transportation services by end-consumers within the accommodation and food service activities, any measures aimed at reducing the emissions of higher polluting sectors could also impact those generating lower pollution. In this regard, any measures aimed at facilitating the transitional path to a greener economy could result in higher operational costs that are eventually incurred by the consumers, possibly resulting in a contraction in overall demand. In addition, some assets can no longer be used as a result of changes associated with the transition to a low-carbon economy, and as new regulations are introduced, leading to a substantial loss in the value of such assets. Such stranded assets could therefore negatively influence the profitability of companies holding them (Sen & Schickfus, 2019). These factors could jeopardise the viability of companies, particularly those with weaker financial positions, which could in turn affect their market value and debt refinancing capabilities. Furthermore, as greener investments and more sustainable projects become more widely accessible and available, market participants, including financial institutions, would be expected to concentrate their investment portfolio towards such ventures. As a result, the potential lack of participation in greener sectors and projects might be perceived negatively by other stakeholders, causing reputational damage and eventually issues on profitability. As a result, this connecting chain could have repercussions on the general financial system particularly through banks and investors, with adverse consequences on overall financial stability.

¹¹ See “[The carbon footprint of Italian loans](#)” published in 2020, and “[Energy transition and financial stability. Implications for the Spanish deposit-taking institutions](#)” published in 2019.

¹² International studies such as those carried out by the Banca d'Italia and Banco de España have identified a number of common sectors as being highly emission-intensive, including Electricity, gas steam and air conditioning supply (D), Agriculture (A), a number of manufacturing activities as well as sub-sectors of the transportation sector (mainly H49).

2.3 Limitations of the analysis

This analysis is the very first attempt at identifying those sectors that are emission-intensive, and therefore sensitive to climate transition risks. With this knowledge, the assessment tries to quantify the extent of the financial sector's exposure to such climate-sensitive sectors. A number of data limitations hindered the possibility of carrying out a fully refined classification and assessment.

To this end, the analysis could benefit from further improvements if data at the firm level is made available, allowing for a proper distinction to be made between firms which operate in the same sector of economic activity, but which might be more energy-efficient in their activities, compared to their peers. In addition, information on the purpose for which financing was obtained is not available and hence loans or investments towards more energy-efficient projects could not be distinguished in the analysis. Similarly, at a sectoral level, some sectors had to be considered at a broader level in instances where data, particularly with respect to CO₂ emissions, GVA and bank lending exposures, was aggregated at a different level, thereby implying that all sub-sectors have identical emission intensity. For example, while the energy sector (D) is classified as High CO₂ intensive, some sub-sectors and/or firms may be pushing for more energy efficient and environmentally-friendly services, which are nevertheless being treated as equivalently-high polluters. This also ties in with the fact that available data sources are not sufficiently granular, i.e. at four-digit NACE classification, which would have otherwise provided for a more precise analysis of financial exposures towards emission-intensive sectors and thus to climate transition risks. Furthermore, while domestic government exposures were excluded from this analysis, any loans granted to governments or public entities outside the euro area could not be filtered since such granular breakdown in banks' statutory returns is not available.

In addition, only those emissions which are directly generated by companies in carrying out their business are being considered (referred to as Scope 1), such that any other emissions indirectly generated throughout the value chain of a company including in the ultimate consumption of an activity (referred to as Scope 2 and 3) are being excluded.¹³ Scope 2 and 3 emissions, which are considered in the ECB and EBA analysis, are relatively more difficult to quantify but are just as important as Scope 1 emissions.

Exposures particularly of the securities portfolio could be underestimated for three main reasons. Firstly, there is missing information on the issuer's NACE code, thus, the sector of economic activity of such exposures was assigned on a best effort basis, based on the main business operations of the company or its parent. Secondly, unlisted securities without an International Securities Identification Number (ISIN) identifier are not included in the Securities Holdings Statistics by Sector (SHSS) data but are collectively reported in banks' statutory returns. Lastly, a large share of the financial system's exposures are with holding companies and head offices which are captured in NACE codes K64 and M70, and hence deemed to be Low CO₂ intensive. However, the sector of economic activity in which these companies' main business operates is not being captured, and could well be operating within the remaining two CO₂ intensive sectors, i.e. Mid and High.¹⁴ Furthermore, although international literature does not correct for exposures towards the financial sector as a whole, the presence of this sector may distort the allocation of sectors across the three classifications in the below analysis.

