

BANK ĊENTRALI TA' MALTA
EUROSISTEMA
CENTRAL BANK OF MALTA

ELEVENTH FINANCIAL STABILITY REPORT

2018

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Address

Pjazza Kastilja
Valletta VLT 1060
Malta

Telephone

(+356) 2550 0000

Fax

(+356) 2550 2500

Website

www.centralbankmalta.org

E-mail

info@centralbankmalta.org

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ABBREVIATIONS

A-IRB	advanced internal ratings-based approach
AECE	accelerated extrajudicial collateral enforcement procedure
AIF	Alternative Investment Funds
AMC	amortised cost
APP	Asset Purchase Programme
BBM	Borrower-based measures
BCBS	Basel Committee on Banking Supervision
BIA	Basel's Basic Indicator Approach
BLS	Bank Lending Survey
BR	Banking Rule
BRRD	Bank Recovery and Resolution Directive
CBM	Central Bank of Malta
CCyB	Countercyclical Capital Buffer
CET1	Common Equity Tier 1
CFIMLs	captives financial institutions and money lenders
CISS	composite indicator of systemic stress
CIU	Collective Investment Undertakings
COREP	Common Reporting
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
DGS	deposit guarantee scheme
DIF	Deposit Insurance Fund
DSTI	debt-service-to-income
EBA	European Banking Authority
EBITDA	earnings before interest, tax, depreciation and amortisation
ECAI	External Credit Assessment Institution
ECB	European Central Bank
EDIS	European Deposit Insurance Scheme
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EU	European Union
ESRB	European Systemic Risk Board
EVE	economic value of equity
F-IRB	foundation internal ratings-based approach
FIAU	Financial Intelligence Analysis Unit
FIN-FSA	Finnish Supervisory Authority
FINREP	Financial Reporting
FSAP	Financial Sector Assessment Programme
FSR	Financial Stability Report
FSSA	Financial System Stability Assessment
FVOCI	fair value through other comprehensive income
FVTPL	fair value through profit and loss
FX	foreign exchange
GDP	gross domestic product
G-SII	global systemically important institutions
HH	households
HQLA	high-quality liquid assets
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IRB	internal ratings-based approach
IRRBB	interest rate risk in the banking book

ITS	Implementing Technical Standards
LAA	loss absorption amount
LCR	Liquidity Coverage Ratio
LHS	left hand scale
LGD	loss given default
LiST	SSM's 2019 Liquidity Stress Test
LSTI	loan-service-to-income
LTI	loan-to-income
LTV	loan-to-value
MCC	Market Confidence Charge
MFI	monetary financial institution
MFIN	Ministry for Finance
MFSA	Malta Financial Services Authority
MGS	Malta Government Stocks
MMF	money market funds
MREL	minimum requirements for own funds and eligible liabilities
MSE	Malta Stock Exchange
MST	macro stress testing
NACE	nomenclature statistique des activités économiques dans la communauté européenne
NAV	net asset value
NBB	National Bank of Belgium
NFC	non-financial corporation
NII	net interest income
NIM	net interest margin
NNII	net non-interest income
NPE	non-performing exposures
NPISH	non-profit institutions serving households
NPL	non-performing loans
NSFR	Net Stable Funding Ratio
NTI	non-trading income
O-SIIs	other systemically important institutions
OCI	other comprehensive income
OCR	overall capital requirement
OFI	other financial intermediaries
P&L	Profit and Loss
PD	probability of default
PIF	Professional Investor Fund
RCA	recapitalisation amount
RELPS	Real Estate Lending Practices Survey
RHS	right-hand scale
RI	relevant indicator
ROA	return on assets
ROE	return on equity
RRE	residential real estate
RWA	risk-weighted-assets
SA	standardised approach
SBBS	sovereign bond-backed securities
SCR	Solvency Capital Requirement
SDW	Statistical Data Warehouse
SovCISS	Sovereign Composite Indicator of Systemic Stress
SSM	Single Supervisory Mechanism
SRMR	Single Resolution Mechanism Regulation
SRB	Single Resolution Board
SRB	systemic risk buffer

SREP	Supervisory Review and Evaluation Process
STREAM	Structural Macro-Econometric Model of the Maltese Economy
TIBER-EU	Threat Intelligence-based Ethical Red Teaming for the European Union
TLAC	Total Loss-Absorbing Capacity
TLTRO-III	Targeted longer-term refinancing operations III
UCITS	Undertaking of the Collective Investment in Transferable Securities
UK	United Kingdom
US	United States of America
USD	United States dollar
VaR	value at risk
VFA	virtual financial assets

THE DOMESTIC FINANCIAL SECTOR

Banks

Core Domestic Banks

APS Bank plc
Bank of Valletta plc
BNF Bank plc
HSBC Bank Malta plc
Lombard Bank Malta plc
MeDirect Bank (Malta) plc

Non-Core Domestic Banks

FCM Bank Limited
FIMBank plc
IIG Bank (Malta) Limited
Izola Bank plc
Sparkasse Bank Malta plc

International Banks

AgriBank plc
Akbank T.A.S. (Branch)
CommBank Europe Limited
Credit Europe Bank NV (Branch)
Credorax Bank Limited
ECCM plc
Ferratum Bank Limited
Merkanti Bank Limited
NBG Bank Malta Limited
Novum Bank Limited
Satabank plc⁽¹⁾
Turkiye Garanti Bankasi A S (Branch)
Yapi Kredi Bank Malta Limited

Domestic Investment Funds

Amalgamated Investments SICAV plc

Amalgamated Growth and Income Fund

Amstel Global Umbrella Fund SICAV plc

Altinum Fund

APS Funds SICAV plc

APS Diversified Bond Fund
APS Income Fund
APS Regular Income Ethical Fund

Arco SICAV plc

A and G Fund
CS Fund
CT Fund
JB Fund
NS Fund
QV Fund

Audentia Capital SICAV II plc

Audentia Top Talent Fund
Barlei Fund
Filfla Fund
Luxury Trading Fund
PDT One Fund
Septentrium Rates Oriented Fund

BOV Asset Management Limited

BOV Balanced Portfolio Fund
BOV Conservative Portfolio Fund
BOV Growth Portfolio Fund

Calamatta Cuschieri Funds SICAV plc

Emerging Market Bond Fund
Euro Equity Fund
Global Balanced Income Fund
High Income Bond Fund- EUR
High Income Bond Fund- USD
Malta Government Bond Fund
Malta Income Fund

EOS SICAV plc

Emerging Market Trade Finance Fund

Futura Funds SICAV plc

Futura Real Estate Fund

Global Funds SICAV plc

Global Bond Fund Plus
Malta Privatisation and Equity Fund
Melita International Equity Fund

HSBC Malta Funds SICAV plc

Equity Growth Fund
HSBC Property Investment Fund
International Bond Fund
Malta Assets Fund
Malta Bond Fund
Malta Government Bond Fund

Integra Private Wealth SICAV plc

IPW Alternatives Fund

Merill SICAV plc

Merill Global Equity Income Fund
Merill High Income Fund
Merill Total Return Income Fund

Northern Cross SICAV plc

Resonor Gold Fund

Novium Opportunity Umbrella SICAV plc

Personal Care Fund
Special Situations Fund

Priveq Funds SICAV plc

Equivest Fund

Southern Cross SICAV plc

Avalon Tech Fund
Avialease Fund

Sunshine Fund (Malta) SICAV Limited

Alba Fund

TEE Market Fund SICAV plc

TEE Market A Fund

Vilhena Funds SICAV plc

Global Balanced Multi-Manager Fund
Vilhena Broad Opportunities Fund
Vilhena Euro Income Fund
Vilhena European Multi Manager Fund
Vilhena Far East Opportunities
Vilhena Global Themed Fund
Vilhena High Yield Fund
Vilhena Malta Bond Fund
Vilhena Malta Fund
Vilhena Malta Government Bond Fund
Vilhena Maltese Equity Focus Fund
Vilhena Maltese Opportunities Fund
Vilhena Sterling Income Fund

Domestic Insurance Companies

Life Insurance Companies

GlobalCapital Life Insurance
HSBC Life Assurance (Malta) Limited
MAPFRE MSV Life plc

Non-Life Insurance Companies

Atlas Insurance PCC Malta
Citadel Insurance plc
Elmo Insurance Limited
GasamMamo Insurance Malta
MAPFRE Middlesea plc

⁽¹⁾ In October 2018, the MFSA appointed Ernst and Young Ltd as a competent person in terms of Article 29(1)(c) and (d) of the Banking Act to take charge of the bank. This edition of the *Financial Stability Report* is based on the above categorisation of banks, domestically-relevant insurance companies and investment funds.

PREFACE

A well-functioning and resilient financial system plays a fundamental role in supporting sustainable economic growth and higher living standards of citizens through the efficient allocation of financial resources. At the same time, it facilitates payment services and other financial activities.

To this end, the Financial Stability Department of the Central Bank of Malta monitors the developments within the financial system, to identify the building up of systemic risks which, in turn, could require the implementation of policy measures. The *Financial Stability Report* assesses the main financial stability risks faced by key players in the industry, namely banks, domestically-relevant insurances and investment funds. This assessment is also supported by a number of stress tests to gauge the resilience of the banking system. The *Report* also makes recommendations and highlights policy actions taken to preserve and, when necessary, enhance the resilience of the financial system.

The *Report* is prepared by the Financial Stability Department of the Central Bank of Malta and is reviewed and endorsed by the Financial Stability Committee, which is an internal structure mandated to oversee the risk assessment and policy measures related to financial stability and the macroprudential framework. The Committee is chaired by the Governor of the Bank, and includes as members the Deputy Governors, Chief Officer – Financial Stability, Chief Officer – Financial Control and Risk, Chief Officer – Economics, Head – Financial Stability Policy and Crisis Management and Head – Financial Stability Surveillance and Assessment, Stress Testing and Risk Models.

1. MACROPRUDENTIAL RISKS AND POLICY RESPONSE

The past year was characterised by a challenging external environment reflecting increased geopolitical uncertainty, growing risks of trade protectionism and vulnerabilities from emerging economies. These uncertainties are likely to persist for some time, thus contributing to further downside risks to the economic outlook. Global economic prospects are set to weaken, with euro area real GDP growth forecasted to decelerate to 1.1% in 2019 and 1.6% in 2020.¹ Whilst economic activity in Malta remained buoyant during 2018, economic growth is forecasted to moderate, albeit still maintaining a relatively strong pace. Domestic buoyant economic conditions continued to contribute to the positive performance of the domestic financial system.

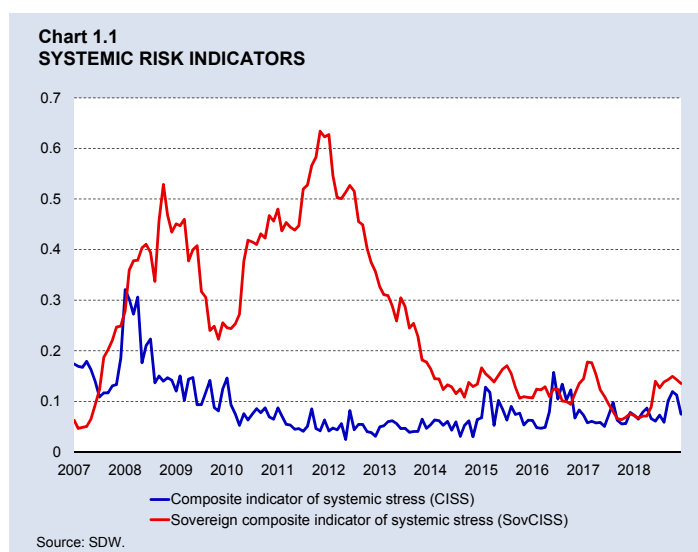
International Developments

During 2018, euro area banks continued to report further progress in addressing legacy non-performing loans. However, low – albeit improving – profitability remains a concern as income of European banks continued to fall short of their cost of equity. Furthermore, stress in the Italian sovereign debt market flared up, largely due to political uncertainties which emerged around mid-2018, though contagion to other euro area countries was rather limited as spreads did not widen. Equity markets also reported significant losses throughout 2018, particularly in December, with the Euro Stoxx 50 declining to the lowest level since 2016, recovering thereafter. Tensions from developments in emerging economies, particularly Turkey and Argentina, contributed to heightened market stress, although direct effects were more confined. Such developments were captured in the composite indicator of systemic stress which rose somewhat in the latter part of the year (see Chart 1.1).

Uncertainties related to Brexit continued to escalate, with the UK parliament having no clear majority supporting the options presented by the initial deadline set for 29 March 2019. This led to a postponement of the deadline for the UK to exit the EU, resulting in prolonged uncertainty. The EU has as a result implemented a number of measures in preparation for a ‘hard Brexit’ in a bid to minimise disruptions.

One of the key risks to financial stability remained the possibility of sharp repricing in risk premia, as valuations remained stretched amid continued risk-taking by market participants searching for yield. The stock of lower-rated investment-grade and speculative-grade bonds increased significantly since the financial crisis, as did the level of corporate leverage. Should market sentiment change suddenly, correction in assets prices could lead to potential losses in the financial system.

Although most countries deleveraged somewhat in recent years, the average government debt stock in the euro area stood at 86.2% of gross domestic product (GDP), with that of households and consolidated corporate debt standing at about 58% and 82% respectively. The persistent high level of indebtedness makes households and corporates in the euro area more vulnerable to tightening financial conditions and less accommodative monetary policy, though the latter has become less likely. Indeed the US Federal Reserve paused its policy stance towards a steady rise in interest rates as the global economic outlook became less certain, and is now



¹ Source: ECB staff macroeconomic projections for the euro area, March 2019.

more likely to start cutting interest rates. Likewise, the ECB's Governing Council expects key interest rates to remain unchanged at least through the first half of 2020. The ECB has also launched a new series of its quarterly targeted longer-term refinancing operations (TLTRO-III) starting in September 2019 and ending in March 2021.

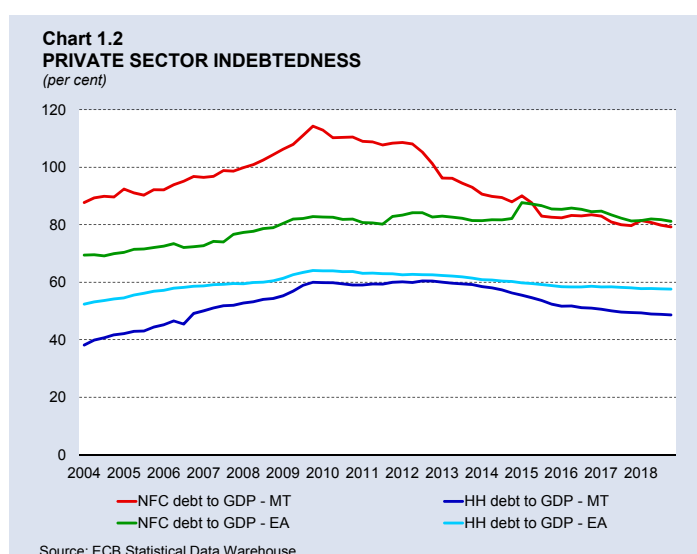
Domestic Developments

With a real growth of 6.7%, economic developments in Malta continued to support financial stability. Growth was mainly driven by higher consumption expenditure, with net exports also contributing to economic expansion. Service-oriented sectors were the main drivers of growth. After a protracted period of decline, resident corporate lending by all banks turned positive, growing by 6.7% in December 2018. This was, in part, driven by property-related loans reflecting the supply response to the current elevated demand for real estate. This is mirrored in the increased number of construction permits recorded in 2018, which was the highest level ever reported, exceeding the previous peak of 2007. Real estate demand reflected a job-rich economic growth; inward migration; higher female participation in the labour market as well as government measures including affordable loan schemes launched by the Housing Authority.

In spite of the positive market sentiment, banks maintained their conservative lending practices with a median loan-to-value at origination of around 77.3% and a loan service-to-income ratio of about 21.3%. Such prudent lending standards, coupled with the conservative valuation practices for collateral, enhanced further the resilience of both banks and households. Transacted property prices increased by 5.8% on average in 2018. The Central Bank of Malta's property price misalignment methodology indicates that prices are currently estimated to be just modestly higher than their fundamentals, and still significantly below the extent of misalignment experienced in the property boom of 2007. At the same time the majority of the Real Estate Market Survey respondents still perceived residential properties to have been correctly-priced in the first half of 2018 but some signs of over-valuation started to emerge in the latter half of the year. Furthermore, affordability, as measured by the median property price-to-income ratio, remains just below its long-term average.

Despite the strong growth in debt, including alternative funding sources such as bond issuance, private sector indebtedness decreased marginally when expressed as a share of GDP (see Chart 1.2). At 48.6%, Maltese households' debt-to-GDP stood below the euro area average, with the gap widening in recent years. The lower leverage of households can also be confirmed through the share of household debt vis-à-vis their financial assets. Maltese households' debt-to-financial assets stood at 22.4% as at end 2018, which is below the euro area average of 26.6%, leaving Maltese households with an adequate buffer of savings should an adverse event occur, and thus limiting the impact on their consumption.² Households' financial wealth continued to increase, predominantly driven by cash or quasi-cash assets. Meanwhile the consolidated corporate debt stood at 79.3% of GDP, significantly below the peak in 2009, and compared favourably with the euro area average. Furthermore, public debt sustainability concerns decreased, reflecting the fiscal surplus position, such that outstanding public debt as at end 2018 fell to 46.0% of GDP. Therefore economy-wide debt sustainability concerns in Malta are considered to be low.

Asset quality improved further on the back of better creditworthiness of borrowers coupled with active efforts from banks to clean up their balance sheet. In fact, the overall NPL ratio hovered at around 3%,



² The share of euro area households' debt-to-financial-assets reflects the position as at end 2017.

reflecting an improvement in both household and corporate loans, with the latter driven by a significant drop in non-performing loans related to the construction and real estate sector.

In terms of profitability, the performance of core domestic banks weakened during 2018, largely driven by one-off provisions set aside for litigation costs coupled with less income from securities as these were rolled over into lower-yielding ones. Whilst net interest income (NII) from securities decreased, traditional business activities continued to produce satisfactory results to the extent that the NII from intermediation increased by 2.3%, driven by higher credit growth with banks able to maintain generally stable interest rate margins. Revenue diversification continued as banks' income from non-interest activities increased during 2018. However, a deceleration in credit growth could impact profitability negatively, particularly if the low interest rate environment persists.

Non-core domestic and international banks' links with the domestic economy remained contained, thus having limited systemic implications. These banks continued to operate specific business models reflecting their diverse asset composition and funding sources. The two categories of banks continued to report robust capital levels, and ample liquidity buffers, thus further mitigating potential systemic risks.

Risks stemming from domestic insurance companies and investment funds also remained low. Whilst domestic insurance companies reported a drop in profitability, these continued to operate on the basis of a strong capital base and ample liquidity.