Finally, given that the methodology adopted classifies sectors into High, Mid or Low CO₂ intensive based on domestic emissions and GVA data, its application to non-resident exposures could result in incorrect conclusions as the specific level of CO₂ might differ. Furthermore, the sensitivity of transition risk on exposures held with foreign corporations might depend mainly on the severity of measures implemented in the location of the corporation, rather than locally. Nevertheless, the classification in this Special Feature, particularly that of High CO₂ intensive sectors, complies with those identified in Battiston et al. (2016) and in the research carried out by Banca d'Italia and the Banco de España.

¹³ Scope 1 emissions are emissions that are released as a direct result of owned assets for example through the use of equipment and vehicles. Scope 2 emissions are those generated indirectly from the generation of purchased energy-related activities such as electricity, heating and cooling by the company. Scope 3 emissions are also generated indirectly but which form part of the company's supply chain such as employee commuting and waste disposal.

¹⁴ This limitation is partly addressed for the bond and equity portfolio of banks and non-banks when the NACE code was not reported, such that the NACE of the company's main business activity was assigned.

3. Maltese financial sector's exposures to the identified emission-intensive sectors

To better quantify potential financial stability risks arising from the transition to a low-carbon economy, this analysis looks into the loans and securities exposures of banks, domestically-relevant insurance companies, and domestically-relevant investment funds (i.e. non-banks), focusing primarily on those sectors identified to be High CO₂ intensive.

Data on bank loans was obtained from statutory returns while data on debt securities and equities was gathered from the SHSS database and augmented with statutory returns where necessary to enhance data representativeness and coverage. In case of the latter, the market value of individual securities held by the assessed financial institutions were classified by the issuer's sector of economic activity. All exposures were aggregated at the sector level such that for each institution, the total value of the exposure was obtained and classified by their respective NACE code according to the granularity adopted when classifying sectors as High, Mid or Low CO₂ intensive. The analysis makes use of annual data spanning between 2016 and June 2021.¹⁵

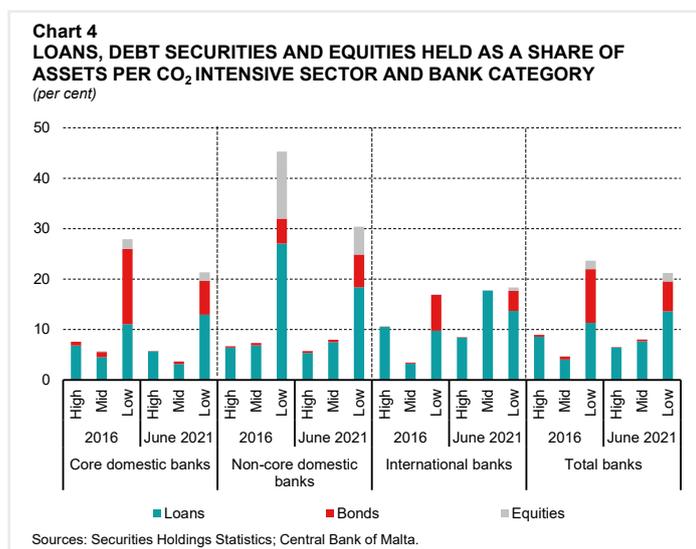
From a geographical point of view, this assessment considers both resident, as well as non-resident exposures. Sectoral classifications on foreign exposures depend on the emission-intensity, which has been calculated based on national CO₂ emissions and national GVA data (see Section 2.3 above for additional information).

3.1 Maltese banking sector's exposures to High, Mid and Low CO₂ intensive sectors

The subsequent analysis shows that the overall banks' exposures to High CO₂ intensive sectors are driven by their lending portfolio, with loans to such sectors representing about 6% of their assets, while exposures in their securities portfolio were much more contained in June 2021 (see Charts 4 and A4). At around 20% of assets, banks are largely exposed to Low CO₂ intensive sectors, predominantly through their lending portfolio, with securities also forming an important share of such exposure. This however is in part due to exposures towards holding companies and head offices, which, as underlined in Section 2.3, might not entirely reflect their underlying activities and the emissions associated with them. Subsequent Sections 3.1.1 and 3.1.2 discuss developments in banks' loan and securities portfolios to identified climate-sensitive sectors.

3.1.1 Banks' lending portfolio

The overall loan portfolio of the Maltese banking sector remained predominantly exposed towards Low CO₂ intensive sectors (see Chart 5). Lending to such sectors increased generally in line with the growth in the overall loan portfolio, so that the respective share remained relatively unchanged, standing at just below half of the loans portfolio in June 2021.¹⁶ Such exposure mainly reflected loans to the financial and insurance sector (K64-K66), which represented more than a quarter of



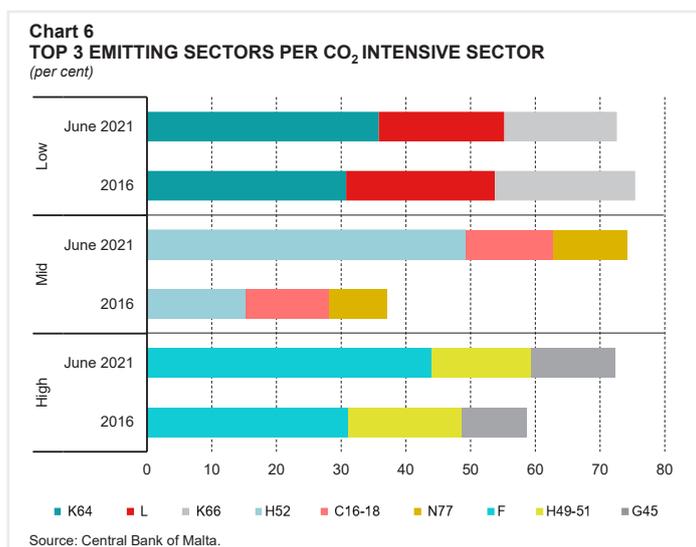
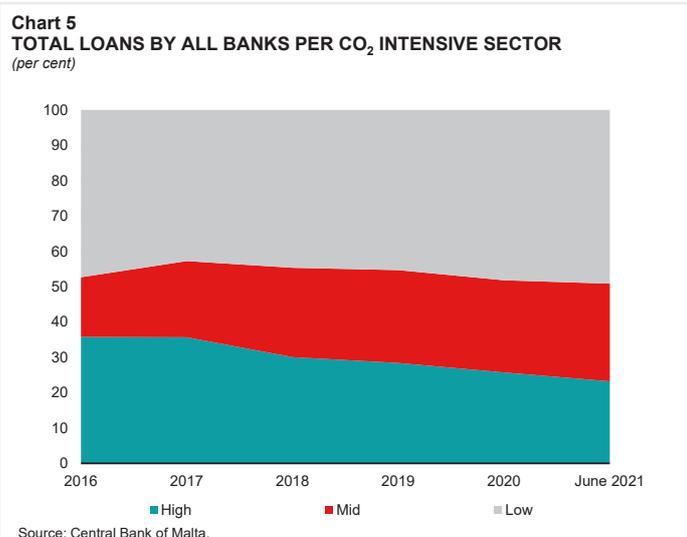
¹⁵ Exposures towards NFCs, financial corporations, other financial intermediaries, and insurance corporations, were taken into consideration (excluding exposures to governments) as defined in the ESA 2010 classification.

¹⁶ Total loans excludes loans to households and activities of extraterritorial organisations and bodies.

all loans, and towards real estate (L), which accounted for 9.5% of total loans as at June 2021 (see Chart 6).¹⁷ The latter primarily includes activities in relation to the buying, selling, renting and operation of own or leased of existing real estate, which by its very nature, is low polluting. This is however another example of how a low-emitting sector is interlinked with a high-emitting counterpart, in this case, the construction (F) sector. As explained earlier, the overall increase in loans issued to Low CO₂ intensive sectors was entirely driven by the core domestic banks, accounting for the largest share of their total loans at 57.8% in June 2021, up from 47.8% in 2016 (see Chart A3).

Loans issued towards the Mid CO₂ intensive sectors have increased by a more pronounced rate, pushing up the share in overall loans from 16.9% in 2016 to 27.7% in June 2021. The increase in the Mid CO₂ intensive sectors was predominantly due to higher loans issued by international banks towards warehousing and support activities (H52) under the transportation and storage activities, with such sector accounting for 49.3% of total Mid CO₂ intensive sectors loans and 13.6% of the lending portfolio of all banks (see Chart 6). On the other hand, the core domestic banks granted fewer loans to Mid CO₂ intensive sectors, pushing down their share on the banks' total assets by 1.5 percentage points to 3.8% in June 2021.