Table 1.1 summarises the intensity and profile of the main systemic risks for the Maltese financial system. Whilst vulnerabilities from within the financial system are perceived to have declined further in 2018, external

Table 1.1 SUMMARY OF RISKS				
Main vulnerabilities and risks for the financial system	Type of risk	Nature of risk	Change in risk level since FSR 2017	Risk assessment for 2019
Vulnerabilities within the financial system				
The level of non-performing loans	Credit	Cyclical/ Structural	↓	↔
Concentration in sectoral lending	Credit	Structural	↔	↑
Bank credit volumes	Credit	Cyclical/ Structural	↓	↔
Interlinkages between banks and the non-bank financial sector	Contagion	Structural	↔	↔
Operational risk	Contagion/Profitability	Structural	↔	↔
Domestically-relevant Insurance	Liquidity/Solvency/ Profitability	Cyclical/ Structural	↔	↑
Domestically-relevant Investment funds	Credit/Solvency/ Profitability	Cyclical/ Structural	↔	↑
Vulnerabilities outside the financial system				
Domestic macroeconomic developments	Credit/Profitability	Cyclical	↔	↔
Real estate market developments	Credit/Contagion	Cyclical	↔	↔
Exposures of the financial sector to domestic sovereign securities	Profitability	Structural	↔	↔
Economic conditions in the euro area and public debt sustainability	Credit/Profitability	Cyclical	↔	↑
Geopolitical uncertainties	Contagion	Structural	↑	↔
Prolonged low interest rate environment	Profitability	Cyclical	↑	↔
Reversal in risk premia	Profitability	Cyclical	↑	↔
Risk position		Direction of risk		
Moderate		Increased risk	↑	
Medium		Stable risk	↔	
Elevated		Decreased risk	↓	

risks from outside the financial system have increased on the back of higher geopolitical uncertainties and the projected slowdown in economic growth in the EU. Nonetheless contagion implications are thought to be restrained as a result of the strong domestic economic situation. Meanwhile risks from within the insurance and investment sectors are set to increase marginally on the back of lower profitability driven by lower investment income coupled with the higher claims anticipated by insurance companies owing to adverse weather conditions in 2019.

The Policy Response

Borrower-based measures

In response to the momentum in the residential real-estate (RRE) market, the Central Bank of Malta published Directive 16 Regulation on Borrower-based Measures following a consultative process that was initiated in 2018. This pre-emptive policy response is expected to strengthen the resilience of both lenders and borrowers through the imposition of prudent and sound lending standards. A special feature is being dedicated to this policy instrument in this edition of the *Financial Stability Report*.

Countercyclical Capital Buffer (CCyB)

As per the Central Bank of Malta's notification regarding the decision on the applicable CCyB rate for the first quarter of 2019, cyclical risks remained contained.³ The relevant credit-to-GDP ratio stood at 74.8% and its deviation from the long-term gap remained in negative territory at -23.8pp, thus supporting the Central Bank of Malta's decision to maintain the CCyB rate at 0%. This is further sustained by the qualitative and quantitative assessments carried out by the Bank which do not convey any signs of excessive credit growth.

Identification of material third countries

In accordance with ESRB Recommendation 2015/1 on recognising and setting of CCyB rates for exposures to third countries and through the powers vested to it by Article 17A of the Central Bank of Malta Act (Cap. 204), the Central Bank of Malta identifies material third countries to the Maltese banking system on an annual basis.^{4,5} In line with the methodology specified in Article 4 of the ESRB Decision 2015/3, the Central Bank of Malta identified United Arab Emirates, Russia, Turkey and the United States of America as material third countries for the Maltese banking system for the period Q2 2018 till Q2 2019.⁶ The monitoring of risks to financial stability from excessive credit growth in such countries and the setting up of a policy response falls under the joint responsibility of the ESRB and the Central Bank of Malta. In 2018, the Central Bank of Malta considered as appropriate the CCyB rates set at 0% by all the authorities of the aforementioned material third countries.

Capital buffer for Other Systemically Important Institutions (O-SIIs)

On the basis of the domestic O-SII identification methodology developed by the Central Bank of Malta and the MFSA, no changes in the list of credit institutions which qualify as O-SIIs were recorded during 2018 when compared with the results of the previous year.⁷ Consequently, the Central Bank of Malta reconfirmed MeDirect Group Ltd, HSBC Group Malta and Bank of Valletta Group as O-SIIs for 2019. As from 1 January 2019, these credit institutions will be required to hold a fully-phased-in buffer requirement, as per Appendix A.⁸

³ Refer to: <https://www.centralbankmalta.org/countercyclical-capital-buffer>

⁴ ESRB/2015/1: Recommendation of the ESRB of 11 December 2015 on recognising and setting countercyclical buffer rates for exposures to third countries. Source: https://www.esrb.europa.eu/pub/pdf/recommendations/ESRB_2015_1.en.pdf?368460c8363b65bdd86658d608b7bec

⁵ Justice Services (1968): Central Bank of Malta Act (Chapter 204). Source: <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8713&i=1>

⁶ ESRB Decision 2015/3: Decision of the ESRB of 11 December 2015 on the assessment of materiality of third countries for the Union's banking system in relation to the recognition and setting of countercyclical buffer rates. Source: https://www.esrb.europa.eu/pub/pdf/other/Decision_ESRB_2015_3.pdf

⁷ Central Bank of Malta (2015): Policy Document on the methodology for the identification of other systemically important institutions and the related capital buffer calibration. <https://www.centralbankmalta.org/file.aspx?f=11281>

⁸ As from 1 January 2019, MeDirect Group Ltd. is to maintain an O-SII Capital Buffer of 0.5%, HSBC Group Malta 1.5%, and Bank of Valletta Group 2.0% as per <https://www.centralbankmalta.org/systemically-important-institutions>.

Macroprudential policy reciprocity

In 2015, the ESRB issued *Recommendation on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures* (ESRB/2015/2). Its aim is to coordinate macroprudential policy across the EU and thus mitigate cross-border spillover effects. The following are the reciprocity recommendations by the ESRB in 2018.

*Finland – ESRB/2018/1 Recommendation of the ESRB of 8 January 2018 amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures.*⁹

In January 2018, the Finnish Supervisory Authority (FIN-FSA) introduced a stricter national measure in accordance with Article 458 of the Capital Requirements Regulation (CRR) to require banks adopting the Internal-Ratings Based (IRB) approach in calculating credit risk, to set at least an institution-specific average risk weight of 15% on residential mortgage loans secured by housing units in Finland.

Following FIN-FSA's request, the ESRB amended Recommendation 2015/2 and requested Member States to reciprocate the Finnish measure when relevant exposures of IRB credit institutions exceed €1 billion.

*Belgium – ESRB/2018/5 Recommendation of the ESRB of 16 July 2018 amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures.*¹⁰

The National Bank of Belgium (NBB) introduced a stricter measure in accordance with Article 458 of the CRR in April 2018. The measure is composed of a general 5 percentage point risk weight add-on and an additional proportionate risk weight add-on of 33% of the exposure-weighted average of the risk-weights applied to the portfolio of retail exposures secured by residential immovable property located in Belgium. This measure is targeted to banks adopting the IRB approach.

Following a request by NBB, the ESRB amended Recommendation 2015/2 in order to advise other Member States to recognise this measure with an institution-level maximum materiality threshold of €2 billion.

*France – ESRB/2018/8 Recommendation of the ESRB of 5 December 2018 amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures.*¹¹

In May 2018, the French Macroprudential Authority introduced a measure in accordance with Article 458 of the CRR where exposures before exemptions and credit risk mitigation of Systemically Important Institutions (SIIs) resident in France towards highly indebted non-financial companies (NFCs) registered in France should not exceed 5% of their eligible capital. The measure is subject to a materiality threshold as follows:

- a) Total exposures exceed €2 billion and
- b) When a single exposure or sum of exposures is higher than €300 million whilst at the same time exceeds 5% of the SII's eligible capital at the highest level of group consolidation irrespective of whether the NFC is considered as highly-indebted.

The Central Bank of Malta assessed the above requests for reciprocation and decided not to extend the measures after ascertaining that the above mentioned recommendations had no material effect on the local domestic banks.

⁹ ESRB Recommendation 2018/1 (February 2018). Source: https://www.esrb.europa.eu/pub/pdf/recommendations/2018/esrb.amendment20180213_2018_01.en.pdf?ab99b9d6d91583122ee813fa6eecb921

¹⁰ ESRB Recommendation 2018/5 (September 2018). Source: https://www.esrb.europa.eu/pub/pdf/recommendations/2018/esrb.amendment180716_2015_2.en.pdf?075a7e3da417f6b4339f0607e7e4a39e

¹¹ ESRB Recommendation 2018/8 (February 2019). Source: https://www.esrb.europa.eu/pub/pdf/recommendations/2019/esrb.amendment190211_2015_2.en.pdf?a3193132151407f3124c8be1488ec922

Main MFSA regulatory notices and decisions

MFSA Fintech Strategy Consultation document Virtual Financial Services Act

Following Parliamentary approval of the Virtual Financial Services Act ('the Act') in July 2018 and subsequent adoption of the Act in November 2018, the MFSA also initiated consultations on a Virtual Financial Assets Framework ('the Framework'). Subsequently the MFSA published consultations on Chapters 1 and 2 of the VFA rulebook, relating to Virtual Financial Assets Rules for VFA Agents and Virtual Financial Assets Rules for Issuers of Virtual Financial Assets respectively.

The MFSA has also published a consultation on Chapter 3, which applies to Virtual Financial Assets Rules for VFA Service Providers. This chapter covers the high level principles to guide VFA Service Providers in or from within Malta, licensing of VFA Service Providers, on-going obligations for VFA Service Providers and a sanctioning regime in case of VFA service providers misconduct.¹²

In addition to Chapter 3, the MFSA also published a 'Consultation Paper on raising the bar for VFA Agents'.¹³ To ensure that only persons having the necessary competences and resources for registration as VFA agents, the paper proposes increasing initial and on-going capital requirements, introducing a competence assessment, a mandatory requirement for Continuous Professional Education and higher regulatory fees.

Main European regulatory policies

European Framework for Threat Intelligence-based Ethical Red Teaming (TIBER-EU)

On 2 May 2018, the ECB published the TIBER-EU, which is the first European framework for controlled cyber-hacking to test the resilience of financial market entities.¹⁴ This framework specifically aims for a harmonised European approach towards intelligence-led tests which mimic the tactics, techniques and procedures of real hackers. It involves the simulation of a cyber-attack on an entity's critical systems and enables the entity to assess its protection, detection and response capabilities against any potential cyber-attacks.

Single Resolution Board – Minimum Requirement for own fund and Eligible Liabilities (MREL) Policy

In November 2018, the SRB announced its MREL policy for resolution plans during the 2018 planning cycle, which will be split into two waves. The first wave addresses banks that did not have binding MREL targets in 2017, whilst the second wave addresses the MREL policy for the most complex banking groups. The SRB will publish its MREL policy statement on second wave banking groups in January 2019.¹⁵ The 2018 MREL policy was extended to cater for all resolution tools/transfer strategies.¹⁶ The SRB MREL policy highlights that in order for transfer strategies to be successful, resolution plans have to ensure that banks meet high standards in terms of separability and data availability. With regards to the MREL calibration formula, the Loss Absorption Amount (LAA) would remain the same irrespective of the tool used as it is assumed that the losses incurred in resolution would be adequately reflected in the LAA formula.¹⁷ On the other hand, the Recapitalisation Amount (RCA) would be adjusted downwards to reflect the transfer of assets.

The SRB intends to further refine its policy on MREL for transfer strategies in order to reflect the assets and liabilities likely to be transferred or sold in a resolution scenario, and the different uses and combinations of tools.

¹² https://www.mfsa.com.mt/wp-content/uploads/2018/12/20180821_VFAR_Chapter3Final.pdf

¹³ https://www.mfsa.com.mt/wp-content/uploads/2018/12/20180904_VFA_VFAAgentsRaisingtheBar.pdf

¹⁴ Refer to: https://www.ecb.europa.eu/pub/pdf/other/ecb.tiber_eu_framework.en.pdf

¹⁵ https://srb.europa.eu/sites/srbsite/files/public_mrel_policy_2018_-_second_wave_of_plans.pdf

¹⁶ Transfer strategies are resolution strategies that do not rely on the use of the bail-in tool (open-bank bail-in), but envisage the use of the sale of business tool, the bridge institution tool and/or the asset separation tool, in accordance with the legal framework.

¹⁷ The MREL calibration formula follows the provision outlined in the Delegated Regulation 2016/1450 and is calculated as a Loss Absorption Amount (LAA) + Recapitalisation Amount (RCA) + Market Confidence Charge (MCC). The LAA is calculated as Pillar 1 Capital Requirement + Pillar 2 Capital Requirement + Combined Buffer Requirement. The RCA is calculated as Pillar 1 Capital Requirement + Pillar 2 Capital Requirement. The MCC is calculated as Combined Buffer requirement less 125 basis points.

With regards to the impact of Brexit on MREL eligible liabilities, the SRB is monitoring the evolution of the stock and issuances of liabilities governed by UK legislation. Banks are expected to include contractual recognition clauses in the new issuances of MREL-eligible instruments in accordance with Article 55 of the BRRD.

Malta – IMF Financial Sector Assessment Program (FSAP)

In 2017, the Maltese Government voluntarily requested the IMF to undertake an FSAP. The aim of the FSAP is to conduct a thorough analysis of a country's financial sector, identify key sources of systemic risk and subsequently propose policies to enhance resilience against shocks.

The FSAP formally commenced through an IMF visit in March 2018 known as a Scoping Mission. During this visit a number of meetings were held bilaterally with the relevant authorities. Following the Scoping Mission, the IMF drafted a number of questionnaires targeting a number of prominent areas, including banking supervision, crisis management, stress testing analysis, insurance and securities markets, money laundering and macroprudential policy. The questionnaires were completed by the relevant authorities including the Ministry for Finance (MFIN), the MFSA and the Central Bank of Malta in order to assist further in the discussions held during the Main Mission in September 2018.

During the Main Mission, the IMF held several meetings with public authorities and private stakeholders including MFIN, MFSA, the Central Bank of Malta, the Parliamentary Secretary for Financial Services, Digital Economy and Innovation, the Financial Intelligence Analysis Unit (FIAU), the Malta Development Bank, the Malta Police Force, banks, insurance companies, law firms, audit firms, non-financial corporations (NFCs) and other market participants.

In particular, the IMF analysed the financial data provided by Maltese authorities and the ECB and conducted stress tests to identify any potential risks to financial stability.

As a general procedure, following the successful completion of the FSAP, the IMF published the Financial System Stability Assessment (FSSA) in early 2019. The report provides a general overview of the economy and lists the IMF's recommendations to the relevant authorities in relation to micro- and macroprudential issues and money laundering, where appropriate. The report was discussed and approved by the IMF Executive Board together with the country's Article IV Mission report.

BOX 1: REGULATORY DEVELOPMENTS IN THE EU

This box provides an overview of the main regulatory developments in the EU during the period under review. Discussions on the European Deposit Insurance Scheme (EDIS) continued to focus on different models that will ultimately lead to the final design of the scheme with a view to increase the resilience of the banking sector within the EU, whilst discussions on BRRD laid emphasis on the proposed amendments to the Minimum Requirement for own funds and Eligible Liabilities (MREL). The Commission also put forward a number of proposals including a directive on covered bonds, a regulation and a directive on the prudential requirements of investment firms and a regulation on sovereign bond-backed securities (SBBS). A number of amendments relating to the CRR/CRD review were implemented. These amendments covered Pillar 2, O-SII buffer, leverage ratio and the exemptions regime.

Year 2018 was also characterised by important developments relating to the treatment of NPLs. These mainly include the publication of an ECB Addendum which specifies quantitative supervisory expectations with respect to the minimum levels of provisions within the prudential regime and a Commission Proposal for a Directive on credit servicers, credit purchasers and the recovery of collateral.

European Deposit Insurance Scheme (EDIS)

In November 2015, the European Commission put forward a legislative proposal to establish a single European Deposit Insurance Scheme (EDIS) that would complement existing national deposit guarantee schemes. EDIS builds on the current system of national deposit guarantee schemes (DGS), which have been harmonised to ensure that all deposits are protected across the EU up to €100,000 per person per bank. Ultimately, EDIS is aimed at establishing an EU-wide insurance scheme to further strengthen the protection of bank deposits. Technical discussions that were undertaken so far have revealed divergent positions on the final design of the system. Further to the 2017 Commission Communication on Completing the Banking Union, the Council is currently discussing the Mandatory Lending Model, proposed by the Bulgarian Presidency and the Hybrid Model proposed by the Austrian Presidency.

The Mandatory Lending Model entails a stronger role of the national DGSs as funds would mainly remain at the national DGSs level. In case a national DGS requires support following a pay-out event, the other DGSs would be required to lend funds to the DGS that needs the necessary liquidity to meet its legal commitments to protected depositors. During discussions three variants of the Mandatory Lending model were presented with each variant presenting different roles and interactions for the national DGSs and the Deposit Insurance Fund (DIF).¹ On the other hand, the Hybrid Model incorporates elements from both the Commission proposal on reinsurance and the Mandatory Lending model, whereby contributions financed by banks to the scheme would be split between the DIF and the national DGSs. In the event of a liquidity shortfall, following a pay-out event, a national DGS has first recourse to the DIF. If the DIF is depleted, the SRB may request national DGSs to provide additional funding through mandatory lending.

The Bank Recovery and Resolution Directive (BRRD)

The Bank Recovery and Resolution Directive (BRRD) was adopted back in spring 2014 and, together with the Single Resolution Mechanism Regulation (SRMR), forms the EU resolution framework. Discussions continued at EU level throughout 2018, with the focus being on the proposed amendments to the Minimum Requirement for own funds and Eligible Liabilities (MREL). These include the introduction of a minimum harmonised MREL requirement (referred to Pillar 1 MREL requirement) applicable to Global Systemically Important Institutions (G-SIIs), which would be in line with the Total Loss-Absorbing Capacity (TLAC) standard. G-SIIs should meet this requirement by 2019. Furthermore, the proposed amendments address the conditions for determining the MREL for different entities based on their size and importance at a systemic level as well as identifying the level of application of the MREL. Other amendments being proposed relate to the eligibility criteria for instruments and items that could satisfy the MREL requirements. Additional proposed changes relate to the moratorium period, transitional period and the holding of MREL instruments by retail investors.

Covered Bonds Directive

In March 2018, the European Commission put forward a proposal for a Directive on covered bonds which lays down the conditions that these bonds have to comply with in order to be recognised under EU law. The proposal aims to foster the development of covered bonds across the EU, particularly in those Member States where such markets have not yet developed.

An agreement on this proposal by the European Parliament is expected to be reached in 2019.

CRR/CRD Review

In November 2016, the Commission put forward a proposal for a new amended directive and regulation referred to as the 'CRD V package' to address remaining regulatory shortcomings and to further promote risk reduction and risk sharing measures by incorporating the Basel Rules in EU Law.

¹ A Deposit Insurance Fund (DIF) is a joint fund, managed by the Single Resolution Board (SRB) representing all members of the Banking Union. It would be built up by contributions owed and paid by banks out of which pay-outs will be met.

There were a number of amendments which took place in 2018. One main amendment relates to the termination of Pillar 2 provisions for macroprudential purposes. The Council also laid down amendments relating to the level of the O-SII buffer cap including the setting of an overall cap of 5% for the sum of G-SII or O-SII buffer and systemic risk buffer which can be exceeded, subject to prior authorisation from the Commission.

Another amendment relates to the binding leverage ratio. Whilst the leverage ratio is still maintained at 3%, an add-on equal to 50% of the G-SII buffer is introduced for G-SIIs.

Clarifications to the exemptions regime were also put forward for implementation. Currently, some public development banks and credit unions in certain Member States are exempted from the CRD IV-CRR regulatory framework. The revised legislative text provides for an additional exemption for similar institutions in other Member States through a delegated act that would exempt individual development banks or credit unions, subject to common criteria to ensure a level playing field.

Investment Firms

In December 2017, the European Commission launched a proposal for a regulation on the prudential requirements of investment firms, and a directive on the prudential supervision of investment firms.^{2,3,4} The objective of this review is to comprehensively evaluate and, where necessary, revise the way in which capital, liquidity and other key prudential requirements apply to investment firms (particularly smaller investment firms) in the EU.

According to a preliminary assessment by the Commission on the expected impact of the review on investment firms, a more tailored framework for investment firms would not only improve investors' access to new opportunities and enhance their ways of managing risks but would also help to decrease regulatory costs and barriers to entry including those for innovative firms seeking to grow through digital means.⁵ A more tailored set of risk-measures, required ratios of capital, liquidity and other indicators, and the relevant associated reporting by firms are also viewed as helping supervisors to perform their role in a more focused and targeted way, thus boosting the orderly and efficient functioning of financial markets.

SBBS

As part of the European regulatory responses to the financial and sovereign debt crises, the European Commission published a proposal for a regulation on SBBS for public consultation that ran from May to August 2018.⁶ The main aim of this proposal is to provide an enabling framework for a market-led development of SBBS, thus encouraging banks and investors to diversify their holdings of euro area sovereign bonds. An impact assessment on this proposal was undertaken by the Commission from where it emerged that whilst limited costs for the public sector would arise, costs for the issuers are quite substantial and were estimated at €3.26 million per year for a €6 billion SBBS programme.⁷

Non-performing loans (NPLs)

On 18 March 2018, as part of the EU Council action plan to tackle the high levels of NPLs in the EU, the ECB published an Addendum to specify quantitative supervisory expectations with respect

² The Council and the European Parliament reached an agreement on the regulation and directive in March 2019.

³ <https://data.consilium.europa.eu/doc/document/ST-7460-2019-ADD-1/en/pdf>

⁴ <https://data.consilium.europa.eu/doc/document/ST-7460-2019-ADD-2/en/pdf>

⁵ https://ec.europa.eu/info/law/better-regulation/initiative/1307/publication/16355/attachment/090166e5b12ea490_en

⁶ SBBS are a diversified pool of euro-area sovereign bonds which include sovereign bonds from all euro area Member States according to their respective share in euro area GDP.

⁷ European Commission staff working document: Impact Assessment 'An enabling regulatory framework for the development of sovereign bond-backed securities (SBBS)'.

Table 1
OVERVIEW OF THE QUANTITATIVE EXPECTATIONS

	Unsecured Part	Secured Part
After two years of NPE vintage	100%	
After three years of NPE vintage		40%
After four years of NPE vintage		55%
After five years of NPE vintage		70%
After six years of NPE vintage		85%
After seven years of NPE vintage		100%

Source: Addendum to the ECB guidance to banks on non-performing loans.

to the minimum levels of provisions within the prudential regime thereby supplementing the NPL guidance.^{8,9}

Although the addendum is non-binding, it serves as a basis for supervisory dialogue and banks would be required to report their compliance with the prudential provisioning backstop at least annually and report any deviations.¹⁰ To this end, the ECB expects banks to provide full coverage after two years for the unsecured portion of the new NPLs and after seven years for the secured portion of new NPLs with a linear path starting from Year Three onwards as shown in Table 1.

On 14 March 2018, the EU Commission issued a proposal for a regulation on amending Regulation (EU) No 575/2013 as regards minimum loss coverage for new non-performing exposures (NPEs).^{11,12} This proposal amends the existing capital requirements regulation (CRR) by providing for statutory prudential backstops against any excessive future build-up of NPEs without sufficient loss coverage on banks' balance sheets, intended to protect banks' profitability and strengthen their capital base and funding costs in times of stress.

The minimum coverage levels will act as a statutory prudential backstop for newly originated loans that become non-performing. The minimum coverage requirement will increase gradually depending on how long an exposure has been classified as non-performing. Additionally, different coverage requirements will apply depending on the classification of the NPLs as 'unsecured' or 'secured'. In case a bank does not meet the applicable minimum level, deductions from own funds would apply, whereby the sum of the specific credit risk adjustments, additional value adjustments in accordance with CRR Articles 34 and 105 and other own funds deductions should be deducted from the unsecured or secured part of each non-performing exposure, multiplied by its respective applicable factor.¹³

Regulatory Update on the Commission Proposal for a Directive on credit servicers, credit purchasers and the recovery of collateral

As part of the Action Plan to tackle non-Performing loans in Europe, the Commission is pursuing a reform of the restructuring, insolvency and debt recovery frameworks, whilst at the same time, further developing a functioning secondary market for NPLs.¹⁴ In March 2018, the Commission

⁸ Council conclusions on Action plan to tackle NPLs in Europe, 11 July 2017.

⁹ On 20 March 2017, the ECB published its Guidance to banks on non-performing loans (NPL Guidance). The NPL Guidance clarifies supervisory expectations regarding the identification, management, measurement and write-off of NPLs in the context of existing regulations, directives and guidelines.

¹⁰ This addendum applies to all significant banks under direct supervision of the ECB.

¹¹ Regulation 575/2013 deals with prudential requirements for credit institutions and investment firms.

¹² 'Proposal for a regulation of the European Parliament and of the Council on amending Regulation No 575/2013 as regards minimum loss coverage for non-performing exposures' – <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0134&from=EN>

¹³ Article 34 of the CRR deals with additional value adjustments whereby article 105 of the CRR focuses on the requirements for prudent valuation.

¹⁴ <https://www.consilium.europa.eu/en/press/press-releases/2017/07/11/conclusions-non-performing-loans/>

tabled a Proposal for a Directive on credit servicers, credit purchasers and the recovery of collateral ('the Proposal').¹⁵ In case NPL stocks become too high, an efficient, competitive and transparent secondary market will be needed for the disposal of NPLs.

Excessive build-up of NPLs will be prevented in two ways. First, efficiency of debt recovery procedures will be enabled through the availability of a distinct common accelerated extrajudicial collateral enforcement procedure (AECE) – which is in contrast to the slow process of most national insolvency and debt recovery frameworks – provided that such extrajudicial enforcement is agreed upon in advance. Second, in some cases, banks lack the necessary staff and expertise to properly service their NPLs. In view of this, a properly functioning secondary market for NPLs is being proposed by incentivising banks to outsource the servicing of NPLs to a specialised credit servicer or to sell the credit agreement to a purchaser. To do so, the Proposal removes impediments to third-party credit servicing and transfer of credits. Furthermore, a common set of rules for credit servicing and purchasing will increase harmonisation and facilitate market access across Member States, which should bolster the creation of a secondary NPL market in the EU.

¹⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0135&from=en>

2. DEVELOPMENTS IN THE BANKING SECTOR

2.1 Core Domestic Banks

The balance sheet of the six core domestic banks expanded in 2018 though at a slower pace than in the previous year. Total assets grew by 5.1% and amounted to 195.8% of GDP, with growth in GDP outstripping the increase in assets (see Chart 2.1).

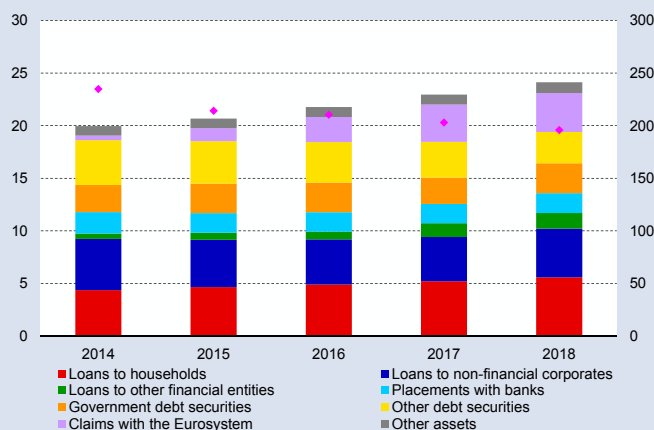
In contrast to recent years, growth in total assets was almost entirely driven by higher customer loans, which grew by 9% in 2018 (see Chart 2.2). Resident lending was the main contributor to such growth, particularly through higher mortgages reflecting the positive sentiment in the real estate market. However, the increase in non-resident lending was also strong. Placements with the Central Bank of Malta increased in 2018 but the growth rate weakened when compared to the previous three years where banks had placed their excess liquidity with the Central Bank of Malta. Holdings of debt securities declined at a much slower rate than in 2017, whilst other assets and interbank claims contributed marginally to the expansion in the balance sheet.

The banks' focus remained towards domestic business, with less than one third (31.4%) of their assets being foreign. Just above half of these foreign assets were securities, with almost another fourth held as placements with other foreign banks and the remaining in the form of non-resident customer loans. The majority of assets are denominated in euro, leaving approximately 10% of the banks' total assets denominated in foreign currencies, predominantly the US dollar and the Pound Sterling.

2.1.1 Profitability

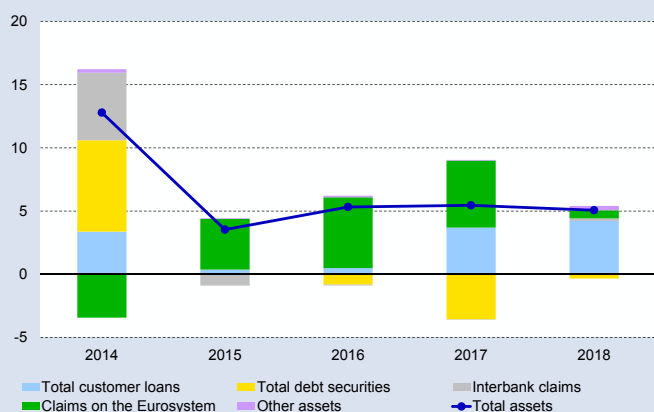
Throughout 2018, profitability of core domestic banks weakened, with post-tax return on equity (ROE) falling by 3.0 percentage points to 6.2% in 2018, whilst the post-tax return on assets (ROA) decreased from 0.70% in 2017 to 0.51% in 2018. Consequently, core domestic banks' performance has become more in line with EU banks which on aggregate posted an after-tax ROE of 6.5% and ROA of 0.44% in 2018 (see Chart 2.3).¹ As indicated in Chart 2.4, pre-tax profits decreased by 26.6% year-on-year to €159.7 million. However, this decrease was mainly attributable to one core domestic bank which in the first half of the year stepped up

Chart 2.1
DISTRIBUTION OF ASSETS – CORE DOMESTIC BANKS
(EUR billions; per cent)



Source: Central Bank of Malta.

Chart 2.2
CONTRIBUTION TO BALANCE SHEET GROWTH – CORE DOMESTIC BANKS
(percentage points)



Source: Central Bank of Malta.

¹ Source: European Banking Authority, Risk Dashboard data as at Q4 2018

its provisioning levels due to legal risks. Adjusting for such additional provisioning and other one-off events, pre-tax profits would have risen by 4.1% to €232.6 million in 2018. Yet, the pre-tax ROA would remain stable at 0.99% whereas pre-tax ROE would narrow by 1 percentage point to 12%.

Net interest income (NII) for core domestic banks increased in 2018, though at a slower rate than in the previous year. This increase was exclusively due to intermediation activities with the latter increasing by 2.3% year-on-year on the back of increased lending volumes, as otherwise the interest margin narrowed with the average interest rate on loans falling by 0.05 percentage point, whilst that on deposits remained unchanged. Meanwhile, NII related to non-intermediation activities contracted by about 1% predominantly due to lower income from securities.

Non-interest income also increased owing to higher fees and commissions, dividend income and trading profits. As a result, non-interest income as a share of gross income increased to 37.7%, leaving NII as the main source of income for the core domestic banks.

Non-interest expenses rose by 26.4% mainly due to one-off additional provisions in the first quarter of 2018. Higher operating expenses also contributed negatively to overall banks' profitability along with increased net impairment charges. The latter rose by €58.9 million mainly from higher bad debts written-off as part of the banks' stepped-up efforts to clean up their balance sheets coupled with lower recoveries of provisions.

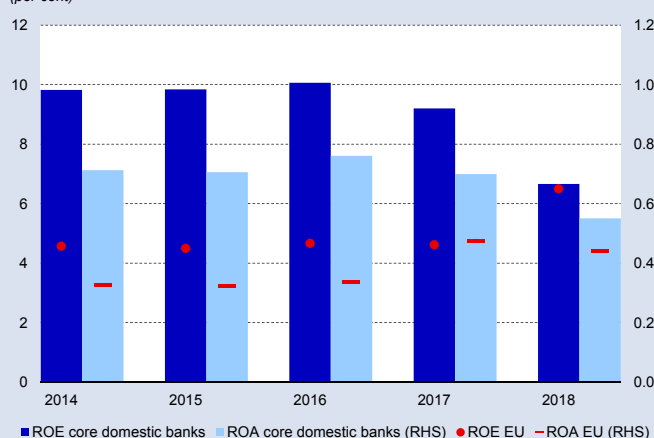
The operational cost-to-income ratio deteriorated by 5.7 percentage points to 62.8% in 2018, as operating expenses grew at a faster pace than gross income, mainly owing to a significant one-off cost reported that year. If adjusted for such exceptional events, the cost-to-income ratio of the core domestic banks would decrease to 50.8%. Overall, the core domestic banks remained more efficient than their EU counterparts registering an average cost-to-income of about 65% in 2018.

2.1.2 Asset Quality

The loan portfolio

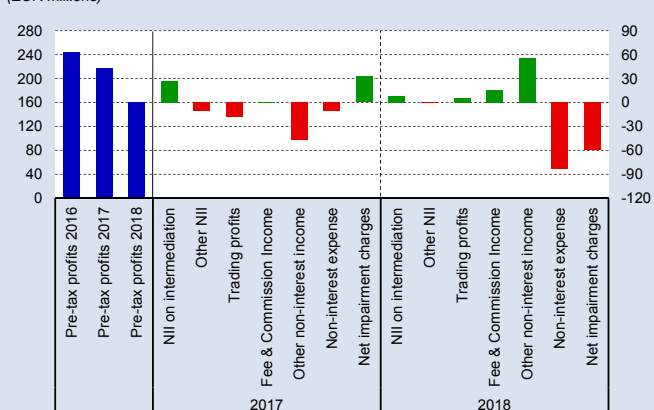
Core domestic banks' main business strategy remained focused on traditional intermediation with the customer loan portfolio accounting for almost half of their balance sheet. About 85% of the retail loan portfolio

Chart 2.3
PROFITABILITY RATIOS – CORE DOMESTIC BANKS
(per cent)



Sources: Central Bank of Malta; European Banking Authority.

Chart 2.4
MAIN COMPONENTS OF PROFITS – CORE DOMESTIC BANKS
(EUR millions)



Source: Central Bank of Malta.

Note: Blue bars indicate pre-tax profits in absolute amounts. Green (positive) and red (negative) bars indicate yearly changes in profit components. NII stands for net interest income.

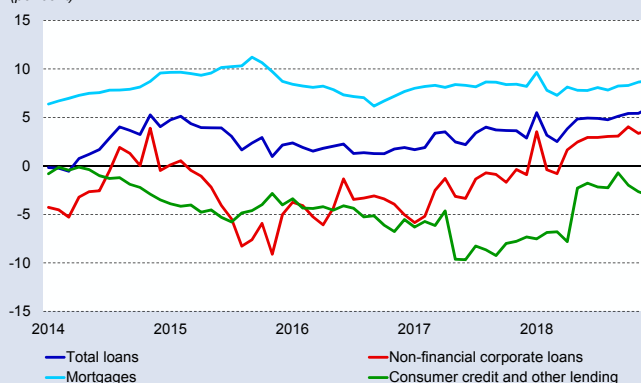
was channelled to residents, growing by 6.0% in 2018 compared to 2.9% in 2017 (see Chart 2.5). Lending to non-residents rose much more strongly by about 31%, largely due to increased participation in syndicate lending, which accounted for the bulk of non-resident lending by this segment of banks.

At the same time, resident lending to households grew by 7.5%, driven by mortgages. In fact, mortgages rose by 8.8%, somewhat higher than the 8.2% reported in 2017 (see Special Feature – Panel A). Such developments reflected the positive housing market prospects supported by favourable economic conditions. As a result, the share of resident mortgages in total resident loans increased to 49.5%. Notwithstanding the favourable lending conditions, core domestic banks remained prudent with lending standards still somewhat at tight levels with the median loan-to-value (LTV) for residential real estate of 77.3%, 1.2 percentage points lower when compared to 2017. The median debt-service-to-income (DSTI) ratio and the loan-to-income (LTI) ratio stood at 21.3% and 400.7%, respectively with a median maturity term of 30 years.²

Although consumption remained the main driver of economic growth, resident consumer credit and other household lending continued to contract – though to a lesser extent than in the previous year. Such lending dropped by 3.1% compared to 7.3% in 2017, with indications pointing towards the use of own funds as evidenced by the decline in the savings rate of Maltese households, albeit still at high levels, or the use of alternative sources of financing, such as directly from suppliers, for consumption purposes.

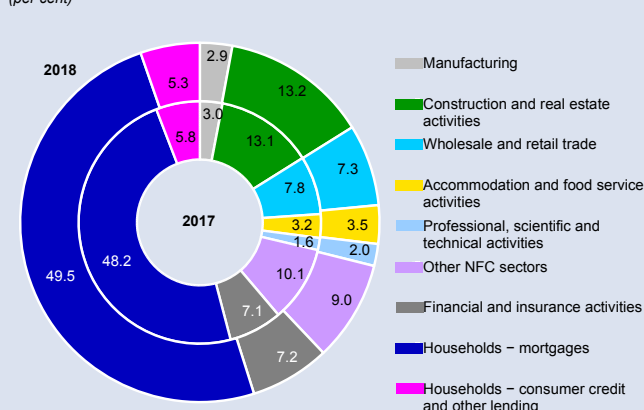
Following several years of contraction, lending to resident non-financial corporations (NFCs) grew by 3.7% in 2018. The construction and real estate sectors contributed to higher resident lending, growing by 7.0%, although the sectors' share of resident lending remained stable at about 13% (see Chart 2.6). Lending to other sectors such as accommodation and food service activities and professional, scientific and technical activities also contributed to higher resident NFC lending. Lending to public sector entities also grew, up by 3.0% year-on-year. Despite the increase, NFCs continued to rely on alternative avenues for funding including bond issuance on the Malta Stock Exchange (MSE) which on a net basis rose by a further 13.4% to €1.3 billion in 2018.

Chart 2.5
ANNUAL GROWTH RATE OF RESIDENT LOANS – CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta.
Note: A break in series was reported in May 2017 with regards to household consumer credit and other lending due to a reclassification exercise.

Chart 2.6
RESIDENT LOANS BY NACE – CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta.

² Data are based on a sample of new loans for house purchase collected on a quarterly basis by the Central Bank of Malta.

Non-performing loans

The outstanding level of non-performing loans (NPLs) declined further in 2018, down by 12.2%. This mainly resulted from a contraction in the level of NPLs which were past due by less than 90 days and those which have been past due for more than one year.

The drop in NPLs is mainly due to lower resident corporate NPLs which fell by 16.7%, particularly from the construction and real estate sectors. As a result the share of resident construction and real estate NPLs to total resident NPLs dropped by around 3 percentage points to about a third of the overall NPLs (see Chart 2.7). NPLs related to resident household lending also declined entirely driven by a decline in non-performing consumer credit and other lending which completely offset an increase of 4.8% in mortgage NPLs. Non-resident NPLs increased somewhat to account for 10.6% of total NPLs.

The overall NPL ratio improved further to 3.4% from 4.1% in 2017, just above the EU banks' average NPL ratio of 3.2%³ (see Chart 2.8). The resident NPL ratio dropped by 0.9 percentage point to 3.8%, with the NPL ratio for resident household lending improving by 0.5 percentage point to 2.8%. The latter reflected an improvement in resident consumer credit, as well as resident mortgages. In fact the consumer credit NPL ratio contracted by about 2 percentage points to 4.1%, whilst that for mortgages declined from 2.7% to 2.5%. The NPL ratio for resident NFC loans continued on a downward path reaching 9.8% from 11.3% in 2017. Meanwhile the overall non-resident NPL ratio rose by 0.3 percentage point to 1.7%.

Loan loss provisions

The coverage ratio for core domestic banks narrowed by 0.1 percentage point to 44.8% owing to lower specific provisions mainly by one bank in relation to a write-off exercise (see Chart 2.9). This has, in turn, pushed down the specific coverage ratio to 30.3%. Meanwhile, provisions covering performing loans rose owing to the implementation of IFRS9 which applies an expected credit loss approach. This contributed to 11.3 percentage points of coverage. The "Reserve for General Banking Risks" as per the Banking Rule 09/2019 contributed to another 3.3 percentage points to the overall coverage ratio.