Loans granted towards the High CO₂ intensive sectors have declined by almost a third, with their share on total loans dropping by 12.6 percentage points to 23.2% in June 2021.¹⁸ The decline stemmed exclusively from branches of international banks, in part driven by their de-risking strategy. Consequently, the share of loans issued by international banks towards High CO₂ intensive sectors declined by more than half to 21.1% in June 2021 (see Chart 7). This drop was partly offset by the core domestic banks' increased exposures towards the construction (F) sector. Such lending accounted for just above 40% of their lending to the



¹⁷ Should loans issued to holding companies operating under the financial and insurance, as well as the professional, scientific, and technical sector be excluded, the share of Low CO₂ intensive sectors on total loans would drop from 49.1% to 42.4% in June 2021, with such drop driven by all categories of banks, particularly the core domestic and the non-core domestic banks.

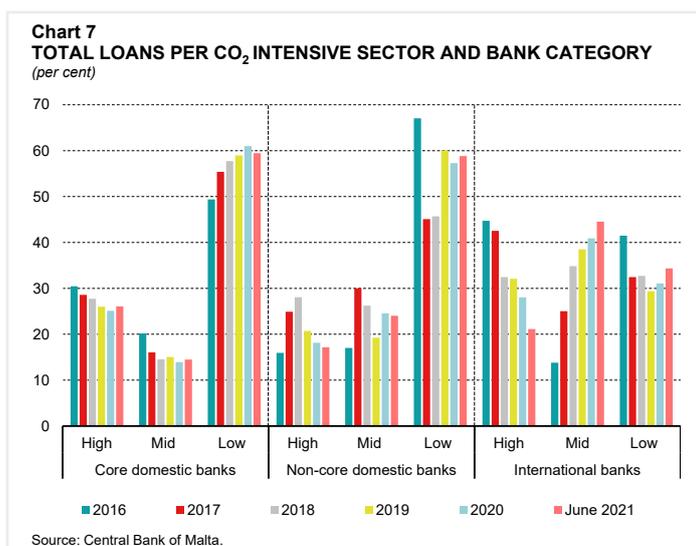
¹⁸ As outlined in the 2019 *Annual Audit Report* of the National Audit Office, the energy sector benefitted significantly from guarantees issued in 2019. As a result, some of the loans granted towards High CO₂ intensive sectors are Government guaranteed. In addition, around 3% of total outstanding loans benefitted from the MDB's CGS, some of which are captured under High CO₂ intensive sectors.

High CO₂ intensive sectors as at June 2021.¹⁹ Notwithstanding, core domestic banks' exposures towards the High CO₂ intensive sectors narrowed by 4.5 percentage to 26.1% in June 2021, reflecting the significant increase in their loan portfolio. Loan exposures of the non-core domestic banks towards High CO₂ intensive sectors went up by about 14%, accounting to 17.2% of the overall loan portfolio in June 2021.

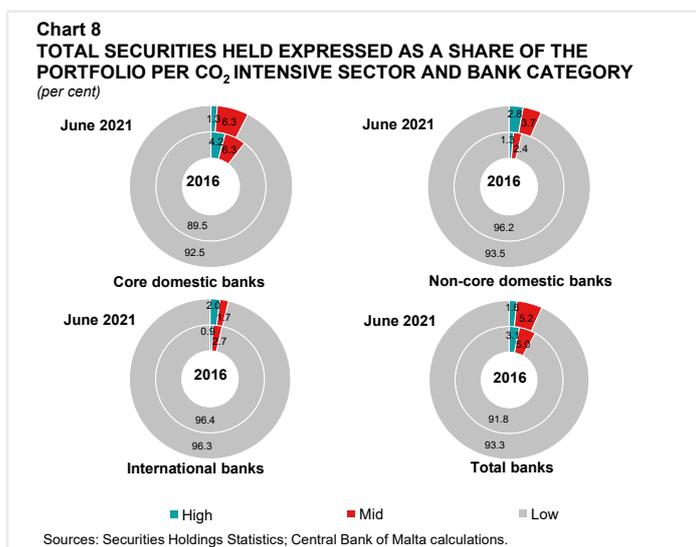
The escalation in construction loans by the core and non-core domestic banks led to an increase in the overall resident exposure towards High CO₂ intensive sectors. Despite increasing, the share of resident loans towards High CO₂ intensive sectors fell from 24.9% in 2016 to 22.5% in June 2021, owing to drops in other sectors particularly the wholesale and retail trade and repair of motor vehicles and motorcycles (G45). Yet, core domestic banks granted more loans towards the Low CO₂ intensive resident sectors, driven by the higher exposure to other sectors, particularly the accommodation and food services activities (I) and real estate (L) sectors. Developments within the Mid CO₂ intensive resident sectors was more contained, with some increase in lending towards the rental and leasing activities under the administrative and support service activities (N77) and to a lower extent in wholesale trade, except the repair of motor vehicles and motorcycles (G46).