Chart 2.7
SECTORAL ALLOCATION OF LOANS AND ADVANCES AND NPLs – CORE DOMESTIC BANKS
(per cent)

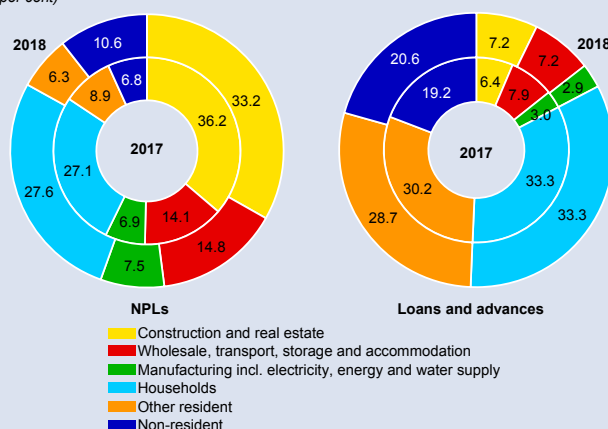
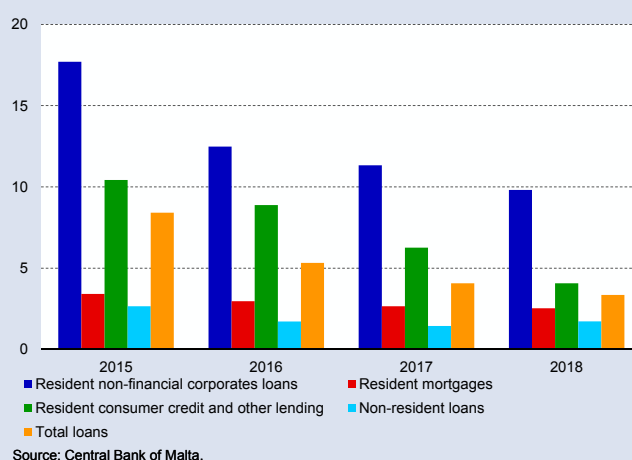


Chart 2.8
NPL RATIOS – CORE DOMESTIC BANKS
(per cent)



³ Source: European Banking Authority (EBA) Risk Dashboard.

In addition to provisions, banks cover their loan exposures with collateral, predominantly in the form of real estate which is also subject to conservative haircuts ranging between 10% and 30%. Collateral backing NPLs covered around two-thirds of outstanding NPLs, up by around 3.3 percentage points over a year ago. Provisions and collateral together more than covered the level of NPLs, standing at 1.1 times.

The securities portfolio

Standing at €5.8 billion and accounting for 24.1% of the banks' total assets, the securities portfolio remained one of the largest components on these banks' balance sheet. This portfolio contracted by 1.3% due to lower bond holdings which dropped by 1.9%, partly owing to profit taking from securities. Equity holdings grew by 5.9%, accounting for 7.7% of the securities portfolio. Around one fifth of the equity holdings were units in investment funds whilst the remaining were largely in related entities. The increase in equities was driven by one core domestic bank through higher holdings in its foreign subsidiary.

The drop in banks' debt securities holdings was driven by both lower holdings of domestic and foreign debt securities, of 3.3% and 1.3% respectively. The drop in domestic bond holdings largely mirrored lower holdings of Maltese sovereign paper, which declined by 3.1% to 27.4% of total debt securities. Though remaining at elevated levels this shedding of Maltese Government paper narrows somewhat the investor home-bias (see Chart 2.10). In addition, holdings of domestic bank bonds and corporate bonds contracted, although by a lesser extent, and continued to represent just a marginal share of the debt securities portfolios.

Holdings of foreign debt securities contracted, largely owing to lower holdings of bank bonds and corporate bonds, down by 17.5% and 11.9%, respectively. Meanwhile, holdings of foreign sovereign debt increased significantly in 2018 to €1.4 billion, pushing the share in the overall securities portfolio up by 7.8 percentage points to 26%. These were mainly holdings in supranational institutions.

Bonds at amortised cost – which limit the possibility of valuation losses – increased by 11.1% to account for 68.3% of the total debt security holdings, an increase of 8 percentage points compared to the previous year. Meanwhile bonds booked at fair value through other comprehensive income declined by about 19% to represent 30.9% of

Chart 2.9
COVERAGE RATIO – CORE DOMESTIC BANKS
(EUR millions; per cent)

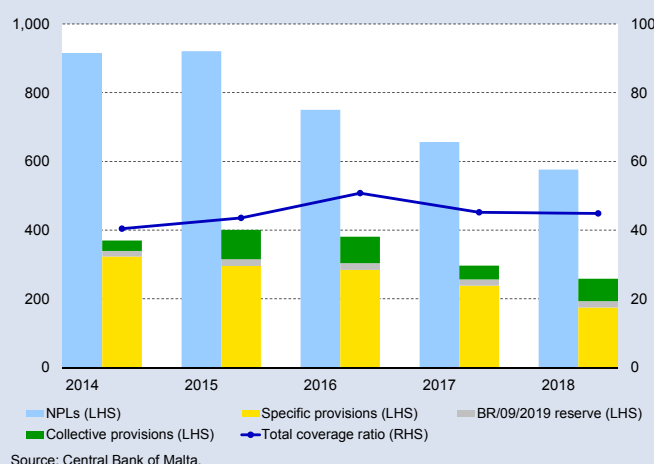
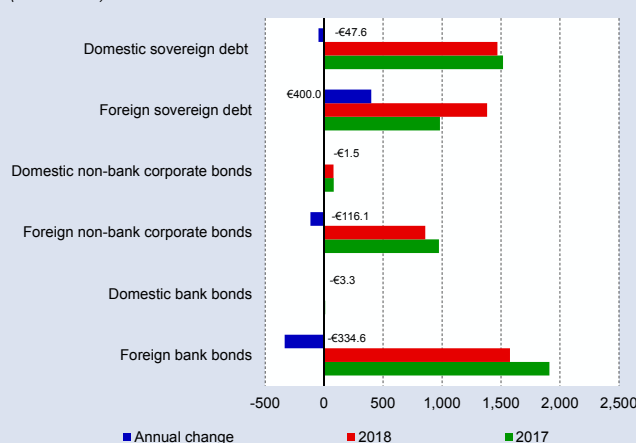


Chart 2.10
BOND PORTFOLIO – CORE DOMESTIC BANKS
(EUR millions)



total securities, with the remaining securities designated at fair value at inception through profit and loss.

Securities asset quality

Core domestic banks remained prudent with the largest portion of their debt securities consisting of medium-rated bonds. Notwithstanding this class of securities contracted by 10.9% over a year ago (see Chart 2.11). The high-rated bonds increased by about 26%, accounting for more than one third of the bond portfolio. Holdings of unrated, unlisted and low investment grade bonds declined when compared to 2017, each representing a smaller share of the bond portfolio. The concentration in medium-rated bonds reflected investments in domestic sovereign paper. Indeed if these were to be excluded, the share of high-rated bonds would represent more than half of the foreign bond holdings.

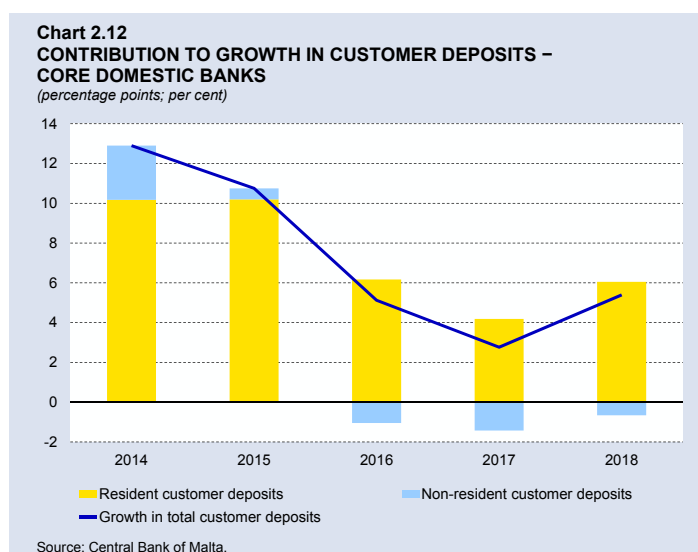
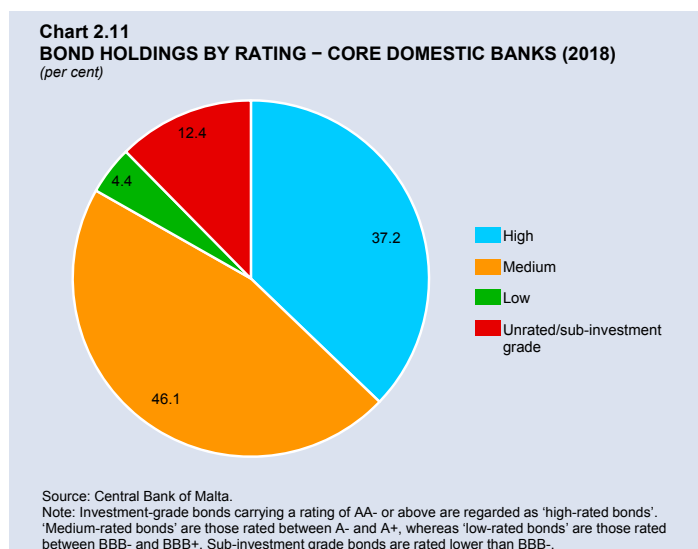
Moreover, none of the securities held by the core domestic banks were in default, bringing the non-performing exposure (NPE) ratio to 2.6%, an improvement of 0.5 percentage point compared to 2017.⁴

2.1.3 Funding and Liquidity

Customer deposits

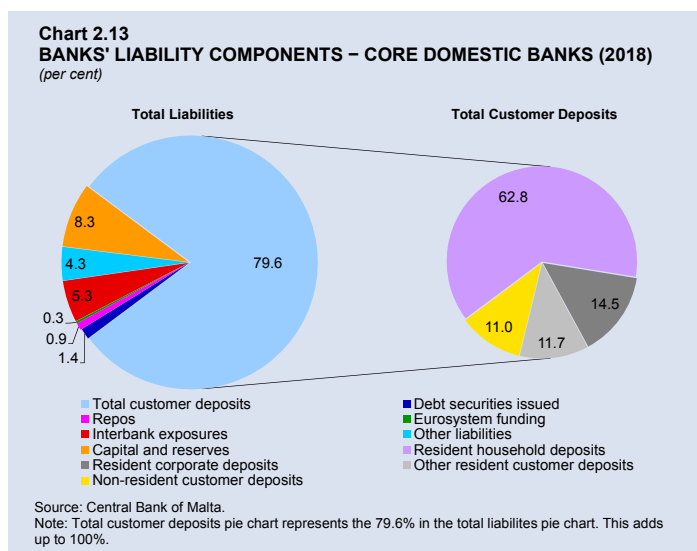
Core domestic banks continued to be funded mainly through customer deposits which accounted for approximately 80% of total assets. The increase in total customer deposits accelerated to 5.4% by the end of 2018, exclusively due to higher inflows of household deposits which rose by about 9% and accounted for just over half the balance sheet size of the core domestic banks (see Chart 2.12). This occurred in spite of the weighted average interest rate paid on deposits remaining unchanged at 0.32% and with some banks also introducing fees on large non-retail euro deposits. On the other hand, non-resident customer deposits contracted by 5.4% in 2018 mainly due to lower deposits from other financial intermediaries (OFI), private NFC and non-MMF investment funds, also reflecting the de-risking approach by some banks.

Non-resident deposits as a share of overall customer deposits fell from 12.2% in 2017 to 11.0% in



⁴ Non-performing exposures include defaulted loans and securities as a share of total loans and securities.

2018, which is equivalent to less than 9% of the assets held by core domestic banks. Resident deposits reached almost 90% of total customer deposits with the majority being resident households (see Chart 2.13). Meanwhile, deposits by private resident NFCs decreased by 1.6% in 2018, partly reversing the increase reported in the previous year and now contributing to 14.5% of total customer deposits. The remaining resident customer deposits, which accounted for around 12% of the total, increased by 5.0%, attributable to general government and non-MMF investment funds.⁵



Demand deposits remained the most preferred liquid asset of the core domestic banks' customers, accounting for more than three-fourths of total deposits. The share of term deposits with a maturity of up to one year decreased by 1.3 percentage points to 15.6% of all customer deposits in 2018. This decrease was compensated for by a rise in the share of long-term deposits with a maturity of more than one year, although these still represented 7.8% of customer deposits. Meanwhile, euro-denominated deposits increased whilst deposits in other foreign currencies contracted overall. As a result, the share of euro-denominated deposits increased by 1.3 percentage points to 89.0% of total customer deposits in 2018. Deposits in foreign currencies remained largely denominated in the US dollar and Pound Sterling.

Eurosystem and wholesale funding

As at year end, Eurosystem funding decreased by 0.5 percentage point to 0.3% of all liabilities whilst inter-bank funding (excluding repos) rose by 0.6 percentage point to 5.3% of total liabilities mainly reflecting intra-group funding by one bank. Throughout 2018, funding from the issuance of debt securities declined by one fifth to account for 1.4% of the total balance sheet size, as two banks opted not to roll-over maturing debt. In contrast, funding from repos and 'other liabilities' rose by 2.1% and 2.3%, respectively, but still financed a minor share of total assets.

Liquidity

Core domestic banks maintained sufficient liquidity as evidenced by the liquidity coverage ratio (LCR) which rose from 276.0% in 2017 to 318.2%. Liquidity improved as a result of higher liquid assets which increased by 5.0% in 2018. Net liquidity outflows decreased by 8.9% which also contributed positively to the LCR ratio. The customer loan-to-deposit ratio increased marginally to 60.9% in 2018, but is still significantly below the euro area average of approximately 104%.⁶

2.1.4 Capital and Leverage

Capital grew at a slower pace than in the last couple of years, predominantly due to base effects following the significant increase in issued share capital reported in previous years. Meanwhile, Tier 2 capital improved by 7.4% as one bank reported an increase in eligible subordinated loans, offsetting the contraction reported by the other banks. As a result, total own funds for core domestic banks increased by 5.7% year-on-year to

⁵ 'Other resident customer deposits' include deposits from the general government, insurance corporations and pension funds, monetary financial institutions, non-MMF investment funds, OFIs, financial auxiliaries and captive financial institutions and money lenders, and public NFCs.

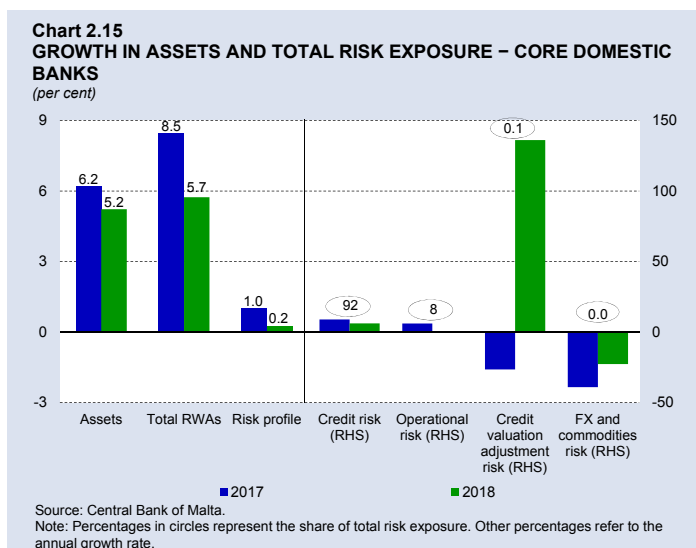
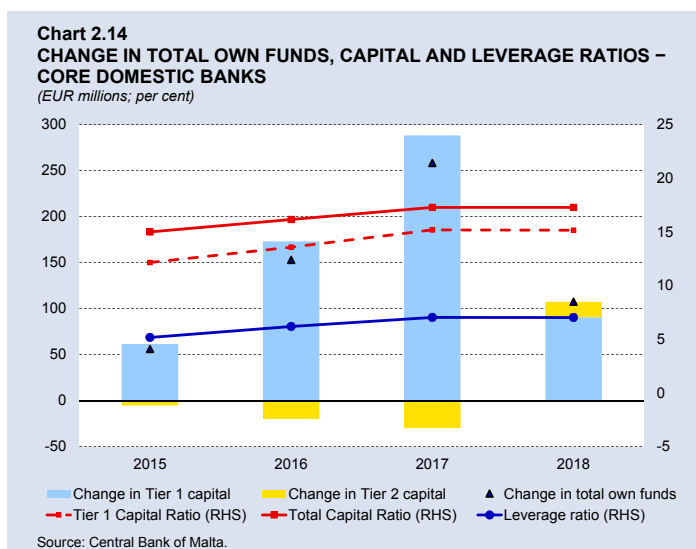
⁶ Source: ECB Statistical Data Warehouse.

almost €2 billion by the end of 2018. However, total risk-weighted assets (RWA) increased by 5.7% and as a result the total capital ratio and Tier 1 capital ratio remained unchanged at 17.3% and 15.2%, respectively (see Chart 2.14).

All banks continued to report some level of voluntary buffers, with the Tier 1 capital ratio adequately above the 9.875% minimum regulatory requirement under the Basel III phase-in arrangements and the additional capital add-ons highlighted under the Capital Requirements Directive (CRD) IV. These include the capital conservation buffer, which stood at 1.875 percentage points on Tier 1 capital ratio for 2018; the Other Systemically Important Institutions buffer; and Pillar II requirements (see Chapter 1).⁷ The Countercyclical Capital Buffer has remained unchanged at 0%.⁸

The stable capital position was also characterised by an unchanged leverage ratio which stood at 7.0% in 2018 and was therefore significantly above the 3% minimum requirement under the Capital Requirements Regulation (CRR).

The risk profile of the core domestic banks, defined as total RWA to total assets, weakened by 0.2 percentage point to 48.4% in 2018, somewhat lower than the increase reported in the previous year (see Chart 2.15). The higher RWA was mainly a result of higher credit risk related to corporates and retail exposures. Risks arising from credit valuation adjustments and operational risks also resulted in higher RWA, albeit by a lesser degree. Other contributors to developments in RWA declined and remained minimal in the composition of RWA.



⁷ Pillar II requirements include the capital buffer arising from the Supervisory Review and Evaluation Process (SREP) and guidance levels.

⁸ Refer to <https://www.centralbankmalta.org/countercyclical-capital-buffer>

BOX 2: BANK LENDING SURVEY RESULTS¹

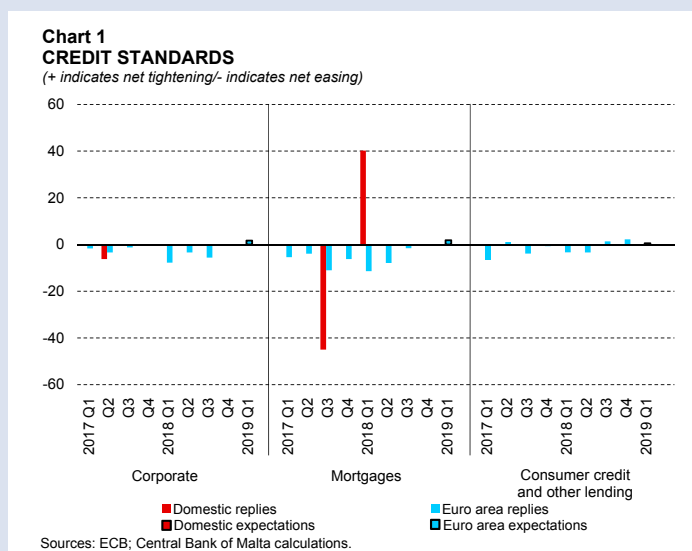
The ECB's Bank Lending Survey (BLS) is conducted every quarter to qualitatively gauge banks' lending conditions in the euro area. During 2018 almost 150 banks across the euro area participated in this survey.² Four core domestic banks took part, which together accounted for about 92% of overall bank credit to Maltese residents. The Survey distinguishes between three loan categories: credit to enterprises; mortgages; and consumer credit (with the latter also including other types of lending to households). It delves into factors affecting both supply and demand conditions and also asks survey respondents about their views for the next quarter.³ Moreover, a number of *ad hoc* questions are included covering retail and wholesale funding, the impact of the ECB's expanded asset purchase programme (APP) and the ECB's negative overnight deposit facility rate, the effect of any new regulatory or supervisory requirements and the impact of non-performing loans on the banks' lending behaviour.

Credit supply conditions

During 2018, the Maltese surveyed banks maintained their credit standards on loans to enterprises at tight levels and expected to keep such credit standards unchanged at this level even in the first quarter of 2019 (see Chart 1). In contrast, credit standards for loans to enterprises in the euro area eased marginally in 2018 mainly owing to higher competition, as banks continued to support loan growth. However, they were expected to tighten credit standards in the first quarter of 2019.

At the same time, on balance, domestic participants have opted to tighten their terms and conditions applicable to corporate loans. This was largely driven by one bank which applied higher non-interest rate charges on the unutilised credit balance in the first quarter of 2018 to cover for the opportunity cost of tied-up capital. No further changes were reported in subsequent quarters (see Chart 2). In contrast, higher competitive pressures led euro area banks to ease further their corporate terms and conditions in 2018, resulting in narrower margins on average loans. This notwithstanding, the extent of easing decreased throughout the year to the lowest level recorded since this question started to be posed to respondents in 2015.

Maltese banks reported partly offsetting developments for mortgage supply conditions. During the first quarter of 2018, some tightening in mortgage credit standards was reported by



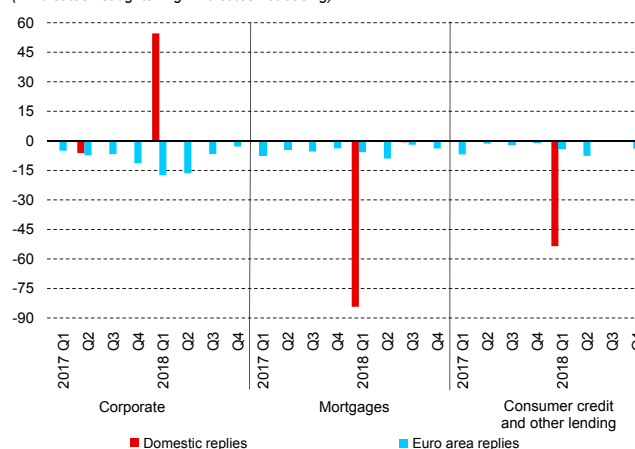
¹ Prepared by Ariana Bartolo, an Economics Officer within the Financial Stability Surveillance and Assessment Office of the Central Bank of Malta. Any errors and views expressed in this box are the author's sole responsibility.

² The BLS data for all euro area countries are published on the ECB's Statistical Data Warehouse (SDW).

³ Supply conditions include credit standards and terms and conditions. Credit standards refer to the bank's internal guidelines or loan approval criteria, established prior to the actual loan negotiation. These specify the required borrower characteristics such as income levels, age and employment status which banks consider in their credit scoring methods. Credit terms and conditions refer to the conditions of a loan that a bank is willing to grant, namely the interest rate, loan size, fees, collateral requirements, maturity terms and other conditions.

one domestic bank following the introduction of stricter borrowers' affordability criteria (see Chart 1).⁴ However, mortgage credit terms and conditions were eased both in the first quarter of 2018 and in the third quarter of 2018, though to a much lesser extent. This was mainly due to competitive pressures which resulted in narrower loan margins (see Chart 2). Domestic lending rates charged by Maltese banks for mortgages remained higher than those charged in the euro area, standing at about 3% and 2.1%, respectively.

Chart 2
CREDIT TERMS AND CONDITIONS
(+ indicates net tightening/- indicates net easing)



Euro area banks continued to ease both their mortgage credit standards and terms and conditions. These mainly reflected increased competitive pressures, lower risk perceptions coupled with improved borrowers' creditworthiness and positive housing market prospects. Such factors contributed in narrowing interest rate margins on average and riskier loans to a lower extent. Mortgage credit standards were, however, expected to tighten in the first quarter of 2019.

During 2018, domestic participant banks opted to keep credit standards on consumer credit and other household lending stable at tight levels and expected to keep this stance during the first quarter of 2019 (see Chart 1). Meanwhile, although in the first half of 2018, euro area participants reported some easing due to stiffer competition from both banks and non-banks and improved creditworthiness of consumers, these credit standards were tightened marginally in the second half of 2018 as a result of increased funding costs and balance sheet constraints. The tightening was expected to persist also in the first quarter of 2019 (see Chart 1).

Following three years of stable credit terms and conditions on consumer credit and other household lending, domestic banks reported some easing during the first quarter of 2018. This reflected increased competition which led to narrower interest margins as banks aimed to reverse the decline in consumer credit experienced over a number of years (see Chart 2). Similarly, euro area participants continued to ease their terms and conditions for this loan category, owing to increased competition and lower risk perceptions, which also led to narrower margins particularly on average loans.

Credit demand conditions

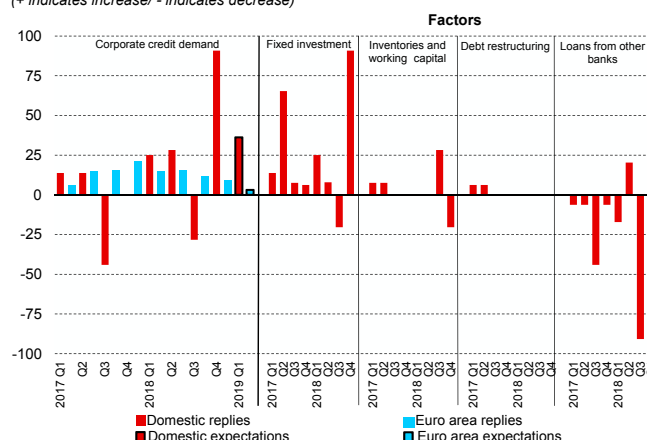
Domestic demand for corporate credit generally increased in 2018, except in the third quarter. Robust economic developments in 2018, particularly the increase in gross fixed capital formation continued to drive corporate loan demand, most notably in the last quarter of 2018 (see Chart 3). In the third quarter of 2018, domestic banks reported stiffer competition from other banks, increased debt securities issuance, together with lower demand for fixed investment, mergers and acquisitions, all of which contributed to lower corporate credit demand. This decline was slightly offset by higher financing needs for inventories and working capital, which was partly reversed in the last quarter of 2018. Overall domestic corporate credit demand was expected to increase in the first quarter of 2019.

⁴ These were thereafter kept unchanged, and expected to remain stable during the first quarter of 2019.

In the euro area, demand for corporate loans remained positive although this decelerated throughout 2018, with only a marginal increase anticipated for the first quarter of 2019. The higher demand mainly reflected the all-time low level of interest rates, together with increased financing needs owing to mergers and acquisitions and debt restructuring, coupled with increased fixed investment and funding for inventories and working capital.

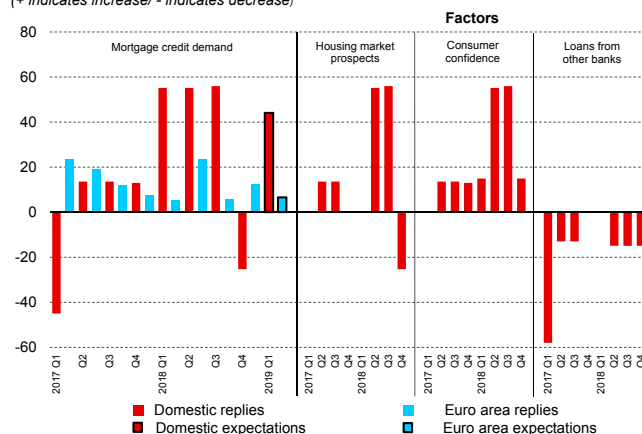
Mortgage credit demand by domestic respondents increased significantly during the first three quarters of 2018, owing to higher consumer confidence and better housing market prospects. However, in the last quarter of the year, one bank reported lower demand which was attributable to a slowdown in housing market prospects and competitive pressures from other banks (see Chart 4). Nonetheless, Maltese banks anticipated that mortgage credit demand would start to grow again during the first quarter of 2019.

Chart 3
CORPORATE CREDIT DEMAND
(+ indicates increase/ - indicates decrease)



Sources: ECB; Central Bank of Malta calculations.
Note: The impact of factors relate solely to the domestic corporate credit demand.

Chart 4
MORTGAGE CREDIT DEMAND
(+ indicates increase/ - indicates decrease)



Sources: ECB; Central Bank of Malta calculations.
Note: The impact of factors relate solely to the domestic mortgage credit demand.

In the euro area, demand for mortgages remained positive owing to the low level of interest rates, better housing market prospects and higher consumer confidence. Euro area banks expected further growth in mortgage credit demand in the first quarter of 2019.

Domestic banks reported an increase in demand for consumer credit both during the first quarter and to a lesser extent in the last quarter of 2018. This reflected stronger consumer confidence and higher spending on durable consumer goods as disposable income grew. These positive factors were, however, somewhat offset by competitive pressures from other banks (see Chart 5). Demand for consumer credit however remained unchanged in the second and third quarters of 2018, as banks reported increased competition from alternative financing avenues. At the time of the survey, no changes in demand were anticipated by Maltese banks in the first quarter of 2019.

Euro area BLS banks continued to report positive growth in demand for consumer credit and other lending, particularly in the second and third quarters of 2018. The low level of interest rates, higher spending on durable consumer goods and stronger consumer confidence were the main factors driving

such growth. Furthermore, euro area banks expected the increase in demand to persist in the first quarter of 2019.

Ad hoc questions

The majority of Maltese participant banks reported broadly unchanged access to both wholesale and retail funding, with the latter representing the bulk of the funding tapped by domestic banks, in line with their traditional business models and the ample liquidity currently available. Euro area banks indicated that in net terms, access to wholesale funding deteriorated for debt securities issuance, for their access in the unsecured interbank markets and also securitisation. Euro area banks' access to retail funding also deteriorated somewhat in 2018.

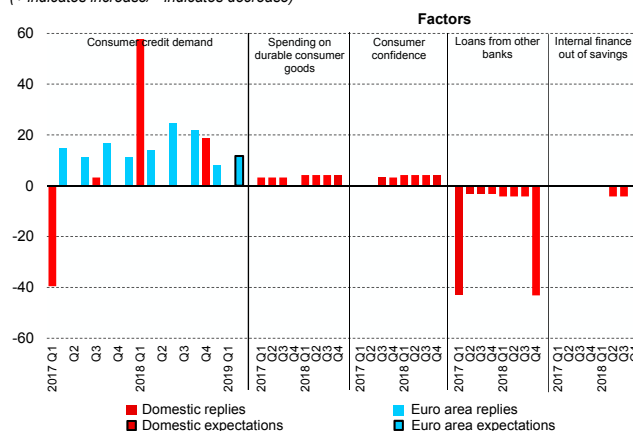
The introduction of regulatory requirements or new supervisory actions did not impact domestic respondents' credit standards and credit margins. In contrast, euro area banks reported higher total and liquid assets on balance, coupled with a further strengthening of their capital position, mainly through retained earnings and to a lesser extent through capital issuance. In response to regulatory and supervisory actions euro area banks also reported a net tightening in their funding conditions and also in their credit standards and loan margins for corporates and households.

Domestic banks' lending policies were unaffected by the level of non-performing loans, which continued to decrease throughout the year. However, euro area banks indicated that the level of their non-performing loans had a tightening effect on their credit standards and terms and conditions across all loan categories.

Domestic banks meanwhile reported that the ECB's negative deposit facility rate had a negative impact on their profitability as it lowered net interest income, particularly in view of the abundant liquidity buffers placed overnight with the Central Bank of Malta. Moreover, some domestic BLS banks reported a drop in their lending rates, particularly for enterprises, followed by an increase in the lending volume for all loan categories. Similarly, euro area BLS banks continued to report a negative impact on banks' net interest income, owing to narrower margins for both loans to enterprises and households. Yet, the negative overnight deposit facility rate boosted lending volumes particularly for corporates and households.

One Maltese bank reported that the ECB's expanded APP had a positive impact on its liquidity position and market financing conditions, whilst another domestic bank said that it contributed to an easing impact on its lending standards, terms and conditions and lending volumes for loans to enterprises. However, the remaining domestic respondents did not report any impact on their assets, liquidity buffers, market financing conditions, profitability and capital position on account of the ECB's expanded APP. Over 2018, euro area banks reported that the APP had aided their liquidity positions and market financing conditions, but had adversely affected profitability due to narrower net interest margins, though lending volumes did increase following an easing in lending conditions. The APP also contributed to a decrease in banks' holdings of sovereign bonds.

Chart 5
CONSUMER CREDIT AND OTHER LENDING DEMAND
(+ indicates increase/ - indicates decrease)



Sources: ECB; Central Bank of Malta calculations.

Note: The impact of factors relate solely to the domestic consumer credit demand.

2.2 Non-core Domestic Banks

In 2018, the balance sheet of the five non-core domestic banks expanded by over a fifth to €2.7 billion, equivalent to 21.8% of GDP. These banks engaged primarily in intermediation activities, though some focused strategically on other banking activities, such as international trade finance, documentary collection and custody services. These banks' business activities are primarily with non-residents, albeit some are also targeting the domestic market, with resident assets accounting for a third of their total assets in 2018. Nevertheless, links with the real economy remained contained with limited systemic implications.

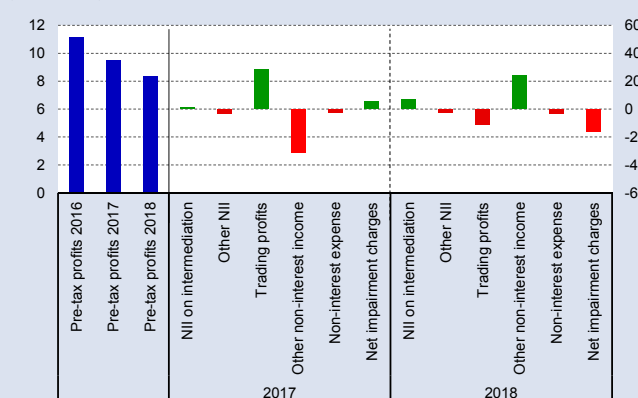
2.2.1 Profitability

Pre-tax profits dropped by 12.1% driven by a significant increase of €15.8 million in impairment charges (see Chart 2.16). This mainly reflected higher specific provisions on customer loans and to a lesser degree on facilities to credit institutions. The increase in provisions was predominantly concentrated in one bank arising from the implementation of IFRS 9. During 2018, banks also wrote off a number of non-performing customer loans.

Net operating income rose by 136.6%, largely in the form of non-interest income, which remained the dominant source of income for these banks, equivalent to 70.2% of gross income in 2018. Non-interest income increased by 39.7% affected principally by lower losses on foreign exchange dealings coupled with higher fees and commissions, as well as dividend income mainly from subsidiaries. This was, however, partly offset by a drop in profits from the banks' investment trading portfolio.

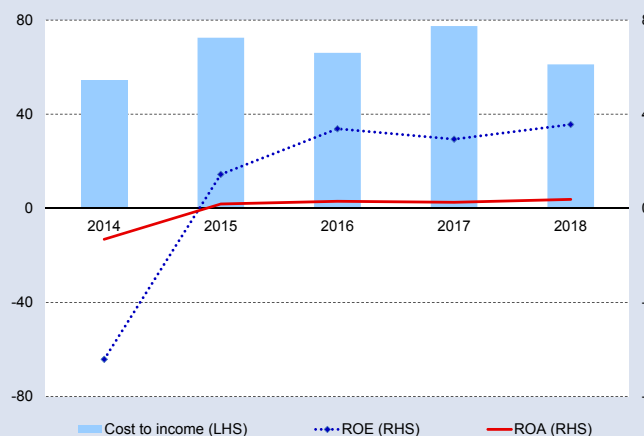
Net interest income rose by 31.7% but its share in gross income declined by 1.2 percentage points to 29.8% in 2018. This was due to higher income earned from intermediation, which went up by more than a quarter over 2017, as banks granted more corporate loans. Although holdings of debt securities expanded, interest income from securities fell as these banks re-invested in lower yielding paper. Interest expenses rose by 6.6% reflecting the increased participation of banks in the interbank market. Funding costs related to customer deposits also increased, reflecting higher inflows as otherwise the weighted average interest rate paid on these deposits fell marginally to 0.7%. Non-interest expense rose by 7.8% over the previous year, owing to higher staff and other administrative expenses. This notwithstanding, the cost-efficiency of this category of banks improved, with the cost-to-income ratio dropping from 77.4% in 2017 to 61.2% in 2018 (see Chart 2.17).

Chart 2.16
MAIN COMPONENTS OF PROFITS – NON-CORE DOMESTIC BANKS
(EUR millions)



Source: Central Bank of Malta.
Note: Blue bars indicate pre-tax profits in absolute amounts. Green (positive) and red (negative) bars indicate yearly changes in profit components. NII stands for net interest income.

Chart 2.17
PROFITABILITY – NON-CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta.

Although pre-tax profits fell, some banks reported tax credits on their losses which led to the overall post-tax ROE and ROA to increase by 0.6 and 0.1 percentage points to 3.6% and 0.4% in 2018, respectively.

2.2.2 Asset Quality

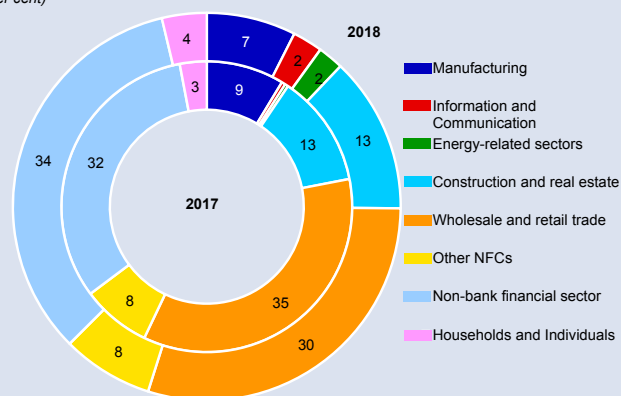
The loan portfolio

During the year, the customer loan portfolio of non-core domestic banks expanded by 32.6%, driven by lending – largely towards corporates. Loans to other non-bank financial institutions also rose significantly to account for just above a third of the overall customer loan portfolio. Whilst household loans, mainly in the form of consumer credit, grew by 65.8% annually, this loan category continued to represent a minor share of the banks' loan book (see Chart 2.18).

Customer loans remained concentrated towards non-residents, which rose by more than a quarter, on the back of higher lending to non-bank financial institutions. Non-resident customer loans accounted for more than three fourths of the banks' customer loan portfolio. From a geographical perspective, the largest increase stemmed from the UK and to a much smaller extent from other non-EU countries (see Chart 2.19). Meanwhile, resident lending rose by 57.4%, pushing up its share in the customer loan portfolio by 3.6 percentage points to 22.8% in 2018. The penetration in the domestic lending market is more prominent in the corporate sector, particularly in the wholesale & retail trade sector, and in real estate and construction activities. However, lending towards resident corporates is still contained in comparison with the core domestic banks, representing 4.1% of the total resident NFC lending by the domestic banking sector. Overall systemic risks remained limited and contained, with resident lending by the non-core domestic banks accounting for 2.1% of overall lending in 2018.