3.1.2 Banks' securities portfolio

Since 2016, the banks' securities portfolio contracted, albeit a hint of a reversal was noted in the first half of 2021.²⁰ Despite a decrease across all three types of emission intensity classifications, the Low CO₂ intensive sector remained the core component of banks' securities portfolios, accounting for 93.3% of their investments as at June 2021 (see Charts 8, A6 and A7).²¹ This mainly reflected investments in companies operating in the financial service and insurance activities sector (K64-K65) and to a lower extent in the legal and accounting services activities (M69-70). Meanwhile, the share of High CO₂ intensive sectors decreased from 3.1%



of resident loans towards High CO₂ intensive sectors fell from 24.9% in 2016 to 22.5% in June 2021, owing to drops in other sectors particularly the wholesale and retail trade and repair of motor vehicles and motorcycles (G45). Yet, core domestic banks granted more loans towards the Low CO₂ intensive resident sectors, driven by the higher exposure to other sectors, particularly the accommodation and food services activities (I) and real estate (L) sectors. Developments within the Mid CO₂ intensive resident sectors was more contained, with some increase in lending towards the rental and leasing activities under the administrative and support service activities (N77) and to a lower extent in wholesale trade, except the repair of motor vehicles and motorcycles (G46).



¹⁹ These are followed by lending to the wholesale and retail trade and the repair of motor vehicles representing 22.3% of the High CO₂ intensive sectors.

²⁰ Data pertaining to the securities portfolio being analysed as reported in the SHSS database and for equities substantiated by statutory returns, represent almost the entire banks' debt securities and equity portfolios.

²¹ When excluding exposures towards holding companies (K64.2 and M70.1), securities held in the Low CO₂ intensive sector make up 92.3% of the total banking sector's securities portfolio as at June 2021, with exposures to Mid and High CO₂ intensive sectors accounting for 5.9% and 1.8%, respectively.

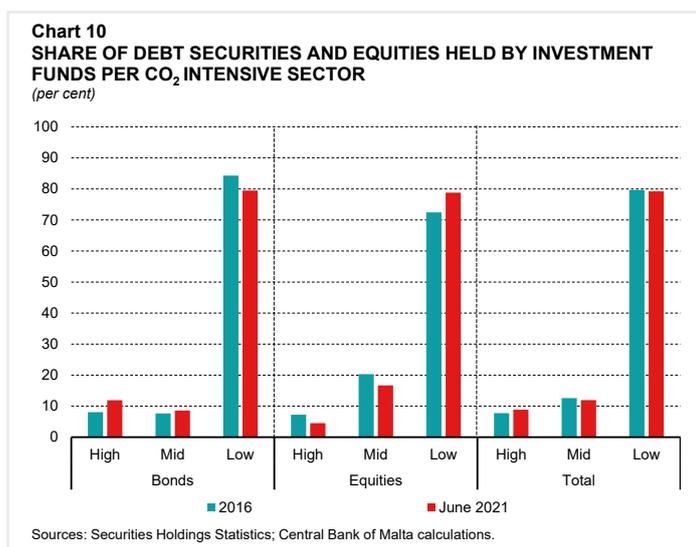
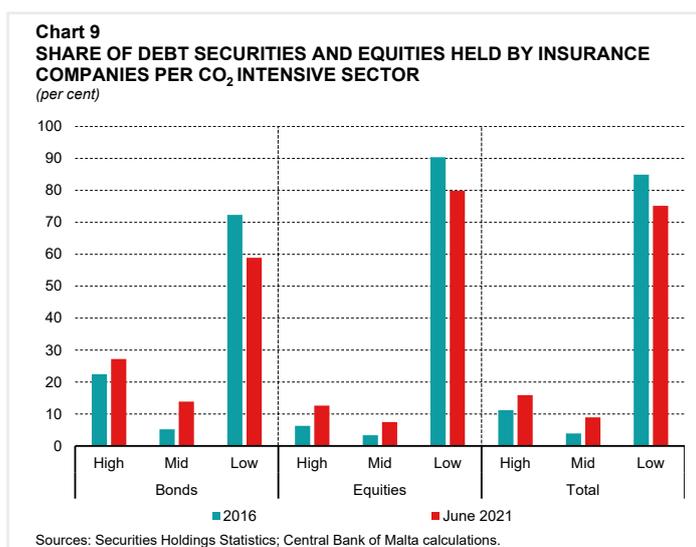
in 2016 to just 1.6% in June 2021. All three bank categories held bonds in High CO₂ intensive sectors, namely those operating in the transportation (H49-51) and manufacturing of rubber and metal products (C22-25) (see Chart A5). However, only core domestic and international banks held equities of companies operating in High CO₂ intensive sectors, largely concentrated in the construction (F) sector. The decline in Mid CO₂ intensive sectors was more contained, representing 5.2% of the overall securities portfolio in June 2021.