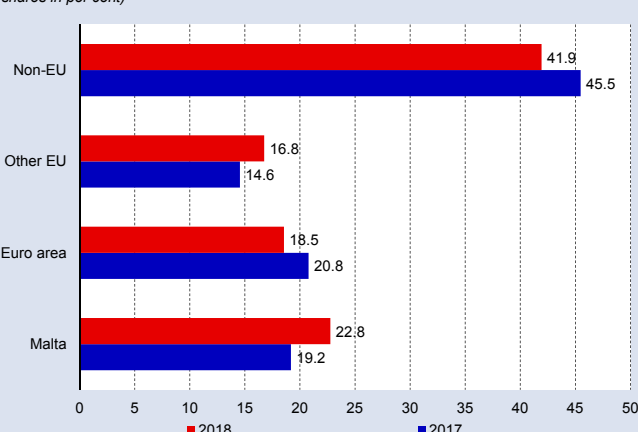
Interbank placements grew by 30.6%, entirely motivated by higher deposits with unrelated banks to account for 19.6% of total assets.⁹ This growth stemmed chiefly from placements with resident banks, which more than doubled compared to the previous year, though deposits with non-resident banks in Austria, Germany and Belgium also increased. On the other hand,

Chart 2.18
CUSTOMER LOANS BY SECTOR – NON-CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta.

Chart 2.19
CUSTOMER LOANS BY RESIDENCY – NON-CORE DOMESTIC BANKS
(shares in per cent)



Source: Central Bank of Malta.
Note: Data for euro area excludes Malta.

⁹ These only include deposits which are reported on the asset side of the balance sheet.

lending to unrelated credit institutions fell by 12% to just 1.7% of total assets. In view of the healthy liquidity buffers supported by inflows of customer deposits, non-core domestic banks reported higher placements with the Central Bank of Malta, which rose by 1.2% to 13.3% of total assets in 2018.

The quality of the loan portfolio deteriorated in 2018 with non-resident non-performing loans more than doubled, albeit from low levels. Consequently, the non-resident NPL ratio rose by 2.3 percentage points to 4.5% in 2018. Such exposures were largely concentrated in the wholesale and retail trade and to a lower degree in manufacturing. Resident NPLs also rose but at a slower pace. As a result, the overall NPL ratio of the non-core domestic banks increased by 1.4 percentage points to 3.6% in December 2018, although this is still considered to be contained and roughly in line with the EU average. Although the level of provisions almost doubled, the coverage ratio decreased by 3.4 percentage points to 62.5%. When taking into consideration collateral backing NPLs, such loans would be fully covered.

The securities portfolio

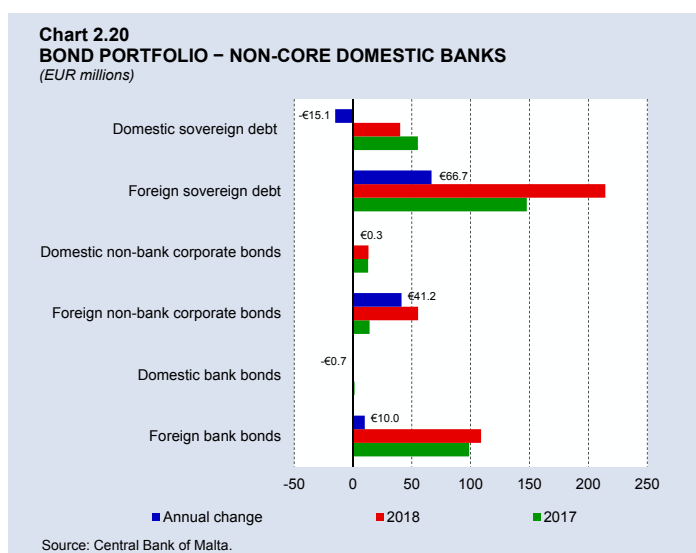
The increase in the balance sheet of this group of banks was also due to an expansion in the securities portfolio, which grew by 18.8% and accounted for 27.4% of total assets. The bulk of the securities portfolio remained concentrated in debt instruments.

Investments in debt securities rose by almost a third, driven primarily by higher investments in government bonds issued by the Luxembourg, German, and Finnish governments (see Chart 2.20). On the other hand, investments in MGS fell by more than a quarter over the preceding year, representing just 1.5% of the balance sheet. Overall, sovereign securities accounted for 58.9% of the debt securities portfolio, 2.6 percentage points lower than in the previous year. Holdings of non-financial corporate bonds more than doubled during the year, driven by foreign holdings and representing around 15.8% of the total bond portfolio. Additionally, investments in MFI bonds rose by 9.3%, largely reflecting higher investments in foreign banks located in Luxembourg and the US, whilst bond holdings of resident banks more than halved to just €0.6 million in 2018. Similar to previous years, around 62.3% of the debt securities portfolio remained invested in high-rated investment grade paper.¹⁰

Equity holdings expanded by 4.9% and represented around 41.4% of the investment portfolio. This was primarily due to an increase in non-MMF investment funds by one bank. These banks also held equities issued by resident non-MMF investment funds as well as non-bank financial intermediaries in the Netherlands and the UK.

2.2.3 Funding and Liquidity

Non-core domestic banks continued to rely extensively on customer deposits to fund their operations. Customer deposits rose by 23.7% pushing their share in total liabilities by 0.7 percentage point to 69.2% in 2018.



¹⁰ High-rated investment grade bonds are rated between AAA to AA-.

Retail funding continued to be obtained mostly from non-resident customer deposits accounting for almost three-fourths of customer deposits. Over a year, these rose by 39.6% mainly driven by non-resident euro area households. Such deposits increased by around half over the previous year to account for 37.7% of total customer deposits. Deposits of non-resident OFIs rose considerably, whereas deposits from non-resident NFCs fell by 8.8%, to finance around 17.6% and 7.8% of the overall balance sheet, respectively. Meanwhile, resident customer deposits fell by 7.2% driven by higher outflows from resident OFIs and to a lower extent by non-MMF investment funds, as otherwise deposits from resident households rose by 2.5%. Resident deposits represented 17.7% of total assets, but accounted for just 2.7% of the overall resident customer deposits in the Maltese banking sector.

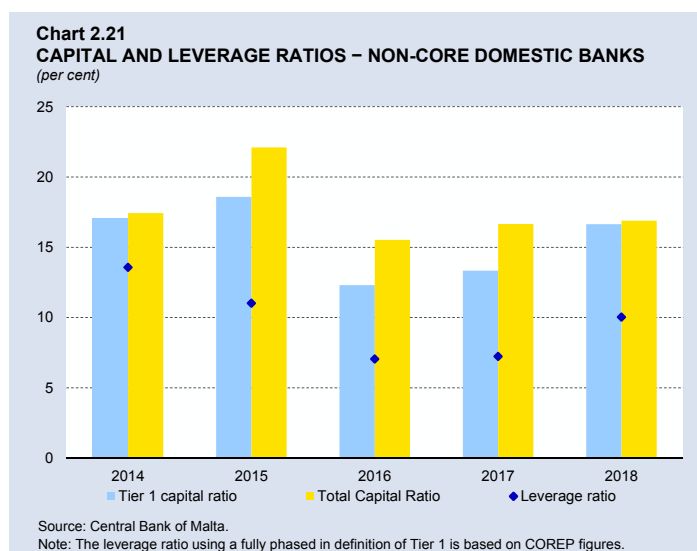
Interbank funding is another important funding source, increasing by 1.1% over 2017 and financing 13% of these banks' activities. The increase mirrored higher funding from unrelated domestic and euro area credit institutions. On the other hand, funding from related credit institutions decreased by 14.9% over 2017 to just 2.1% of total liabilities in 2018. One bank within this group engages in repurchase agreements to obtain funding, which fell by 70% over the previous year to account for just 0.2% of the non-core domestic banks' liabilities in 2018. Capital and reserves expanded by a considerable 59.5% to fund 11.3% of the non-core domestic banks' assets. This expansion was supported by an injection of share capital by one bank which also reported an increase in its exchange rate revaluation reserves. Furthermore, one bank continued to participate in TLTROs, whereas another bank continued to tap USD funding by the ECB. However, by year end, such USD funding declined by just under a quarter to finance 0.8% of total assets.

Similar to previous years, non-core domestic banks continued to operate on the back of ample liquidity, with the liquidity coverage ratio standing at 421.3%, exceeding minimum regulatory threshold. Liquid assets are predominantly held in the form of exposures to the central bank (54.1% of total liquid assets) and central governments (23.9%).

2.2.4 Capital and Leverage

The capital position of non-core domestic banks improved marginally with the total capital ratio rising by 0.2 percentage point to 16.9% (see Chart 2.21). This was due to the increase in issued share capital by one bank which pushed up the Tier 1 capital ratio of the non-core domestic banks by 3.3 percentage points to 16.6%. This bank also contributed to a lower Tier 2 capital, which fell significantly over the previous year to account for just 1.5% of total capital in 2018, thus shifting to more higher-quality Tier 1 capital. Risk-weighted assets rose by just under a third driven predominantly by higher credit risk exposures, mainly towards corporates (90.4% of RWA), as well as operational risk (7.3% of RWA) and foreign exchange risk exposures (2.2% of RWA). As a result, the share of RWA to total assets rose by 5.1 percentage points to 64.3%.

Meanwhile, the leverage ratio improved by 2.8 percentage points to 10.0%, with all banks exceeding the minimum regulatory requirement.



2.3 International Banks

There were 13 institutions categorised as international banks operating from Malta at the end of the year as one international bank had its licence withdrawn in November 2018.¹¹ Out of these, three are branches of foreign banks whilst the remaining ten banks are either subsidiaries of foreign banks or stand-alone banks.¹² These banks deal almost exclusively with non-residents and feature diverse business models, ranging from: trade financing and factoring; payments and settlements; wealth management; to lending towards private non-financial corporates. Most of these banks are also active on the interbank market.

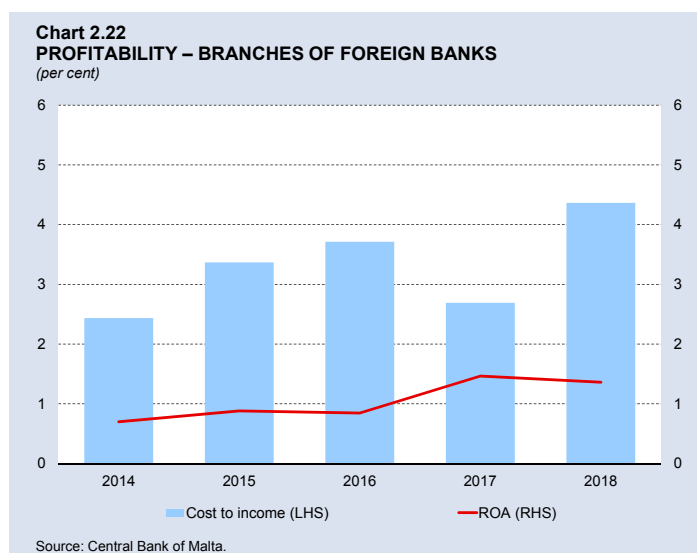
The assets of this group of banks contracted by almost a quarter to €17.6 billion, equivalent to 142.5% of GDP, mainly driven by a contraction in the balance sheet of two foreign branches. These banks remained characterised by high capital and liquidity ratios. Links between international banks and the domestic economy continued to remain weak, with resident assets accounting for just 8.3% of their balance sheet value and were mainly in the form of placements with Central Bank of Malta under the reserve requirement. Meanwhile, resident deposits remained limited – financing just 1.5% of their total assets.

2.3.1 Branches of Foreign Banks¹³

2.3.1.1 Profitability

The three branches of international banks posted lower profits with post-tax ROA contracting by 0.1 percentage point to 1.4% (see Chart 2.22). This largely reflected a further increase in losses from the disposal of financial assets and from foreign exchange. Net interest income (NII) narrowed by half a percentage point but still remained the major source of income, commensurate with their large securities portfolio and retail loan book. During the year, interest income from customer loans increased on the back of higher weighted average interest rates charged to customer loans as otherwise the volume of customer loans decreased. Interest income from securities increased on the back of higher interest rate coupons on Turkish sovereign paper held by branches of non-EU banks, particularly inflation-linked bonds. During 2018, higher inflation rate expectations coupled with economic turmoil in Turkey exerted upward pressure on interest rates, driving up interest income from securities holdings. Consequently, this revenue remained the primary source of interest income, accounting for around two-thirds of this category. Meanwhile, in spite of the drop in customer deposits, interest expenses still rose at a faster rate, owing to higher weighted average interest rates.

These branches of foreign banks generally operate with low operating costs given that they also share the resources of their head office. Indeed, although the cost-to-income ratio increased by 1.7 percentage points, this still stands at just 4.4%. This increase largely reflected lower gross income and higher operating expenses to a lower degree.



¹¹ The license of Pilatus Bank Limited was withdrawn on 5 November 2018.

¹² To date two subsidiaries of foreign banks and nine stand-alone banks, classified as international banks, are operating from Malta. A foreign branch of a bank which is domiciled locally must comply with the regulations of both the home and host countries, but does not hold capital locally. A foreign subsidiary bank is a bank incorporated in Malta, holding capital locally but is predominately owned by a parent corporation in a third country. A stand-alone bank also holds capital locally, but is an independent institution and does not receive financial support from any other organisation. Nonetheless, all international banks are still subject to applicable prudential reporting requirements in Malta.

¹³ Of the three branches licenced in Malta, one is a third-country non-EU branch, whilst the other two branches have their parent company located within the euro area.

2.3.1.2 Asset Quality

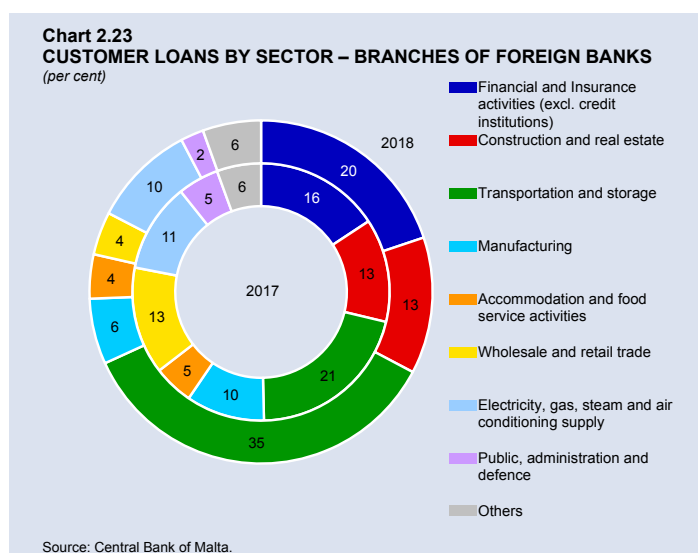
The loan portfolio

Despite shrinking by 2.3% in 2018, retail lending remained one of the core business arms of the foreign branches, with non-resident customer loans representing a third of the total balance sheet, up from a quarter in the previous year. Although such loans remained predominately channelled to foreign NFCs, the composition of the loan portfolio changed significantly, with noticeable reductions in exposures towards the wholesale and retail, manufacturing, and public administration & defence sectors, and instead shifted towards financing the transportation and storage sector, and financial and insurance activities, leading to increased concentration in these two sectors which together accounted for about 55% of the total customer loan portfolio (see Chart 2.23). Despite narrowing by around 3%, lending towards the non-resident construction and real estate activities also remained an important sector representing 13% of total customer loans. The downward trend in interbank placements witnessed since 2015 intensified in 2018, with interbank exposures shrinking at a faster pace, down by around 43%.¹⁴ Consequently, interbank placements accounted for 11.6% of total assets, down from 15.1% in 2017. The contraction reflected lower loans towards unrelated credit institutions, located primarily in the UK and Turkey. Despite decreasing, placements with unrelated credit institutions still accounted for almost half of the interbank placements. These branches also held lower exposures with their head office and related companies, though to a lesser degree.

In terms of asset quality, the loan book of these banks deteriorated with the NPL ratio more than doubling, albeit still at relatively low levels, to 1.4% from 0.6% a year earlier.¹⁵ These NPLs pertained to other financial corporations and to a lesser extent corporates operating in the accommodation, transport and storage, and construction sectors. The coverage ratio stood at almost 60% with NPLs being fully covered when taking into consideration the collateral underlying these loans.

The securities portfolio

The securities portfolio, which is exclusively held by the two largest branches, is entirely composed of foreign debt securities, predominately in the form of Turkish sovereign paper. As part of their de-risking strategy, the total securities portfolio of these banks almost halved, to represent just over a third of their balance size, down from around 48% during the previous year. The contraction in the securities portfolio stemmed mainly from the disposal of Turkish sovereign bonds and to a much lower extent securities issued by unrelated credit institutions in Turkey. Given that the debt securities portfolio remains concentrated towards Turkey, the holdings are largely held in low-rated foreign sovereign bonds, impacting the overall rating of the banks' securities portfolio.¹⁶



2.3.1.3 Funding and Liquidity

Despite contracting by just over a fifth, wholesale funding continued to be the most preferred source of

¹⁴ Interbank placements include both loans and deposits on the assets side.

¹⁵ NPLs of non-EU branches are transferred on the books of their respective head offices.

¹⁶ In mid-2018, Moody's lowered Turkey's sovereign credit rating to Ba3 from Ba2 and changed its rating outlook to negative. Turkey's economy slid into recession at the end of 2018.

funding, financing almost three-quarters of their total assets. It is largely in the form of funding from the head office.

Non-resident customer deposits declined, financing 16.4% of these branches' business activities, down from just under a quarter in 2017. These deposits mainly originated from the financial and insurance sector and corporates in the wholesale and retail trade, and manufacturing sectors in Switzerland, US and Turkey. These branches continued to have negligible links with the domestic economy, limiting any spill-over risks. Resident customer deposits indeed shrank further to just €1.7 million or 0.01% of total resident customer deposits.

2.3.2 Subsidiaries of Foreign Banks and Stand-alone Foreign Banks

2.3.2.1 Profitability

In 2018, this group of banks posted lower profits, with the post-tax ROE and ROA narrowing to 4.3% and 1.4%, respectively, from 4.9% and 1.6% a year earlier (see Chart 2.24). Such weakening reflected higher net impairment losses, which almost doubled compared to the previous year largely due to higher collective provisions set aside for customer loans. Non-interest expenses rose by 16.7% further denting their profitability.

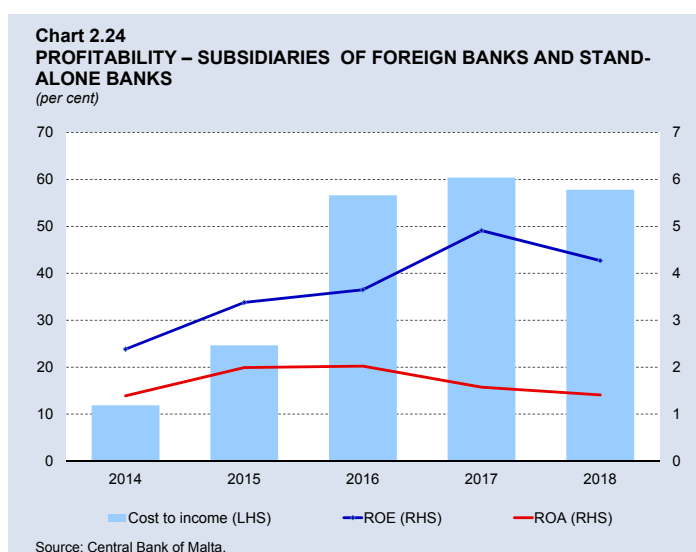
Meanwhile, gross income of these banks expanded further on the back of higher net interest income as well as non-interest income. In recent years, the latter source of income – mainly in the form of fees and commissions – grew in importance, with its share in gross income reaching 50.5%, up by almost 2 percentage points since 2017. Net interest income also increased significantly, up by almost 17% as interest income outpaced interest expenses. The positive developments in income from interest-bearing activities are predominately affected by the operations of two banks which lend exclusively to non-resident households.