3.2 Non-bank sector's exposures to High, Mid and Low CO₂ intensive sectors

For the purpose of this analysis, the exposures of the non-bank sector comprise those of the domestically-relevant insurance companies and domestically-relevant investment funds.²² As at June 2021, the non-bank sector's debt securities and equity exposures amounted to about €3.2 billion, of which 13.7% were towards High CO₂ intensive sectors.²³

The securities portfolio of domestically-relevant insurance companies is largely skewed towards Low CO₂ intensive sectors namely in activities auxiliary to financial services (K66) and financial service activities (K64), with Low CO₂ intensive sectors making up for 75.2% of their entire securities portfolio (see Charts 9 and A8).²⁴ Compared to 2016, the share of overall securities held in High CO₂ intensive sectors increased slightly to reach 15.9% in June 2021, driven exclusively by an increase in equities mainly in manufacturing-related activities (C31-33 and C19-21) and the energy sector (D), as otherwise, bonds of High CO₂ intensive sectors decreased. The remaining 8.9% of the securities portfolio was composed of investments in Mid CO₂ intensive sectors. Most of the domestic insurance sector's securities portfolio was exposed towards foreign companies, though with such share declining slightly in recent years, to represent 87.8% of the portfolio in June 2021.

Domestically-relevant investment funds are also highly invested in companies operating in Low CO₂ intensive sectors, making up around 79% of their entire SHSS securities portfolio (see Charts 10 and

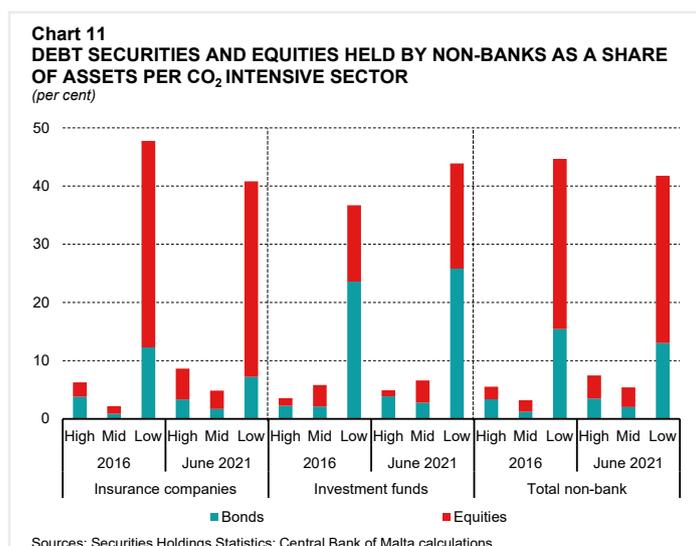


²² These include 9 Insurance Companies and 36 Investment Funds.

²³ When excluding securities held by the non-bank sector issued by holding companies (K64.2 and M70.1), exposures towards the High CO₂ intensive sector make up 14.8% of the entire securities portfolio as at June 2021.

²⁴ When excluding exposures towards holding companies (K64.2 and M70.1), securities held by domestically-relevant insurance companies in the Low CO₂ intensive sector make up 74.5% of their securities portfolio as at June 2021, with exposures to Mid and High CO₂ intensive sectors accounting for 9.2% and 16.3%, respectively.