Non-interest expenses increased further, largely reflecting higher operating costs. These represent 6.2% of their total assets, much higher than the 1.7% and 1.5% for core and non-core domestic banks, respectively. In terms of cost efficiency, the cost-to-income ratio remained relatively stable, hovering around the 60% mark which still compares well with the EU average of 65%.¹⁷

2.3.2.2 Asset Quality

The loan portfolio

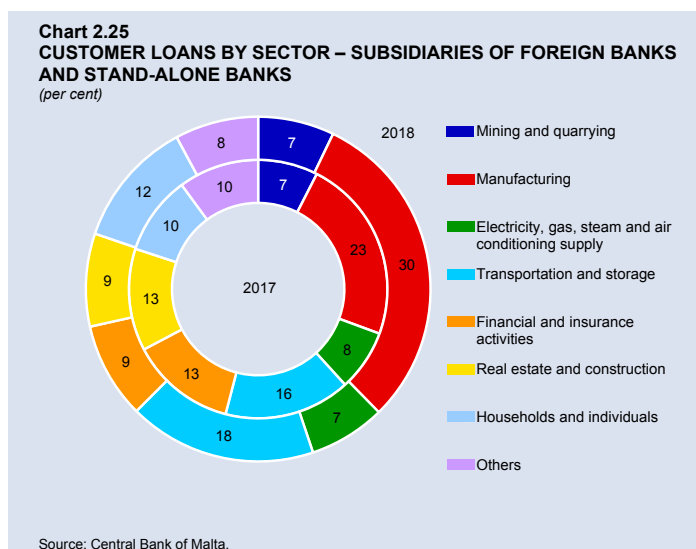
During 2018, loans including deposits on the assets side contracted by 2.2% on the back of lower customer loans as well as lower interbank lending to unrelated credit institutions. Nevertheless, the business model of this group of banks remained focused on non-resident retail activity, with non-resident customer loans representing almost 56% of their balance sheet. The structure of the customer loan portfolio changed somewhat in 2018, with the share of exposures towards the manufacturing sector increasing to almost a third of total loans. Lending to households and corporates in the transportation and storage sector also gained ground



¹⁷ Source: European Banking Authority. Risk dashboard data as at Q4 2018.

whilst exposures towards the financial and insurance sector, and the real estate and construction sector declined (see Chart 2.25).

In terms of a geographical breakdown, the majority of the customer loan portfolio is concentrated in EU countries including France, Norway, Bulgaria, Greece, Romania and Spain amongst others, as well as in Turkey. Penetration in the domestic retail market remained negligible, with resident customer loans accounting for a mere 0.2% of total customer loans in the banking sector.

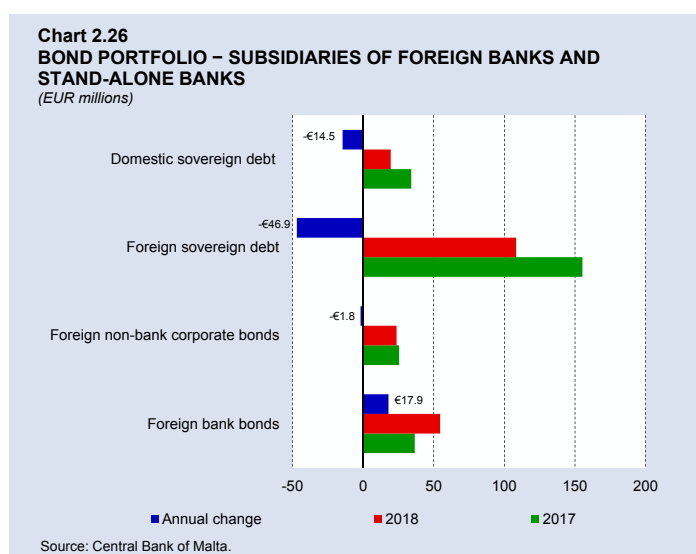


During 2018, the asset quality of the loan portfolio remained stable, with NPL ratio standing at 4.7%. Around 57% of these NPLs are related to micro-lending business with the rest concentrated in the transport and storage, manufacturing, and the accommodation and food service activities sectors. Around 78% of NPLs are covered by provisions, and when considering also total extendable collateral, NPLs are fully covered, mitigating somewhat credit risk.

The securities portfolio

The contraction in the balance sheet of these banks was also reflected in their securities portfolio, with a drop of around 10% of their securities holdings. This reduction was in bond holdings which contracted by 18%, as equity holdings increased by almost 50%. The equity portfolio is mainly held by one bank, which increased its holdings of German corporates. In aggregate, the equity portfolio represented almost a fifth of these banks' investment portfolio.

Meanwhile, the contraction in the bond portfolio was driven by lower sovereign securities as holdings of credit institutions increased (see Chart 2.26). Holdings of MGS almost halved to represent just 9.5% of the bond portfolio. Meanwhile, despite declining by almost a third, sovereign bond holdings – mostly issued by the US Treasury, European and Canadian governments – accounted for around half of their bond portfolio. Conversely, bonds issued by credit institutions located mainly in Europe and to a lesser extent in the US, increased by almost half to account for 11.5% of their securities portfolio. The overall quality of the bond portfolio is high with around 80% of bond holdings carrying a medium or high credit rating. Indeed, non-performing securities accounted for just 1.0% of the total securities portfolio of these banks, bringing the non-performing exposures ratio to 4.6%.



2.3.2.3 Funding and Liquidity

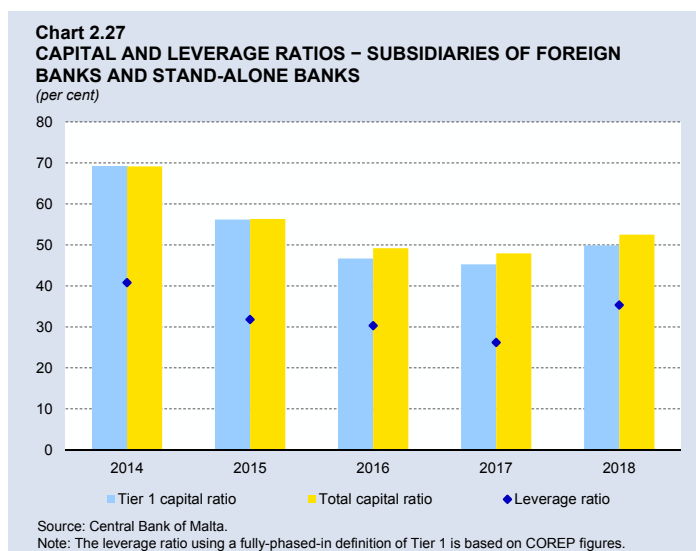
Although these banks adopted diverse funding strategies to finance their business activities, retail funding remained the most preferable source of financing, representing around a third of total balance sheet value. Customer deposits mainly originated from non-resident corporates operating in the finance and insurance sector, as well as from households. Meanwhile, resident customer deposits are mainly derived from the finance and insurance, and professional, scientific and technical activities sectors, albeit remaining small at just 1.5% of total customer deposits in the banking sector.

These banks also resorted to wholesale funding to finance their operations, accounting for around a fifth of their liabilities. Parent funding remained the most popular form of wholesale funding, suggesting the strong ties with their respective parent banks. Meanwhile, deposits from unrelated credit institutions remained negligible as it is often more expensive to acquire funding from these institutions rather than from their parent bank.

The liquidity position of these banks remained strong, on the back of high liquidity buffers and low liquidity outflows. As a result, the LCR stood at almost 400%, well-above the minimum requirement. Such ample liquidity is also evidenced by the extent of their placements with the Central Bank of Malta, the majority of which are overnight deposits.

2.3.2.4 Capital and Leverage

These banks' total capital and Tier 1 capital ratio are at a high of 52.5% and 49.9%, respectively (see Chart 2.27). Indeed, this capital base supported the total risk exposures which accounted for around 80% of total assets. The leverage ratio, which is a non-risk based measure of solvency, increased further to reach 35.3% as at end 2018.



3. STRESS TESTS

In 2018 and early 2019, the Bank's stress testing toolkit was enhanced, in part, to also reflect the recommendations put forward by the IMF during Malta's Financial Sector Assessment Programme (FSAP).

Macro Stress Testing Framework

- The market risk module quantified the losses that would potentially be incurred following changes in interest rates under both the baseline and adverse scenarios, with equity prices assumed to drop by 24% in the latter scenario.
- The net interest income module assessed the positive shift in the yield curve which immediately translated into higher earnings on banks' loan portfolios, but higher payments on sight and term deposits.
- Core and non-core domestic banks experienced losses from operational risk. They also incurred losses due to higher loan impairments and losses on their securities portfolios, following a three-notch downgrade and widening of credit spreads.
- At the aggregate level, the yearly profits of both the core and non-core domestic banks would not be sufficient under the adverse scenario and banks would need to use their capital buffers to offset the losses that would be incurred.
- Despite the severe stress of the adverse scenario, both core and non-core domestic banks remained above the minimum Tier 1 capital requirement of 6%, although non-core domestic banks would face a higher impact than core domestic banks. Losses were mainly driven by loan loss provisions, increases in risk-weighted assets and valuation losses. Whilst, on aggregate, results show broad resilience, weaknesses were observed for a few small banks.

Liquidity Stress Testing Framework

- All three banking groups – core and non-core domestic banks, and international banks – would survive with ample liquidity during four weeks of persistent deposit withdrawals.
- The Liquidity Coverage Ratio under an extreme set of conditions remained comfortably above the minimum requirement of 100%, reaffirming the conclusion that banks are still operating with ample liquidity – although some small banks showed signs of vulnerability.

Interest Rate Risk in the Banking Book

- This sensitivity test captured risks posed by adverse movements in interest rates on the banks' income and capital positions. Six different hypothetical interest rate shocks were assumed to capture changes in the level and shape of the yield curve. The major positive impact on income and capital stemmed from the "short rate up" scenario for core domestic and international banks and the "parallel shift up" scenario for non-core domestic banks. All banks are affected negatively by the scenarios assuming a fall in interest rates with the "short rate down" scenario having the highest impact. Capital positions would still exceed the regulatory requirements.

Other Sensitivity Analyses

Credit quality deterioration in the securities portfolio

- Banks were still in a comfortable position to absorb potential losses under a severe scenario of a three-notch downgrade and widening of credit spreads on non-marketable and marketable debt securities, respectively.

House price correction test

- Following an exogenous shock to house prices under both the baseline and adverse scenarios, on aggregate, core domestic banks' Tier 1 capital ratios would comfortably exceed the regulatory minimum.

In conclusion, despite severe shocks, stress test results showed that overall capital and liquidity positions of banks would remain sound and within the regulatory requirements.

The Central Bank of Malta conducts regular stress tests and scenario analyses to assess the resilience of the domestic financial system to extreme – yet plausible – shocks under different hypothetical adverse scenarios. This chapter presents the results of four top-down exercises which assess the individual banks' solvency and liquidity positions. The four exercises include a macro stress test which links macro-financial variables with the banks' financial position. The latter is complemented by sensitivity analyses to assess banks' resilience to a single risk factor. The tests are run regularly to identify any areas of potential vulnerabilities that would require remedial action.

In 2018 and early 2019, the Bank's stress testing toolkit was enhanced in various ways, including the development of additional sensitivity analyses to test both solvency and liquidity positions of banks, as well as improvements in credit risk modelling. The enhancements also reflect the recommendations put forward by the IMF during the 2018 MT FSAP. In this regard, a new framework was developed to assess liquidity risk from the Liquidity Coverage Ratio (LCR) perspective. This new framework complements the current test for liquidity risk under a persistent deposit withdrawal scenario. In addition the Bank's toolkit was refined with regards to the way in which the macro scenario is calibrated in the Macro Stress Testing (MST) framework, as well as in the quantification of macro-financial linkages. Further details on the changes in the methodology of the MST framework and the introduction of the new LCR framework are provided in the subsequent sections of this chapter, as well as in Boxes 3 and 4, respectively.

The rest of the chapter is subdivided as follows: Section 3.1 introduces the refinements to the MST framework followed by additional sensitivity analyses relating to the credit quality deterioration in the securities portfolios of banks and house price correction stress test. Section 3.2 details the liquidity stress testing framework and results under a persistent-deposits-withdrawal type of scenario, followed by the new LCR framework. Section 3.3 highlights the updates to the interest rate risk in the banking book (IRRBB) framework followed by the results under the different scenarios.

3.1 Macro Stress Testing Framework

The domestic financial system is exposed to risks emerging from both the domestic economy and the international environment. In light of this, the top-down MST framework seeks to assess the impact of changes in the macroeconomic and financial environment on banks' balance sheets under a baseline and an adverse scenario.

Whilst a first version of the framework was presented in the *Financial Stability Report* 2015, the current version draws from the methodologies developed for recent EBA EU-wide stress testing exercises and the top-down model adopted by the IMF during their 2018 MT FSAP.¹ The framework features refinements in different risk modules and improvements in the methodology for scenario design.² In addition to core domestic banks, the sample was expanded to also capture non-core domestic banks given their potential links with the domestic economy, although such links are currently quite limited.

The framework considers two scenarios: a baseline and an adverse. The baseline scenario is defined on the basis of the Economic Projections published by the Central Bank of Malta, whilst the adverse scenario is designed to capture potential systemic risks to the domestic economy as presented in Chapter 1.³ The scenario was designed using the Bank's structural macro-econometric model for the Maltese economy (STREAM) so that the main domestic macroeconomic variables – including GDP, unemployment and real house prices amongst others – could be determined consistently following a set of exogenously calibrated shocks. Further details on the scenario calibration are provided in Box 3.

The framework is based on a three-year time horizon and assumes a static balance sheet, which means that assets and liabilities maturing within the stress test horizon are replaced with similar financial instruments in

¹ <https://www.imf.org/~media/Files/Publications/CR/2019/1MLTEA2019003.ashx>

² See Box 3 in *Financial Stability Report* 2015 <https://www.centralbankmalta.org/file.aspx?f=31445>.

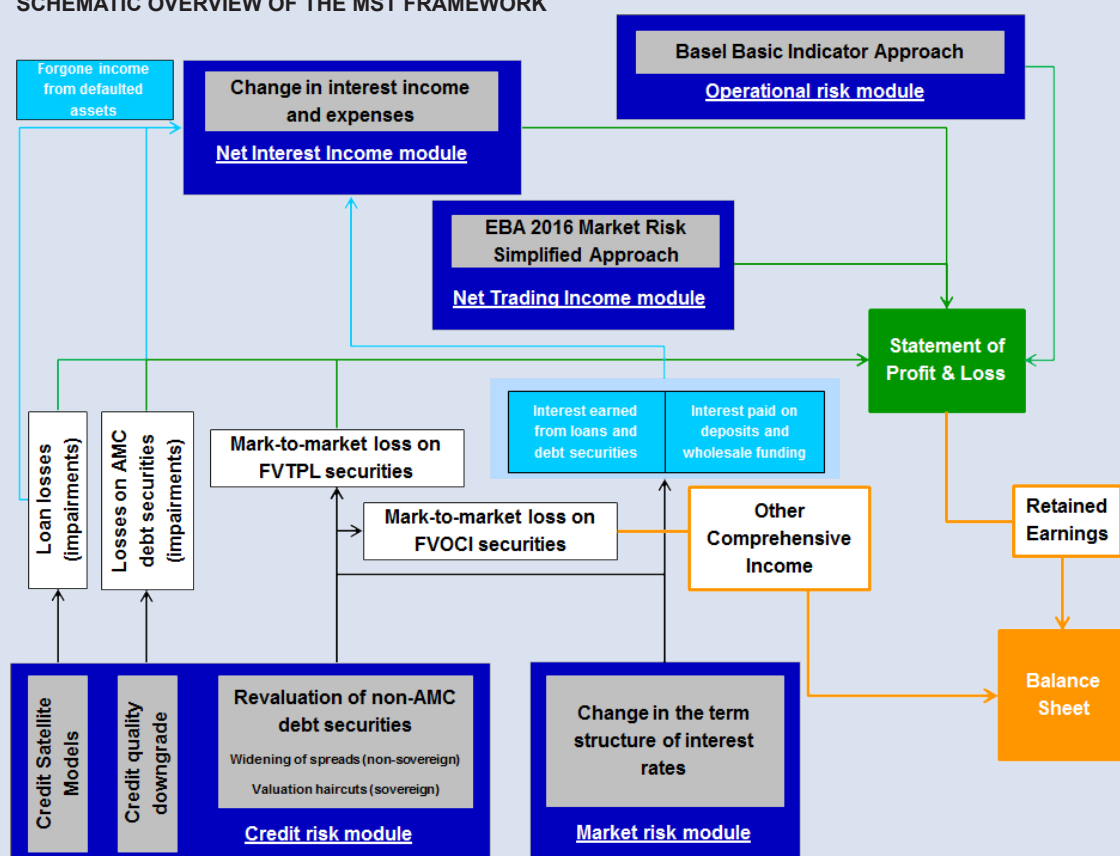
³ The baseline scenario is based on the [Economic Projections 2019:1](#) complemented with the ECB's Staff macroeconomic projections at the same cut-off date, when needed.

terms of type, credit quality, and date of maturity as at the start of the exercise.⁴ By so doing, the structure of the balance sheet remains similar as at the reference date. This assumption follows that adopted by the EBA in all of its EU-wide stress testing exercises and it allows for ease of comparison across the results of banks within the sample. As a result of the static balance sheet assumption, non-interest income and expenses, such as net fee and commission income, administrative expenses and staff wages, are assumed to remain constant under both the baseline and adverse scenarios.

Furthermore, prior to conversion to retained earnings, end of year pre-tax profits are subject to the official corporate tax rate of 35% and a homogenous dividend pay-out ratio of 30%. By way of assumption, no deferred tax assets (DTAs) can be created during the test horizon. Moreover, in line with the ECB's recommendation on dividend distribution policies and the MFSA's circular on the distribution of dividends, no dividends are assumed to be distributed when banks breach the overall capital requirement (OCR).^{5, 6}

The framework is based on a number of modules which test for credit risk, market risk, net interest income (cost of funding), net trading income and operational risk. The framework is flexible in a way that specific modules can be run on a stand-alone basis, additional modules can be incorporated, and the magnitude of shocks can be easily modified to suit the two scenarios being tested.⁷ Figure 3.1 presents a schematic overview of the effects of the scenario on banks' statement of profit and loss (P&L).

Figure 3.1
SCHEMATIC OVERVIEW OF THE MST FRAMEWORK



Source: Central Bank of Malta.

⁴ Differently from the original MST framework, the stress testing exercise now considers a three-year stress test horizon rather than two.

⁵ https://www.bankingsupervision.europa.eu/ecb/legal/pdf/en_ecb_2019_f_sign_.pdf

⁶ https://www.mfsa.com.mt/wp-content/uploads/2019/01/16_1739236274_20181127Circularondividenddistribution.pdf

⁷ In particular the results of the credit quality deterioration stress test presented in previous *Financial Stability Reports*, were based on the credit risk in the securities portfolio module run in isolation.

Credit Risk Module

This module aims to quantify and assess credit risk arising from both the loans and securities portfolios, albeit a different approach is used for the two asset classes.

Credit risk in the loan book is quantified via panel regression projecting the NPL ratio at the bank level for NFCs and mortgages. Since all domestic banks follow the Standardised Approach (SA) for calculating capital requirements, historical time series of the probability of default (PD) and loss given default (LGD) are not readily available. In the absence of PDs, the NPL ratio at bank level was transformed via a logistic transformation and projected as a function of a set of macroeconomic variables using fixed effects panel regression techniques, both under the baseline and adverse scenarios – separately for NFCs and mortgages.⁸ The LGD is quantified as the residual of the recovery rate, which is calculated as the ratio of the estimated recoverable value from collateral to the loan value. This recoverable value, or extendable collateral, is the amount of collateral to which the bank has right of recourse after taking into account any repayments and prudential haircuts that banks apply in their reporting. Under both the baseline and adverse scenarios, the LGD reflects the valuation of property-related collateral in line with the respective projections or shocks to real house prices. Loan loss provisions are then calculated on the basis of the expected loss approach as the product of the projected new NPLs with the corresponding LGD.