A9).²⁵ Units were mainly concentrated in financial services (K64), legal accounting (M69-70) and telecommunication (J61) service activities. The share in High CO₂ intensive sectors increased slightly since 2016 to represent 8.9% of the portfolio, exclusively due to an increase in bonds of corporations operating in mining and quarrying (B), construction (F) and manufacturing of chemicals and pharmaceutical products (C19-21) sectors (see Chart A10). The remaining were invested in Mid CO₂ intensive sectors in June 2021. Similar to the insurance companies, investment funds mainly invested in bonds and equities issued by foreign companies, with only 38.5% of the portfolio being invested in domestic companies.



Expressed as a share of assets, exposure towards High CO₂ intensive sectors amounted to around 9% and 5% of insurance companies and investment funds' assets, respectively, as at June 2021 (see Chart 11). These were mainly composed of equities for insurance companies and bonds for investment funds. The largest exposure remained towards Low CO₂ intensive sectors amounting to almost 41% and around 44% of their respective assets in June 2021.

4. Conclusion

This Special Feature provided an initial quantification of the size of the Maltese financial system's exposures to sectors of economic activity that may be affected by the transition to a less polluting economy, with the aim to feed into and lay the groundwork for future financial stability assessments relating to climate risk.

Results show that, as at June 2021, just over 23% of the domestic banking sector's lending was towards High CO₂ intensive sectors, while an additional 27.7% was issued towards the Mid CO₂ intensive sectors. However, only 1.6% of their securities are towards High CO₂ intensive sectors, with 5.2% invested in securities issued by corporates in Mid CO₂ intensive sectors. For the non-bank sector, the shares for High CO₂ and Mid CO₂ intensive sectors rose to almost 14% and 10%, respectively. The exposures of both banks and non-banks have remained concentrated towards Low CO₂ intensive sectors at least since 2016. This suggests that the potential impact from transition risk could be relatively contained, since these sectors are assumed to be relatively less sensitive to regulations and abrupt measures aimed at reaching net emission targets. Nevertheless, operations within such Low CO₂ intensive sectors could induce activity in other sectors, which are more polluting such as the construction and transport sectors, and thus one could not preclude spill-overs from measures which potentially largely impact Mid and/or High CO₂ intensive sectors. Any possible second-round effects arising from such changes, which are not considered in this analysis, could not be excluded. The impact much depends on the manner in which policies in addressing climate risks are implemented combined with changes in emissions and technology, as also devised in the scenarios constructed by the NGFS, and whether these take place gradually or abruptly. The impact on the financial sector is expected to be higher in the case where transition is more abrupt. It is important that banks explore ways how to manage financial risks arising from climate change and incorporate environmental considerations in their activities and risk management practices to align with the ECB's supervisory expectations (ECB, 2020).

²⁵ When excluding exposures towards holding companies (K64.2 and M70.1), securities held by domestically-relevant investment funds in the Low CO₂ intensive sector make up almost 75% of their securities portfolio as at June 2021, with exposures to Mid and High CO₂ intensive sectors accounting for 14.5% and 10.7%, respectively.

As a result, this is only a preliminary indication based on this initial assessment, also considering the limitations outlined in Section 2.3, and thus any future scenario and sensitivity analysis and stress test applications would help in providing more concrete evidence. This analysis could also be enhanced in the future as more granular data becomes available on a firm-by-firm level, and as further work comes on stream to address the afore-mentioned limitations. A case in point in this regard is the importance of upcoming corporate reporting requirements imposed under the EU taxonomy and the EU Non-Financial Reporting Directive set to come into effect in 2023 and 2024, respectively, among others.^{26,27} Another important limitation also highlighted by the EBA relates to holding companies where more granular data is required to allocate the exposure of such holding companies to the NACE code of the parent company, to better capture the main activity of their group. The assessment could, in the future, also consider any risk management and investment strategies implemented by financial institutions in consciously making their portfolios and balance sheets greener. In addition, this analysis could be further augmented once an assessment of possible financial stability implications on the financial sector, particularly arising from credit risk through unanticipated loan defaults, coupled with an assessment of companies' probability of default is carried out. Other potential avenues for research include the analysis of possible repercussions to the financial system from physical risks arising from climate change.

²⁶ [Regulation \(EU\) 2020/852](#) of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088.

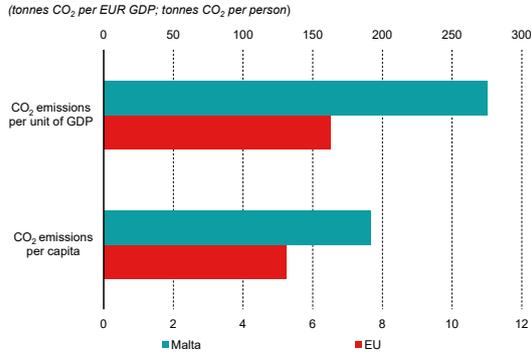
²⁷ [Directive 2014/95/EU](#) of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

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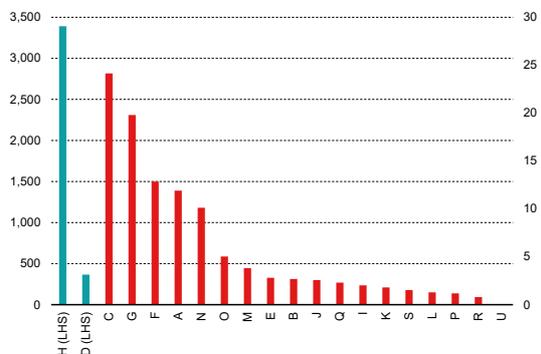
Annex

Chart A1
CO₂ EMISSIONS AS A SHARE OF GDP AND PER CAPITA IN EUROPE AND MALTA



Sources: Eurostat; Central Bank of Malta calculations.
Note: Data as at 2019.

Chart A2
CO₂ EMISSIONS BY SECTOR OF ECONOMIC ACTIVITY



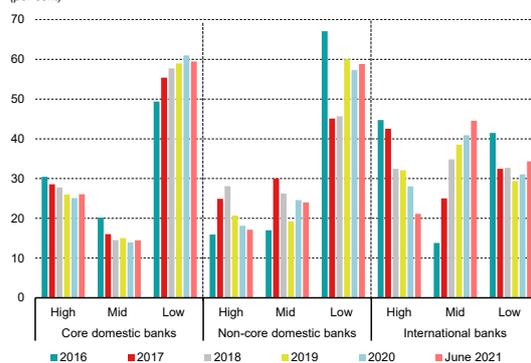
Source: Eurostat.

Table A1
CLIMATE POLICY RELEVANT SECTORS (CPRS)

Main CPRS	Sectors of economic activity by NACE
(1) Fossil	05, 06, 08.92, 09.10, 19, 35.2, 46.71, 47.3, 49.5
(2) Utilities	35.11, 35.12, 35.13
(3) Energy-intensive	07.1, 07.29, 08.9, 08.93, 08.99, 10.2, 10.41, 10.62, 10.81, 10.86, 11.01, 11.02, 11.04, 11.06, 13, 14, 15, 16.29, 17.11, 17.12, 17.24, 20.12, 20.13, 20.14, 20.15, 20.16, 20.17, 20.2, 20.42, 20.53, 20.59, 20.6, 21, 22.1, 23.1, 23.2, 23.3, 23.4, 23.5, 23.7, 23.91, 24.1, 24.2, 24.31, 24.4, 24.51, 24.53, 25.4, 25.7, 25.94, 25.99, 26, 27, 28, 32
(4) Transport	29, 30, 33.15, 33.16, 33.17, 42.1, 45, 49.1, 49.2, 49.3, 49.4, 50, 51, 52, 53, 77.1, 77.35
(5) Buildings	23.6, 41.1, 41.2, 43.3, 43.9, 55, 68, 71.1
(6) Agriculture	01, 02, 03

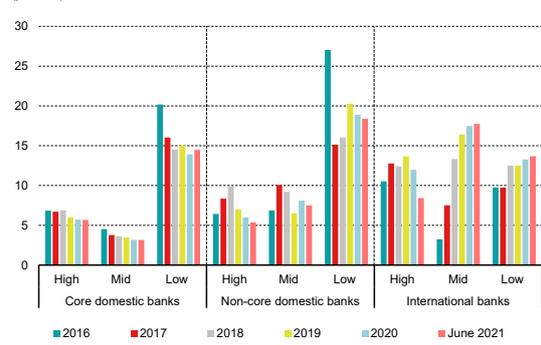
Source: <https://www.finexus.uzh.ch/en/projects/CPRS.html>.

Chart A3
TOTAL LOANS PER CO₂ INTENSIVE SECTOR AND BANK CATEGORY



Source: Central Bank of Malta.

Chart A4
TOTAL LOANS EXPRESSED AS SHARE OF TOTAL ASSETS PER CO₂ INTENSIVE SECTOR AND BANK CATEGORY



Source: Central Bank of Malta.