On the other hand, credit risk in the securities portfolio is quantified on the basis of the accounting treatment (i.e. whether at amortised cost or marked-to-market) and the sector of exposure. Sovereign and non-sovereign securities that are accounted for at amortised cost (AMC) are shocked under the adverse scenario on the basis of the PD corresponding to a three-notch downgrade in their credit rating grade. The credit rating is based on the second best rating issued at the reference date by the three main External Credit Assessment Institutions (ECAIs), namely Fitch Ratings, Moody's, and Standard & Poor's. Moreover, when quantifying expected losses – and thus the extent of provisions for the securities portfolio – an LGD of 35% is assumed for covered bonds and 40% for all other securities. In addition, if the amortised cost is below par, the booked difference may be released to absorb expected losses. Conversely, additional provisions would be required if the amortised cost is above the security's nominal value, as the book value would reflect unrealised gains.

Credit risk of sovereign securities that are marked-to-market (non-AMC) is quantified by applying valuation haircuts sourced from the EBA's EU-wide stress testing exercises, whilst credit risk for non-sovereign marked-to-market securities is quantified via the widening of credit spreads measured on the basis of the iTraxx European Senior Financial Index. The higher credit spread defined in the adverse scenario would affect the yield at which the marked-to-market securities would reprice. Whilst fair value changes on securities accounted for at Fair Value through Profit and Loss (FVTPL) are recognised in the P&L and thus are subject to taxation, gains and losses on Fair Value through Other Comprehensive Income (FVOCI) are reflected directly in the balance sheet.

Credit risk in the loans and securities portfolios impacts the banks' P&L via the increase in the level of provisions commensurate with the heightened level of risk. The level of provisions is quantified on the basis of the unsecured portion of the loans. The increased level of provisions adversely impacts the P&L and ultimately capital through lower retained earnings transferred to the balance sheet.

Market Risk Module

This module quantifies the losses that would potentially be incurred following changes in interest rates. Under the baseline scenario interest rates are assumed to remain broadly at the current level, whilst under the adverse scenario the profile of the yield curve changes as a result of the assumed increases in both the short-term (overnight) and long-term (10-year) interest rates.

Changes to the term structure of interest rates would have a twofold impact. Financial instruments booked at fair value would experience valuation gains or losses owing to the inverse relationship between prices and

⁸ See Box 3 for further details on the econometric specifications.

yields. At the same time, NII might mitigate the former effect when changes in coupons earned on floating rate notes are taken into account. Moreover, given the static balance sheet assumption, securities which mature during the time-horizon are rolled over at the new prevailing interest rate. In this regard, changes to the term structure of the yield curve are assumed to influence the P&L via gains or losses on marketable instruments and changes to NII, whilst the balance sheet would be influenced through valuation gains or losses on securities that are designated as FVOCI. Equity prices would drop by 24% as determined in the adverse scenario.

Net Interest Income Module

The NII module affects interest-bearing assets and liabilities by the shock to interest rates. Assets consist of variable rate loans and debt securities, whilst liabilities consist of deposits, particularly those with an unspecified maturity (current or savings) or a contractual term to maturity of less than three years, being the assumed stress test horizon. Also, in line with the static balance sheet assumption, all of the maturing interest-bearing assets and liabilities are replaced with similar instruments, at the new prevailing rates. Other instruments which affect NII include the debt securities that are issued by the banks themselves which mature within the stress test horizon. Of note is that debt issuance is not the main source of funding for the banks within scope.

Under the adverse scenario, the positive shift in the yield curve immediately translates into higher earnings on banks' loan portfolios given that the vast majority of loans have a variable interest rate and are thus repriced immediately. On the other hand, banks would have to pay out higher contributions on sight deposits and term deposits which are bound to mature within the stress test horizon as these are rolled over at higher rates.

The assumed shift in the yield curve is only in part translated onto the banks' interest income and expenses through the application of the respective pass-through rates which are sourced from Micallef, Rapa, and Gauci (2016).⁹ These rates are estimated asymmetrically to reflect different responses by banks depending on whether interest rates have increased or decreased. Banks tend to react faster to increases in interest rates and thus the pass-through rates are lower in instances when the interest rate drops when compared to pass-through rates for increases in interest rates. As mentioned in Section 3.3, banks would benefit from positive shifts in the yield curve given that loans re-price immediately and are subject to higher pass through rates, whilst deposit rates tend to react at a slower pace. Moreover, the majority of deposits have an open-ended maturity or mature within the year and attract close to zero interest rates, resulting in slight changes in interest expenses for banks.

Net Trading Income Module

The net trading income (NTI) module quantifies market risk on securities accounted for at FVTPL, which include derivatives and economic hedges. The historical variation of NTI obtained from these positions is used as a proxy for the banks' sensitivities to adverse market conditions. The module is based on the simplified approach of the market risk methodology adopted in the 2016 EBA EU-wide Stress Test.¹⁰ The estimated changes in NTI, i.e. the shocked income streams of the relevant instruments, are included in the P&L account.

Operational Risk Module

This module quantifies operational risk in the three-year stress test horizon on the basis of the Basel Basic Indicator Approach (BIA) applicable to all banks within scope. As per Article 315 (1) of [Capital Requirements Regulation](#), the BIA calculates own funds requirement for operational risk as 15% of the average over three years of the relevant indicator (RI). The RI takes into account a number of P&L items, the sum of which is equivalent to the net profit before tax figure. As per EBA 2018 stress test methodology, this module calculates losses arising from operational risk as equal to 6% of the RI under the baseline scenario and 15% under the adverse scenario.

⁹ Micallef, Rapa and Gauci (2016), "The Role of Asymmetries and Banking Sector Indicators in the Interest Rate Pass-Through in Malta", Journal in Advanced Studies in Finance. Available at <https://journals.aserspublishing.eu/jasf/article/view/494>

¹⁰ Refer to section 3.6 of the 2016 EBA EU-wide stress test methodology available at <https://eba.europa.eu/documents/10180/1259315/2016+EU-wide+stress+test-Methodological+note.pdf>

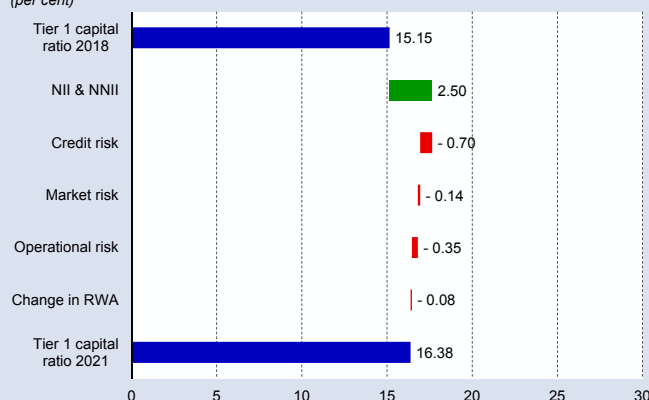
This module also takes into consideration pending court cases which are likely to materially raise the quantification of conduct risk. In line with the EBA's methodology, when projecting material conduct risk events, consideration is to be given to the time dimension of the event, and in case this is unknown, projected loss due to potential conduct risk is to be equally distributed over the stress test horizon. In this regard, material conduct risk is estimated on the basis of this approach.

Results

Charts 3.1 and 3.2 present the contributors of retained earnings and other comprehensive income (OCI), with the latter arising from revaluation of securities accounted for at FVOCI which are captured under market risk, for both core and non-core domestic banks under the baseline scenario. Under this scenario, the Tier 1 capital ratio increases to 16.38% and 17.38% for the core and non-core domestic banks, respectively by the end of 2021. The level of Tier 1 capital increases via the accumulation of retained earnings whilst risk weighted assets increase marginally. The latter is due to the minor increase in NPLs (which attract higher risk weights), whilst, in line with the static balance sheet assumption, the RWAs are floored as at the reference date. Although the level of NII does not change significantly when compared to the reference date, the NII is the main driver of the increase in capital as it more than offsets the losses experienced, reflecting the banks' balance sheet structure. In the case of non-core domestic banks, net non-interest income (NNII) also contributed positively to profitability as these banks overall have higher net fee and commission income compared to administrative and other expenses. NNII is assumed to remain constant at the level observed at the end of 2018 as a result of the constant balance sheet assumption. The opposite is true for the core domestic banks as net fee and commission income is a minor contributor to NNII since administrative and other expenses are higher than those of the non-core domestic banks mainly due to their size and business operations, for reasons such as having a relatively higher staff head count and operating through a larger number of branches.

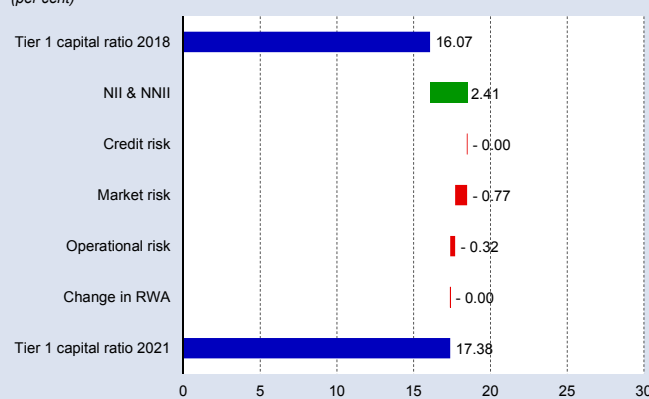
Under the adverse scenario, both banking groups' income statements would be in the red and banks would need to release capital to offset the losses that would be incurred. Given that net profits would be negative, dividends are assumed not to be distributed. The Tier 1 capital ratio for core domestic banks falls by 413 basis points to 11.02% with NII offsetting most of the losses. The increase in NII stems from the projected increase in interest rates under the adverse scenario which translates into income generated from interest-bearing assets that

Chart 3.1
STRESS TEST RESULTS – MACRO STRESS TEST BASELINE
SCENARIO – RELATIVE CONTRIBUTION OF THE IMPACT ON
CORE DOMESTIC BANKS' TIER 1 CAPITAL RATIO
(per cent)



Source: Central Bank of Malta calculations.

Chart 3.2
STRESS TEST RESULTS – MACRO STRESS TEST BASELINE
SCENARIO – RELATIVE CONTRIBUTION OF THE IMPACT ON
NON-CORE DOMESTIC BANKS' TIER 1 CAPITAL RATIO
(per cent)



Source: Central Bank of Malta calculations.

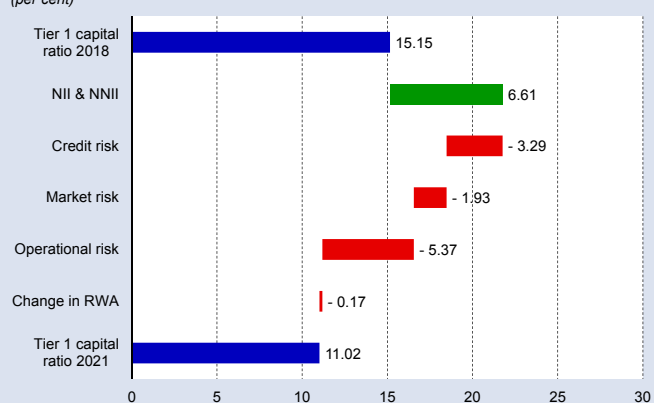
outweighs the interest paid on liabilities. Conversely, the increase in interest rates would also result in unrealised losses on fair-value instruments due to the inverse relationship between prices and yields. Core domestic banks also experienced losses from operational risk, credit losses due to higher loan impairments as well as losses on their securities portfolio following a three-notch downgrade of AMC debt securities and the widening of credit spreads of non-AMC debt securities (see Chart 3.3).

For non-core domestic banks, the Tier 1 capital ratio falls by 782 basis points to 8.25%. The stress in this case mainly originates from market risk with high unrealised losses on equities (24% haircut) given that these make up a higher share of their securities portfolios when compared to the core domestic banks' securities portfolio. The impact due to market risk is also negatively influenced by banks registering lower trading income under the adverse scenario, whilst a relatively smaller contribution to the overall losses for the non-core domestic banks arises from unrealised losses on fair-value debt securities. The contribution of NII to the overall losses is also rather low compared to that of the core domestic banks. This is due to the larger volume of interest-bearing liabilities relative to interest-bearing assets. Consequently, credit risk is also a negligible contributor to the overall losses experienced reflecting the non-core domestic banks' business model in which the role of intermediation is limited (see Chart 3.4).

Despite the severe stress assumed under the adverse scenario, both banking groups remained above the minimum Tier 1 capital requirement of 6%. However, the impact on non-core domestic banks on the basis of the contemplated scenario and applicable assumptions is much higher compared to core domestic banks. Although on aggregate results show broad resilience, weaknesses are observed for a few small banks.

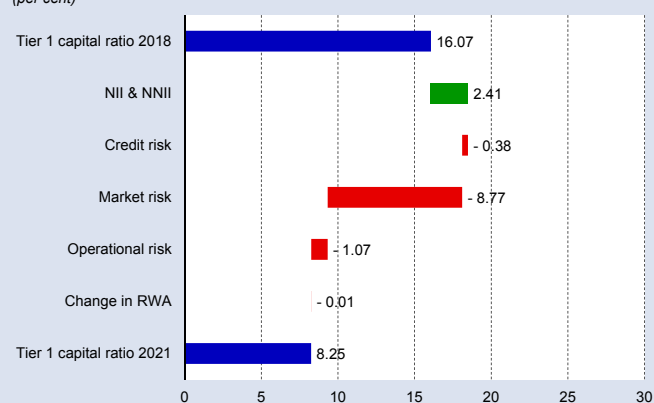
It is worth noting that the IMF top-down solvency test was based on a different set of triggers defining the adverse scenario (albeit comparable in terms of severity), a different reference date (December 2017), an assumption of credit growth allowing the balance sheet size to increase over the test horizon and a different sample (six core banks, two non-core banks and three international banks). Furthermore, unlike the MST, the IMF 2018 MT FSAP solvency test does not take into account material conduct risk. Nonetheless, the results of the MST framework compare well with the results of the IMF's solvency test, where the latter shows that aggregate capital ratios remained comfortably within the Basel III requirements, with losses being driven mainly by loan loss provisions, increase in RWAs (due to the assumption of balance sheet expansion) and valuation losses.

Chart 3.3
STRESS TEST RESULTS – MACRO STRESS TEST ADVERSE SCENARIO – RELATIVE CONTRIBUTION OF THE IMPACT ON CORE DOMESTIC BANKS' TIER 1 CAPITAL RATIO
(per cent)



Source: Central Bank of Malta calculations.

Chart 3.4
STRESS TEST RESULTS – MACRO STRESS TEST ADVERSE SCENARIO – RELATIVE CONTRIBUTION OF THE IMPACT ON NON-CORE DOMESTIC BANKS' TIER 1 CAPITAL RATIO
(per cent)



Source: Central Bank of Malta calculations.

BOX 3: THE CENTRAL BANK OF MALTA'S MACRO STRESS TESTING FRAMEWORK¹

This box presents details of the improvements carried out to the Central Bank of Malta's macro stress testing framework (MST), focusing particularly on the macroeconomic scenario designed specifically for this exercise and revisions to the credit risk module. See Section 3.1.

The macroeconomic scenario draws on the risk assessment presented in Chapter 1. Two scenarios are considered: a baseline based on the Central Bank of Malta's Economic Projections and an adverse scenario designed via the Bank's structural macro-econometric model (STREAM).² Relevant exogenous shocks are calibrated following a statistical approach and a consistent scenario is generated by means of STREAM.

The revision of the MST framework also concerned the quantification of credit risk, particularly the projections of the non-performing loan (NPL) ratio for mortgages and loans to NFCs under the baseline and the adverse scenarios. Similar to the IMF's models utilised during the 2018 MT FSAP, the credit risk satellite panel models are developed in a manner to capture the developments in NPL ratios in relation to the main macroeconomic and financial variables under both the baseline and adverse scenario. Further details on the approach followed are presented in the second sub-section of this Box.

Scenario narrative and calibration

According to the overarching principle of stress testing, a scenario *"should be designed to capture material and relevant risks identified in the risk identification process and key variables should be internally consistent"* and *"a narrative should articulate how the scenario captures the risks"*. Moreover, so that the stress test represents *"a meaningful test of banks' resilience"*, the designed scenarios *"should be sufficiently severe but plausible"*.³

These principles are embedded in the baseline and adverse scenarios designed to assess core and non-core domestic banks' resilience over a three-year period. The baseline scenario is based on the Central Bank of Malta's Economic Projections, whilst the adverse scenario was designed to capture the systemic risks identified and assessed for the domestic economy as presented in Chapter 1 complemented by the risk drivers identified for the euro area systemic institutions.⁴ Particularly, the narrative of the adverse scenario reflects the risk drivers potentially affecting the Maltese economy, namely a growing risk from the external environment stemming from geopolitical uncertainty and concerns about rising protectionism posing downside risk to the domestic economy and triggering repricing in global financial markets in a low interest rate environment.⁵

In the adverse scenario, the domestic economy will experience a severe downturn originating from an external demand shock due to weak economic growth in some trading partners that will affect Malta's export performance and, in turn, domestic GDP. Moreover, uncertainty linked to geopolitical tensions triggers global markets repricing of risk premia spurred by market participants' expectations and the

¹ Prepared by Dr Alessandra Donini, Senior Economist within the Stress Testing and Risk Models Office of the Central Bank of Malta. The author would like to thank Noel Rapa for valuable comments and suggestions.

² For further methodological details on the Bank's macroeconometric model, see O. Grech and N. Rapa (2016), *"STREAM: A Structural Macro-Econometric Model of the Maltese Economy – Version 3.0"*, Central Bank of Malta WP/01/2016.

³ Basel Committee on Banking Supervision, *"Stress testing principles"*, October 2018, available at <https://www.bis.org/bcbs/publ/d450.pdf>

⁴ *"ECB Banking Supervision: Risk Assessment for 2019"*, available at <https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ra/ssm.ra2019.en.pdf>

⁵ Including cybercrime and IT disruptions in the adverse scenario proved to be challenging given that it is difficult to quantify these risks at the current juncture. However, given the recent events affecting domestic banks, and thus the relevance of assessing such risk, the materialisation of this risk, although not included in the scenario, was taken into consideration when quantifying banks' provisions for operational risk.

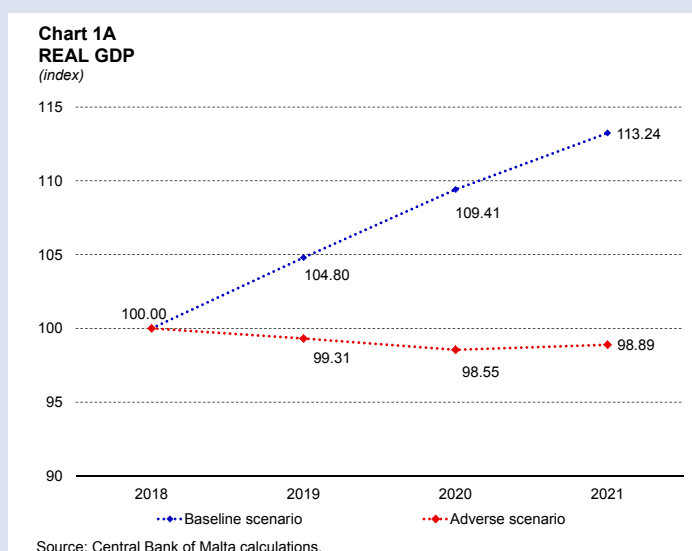
ensuing interest rate hike in major economies. Such events lead to a worsening in financial market conditions resulting in asset prices falling and steepening of the yield curve which in turn affect bond market valuations.

On the one hand, as Malta is a small open economy in a monetary union, a significant drop in external demand would lead to a slowdown in the domestic economy via lower exports. This, in turn, would drive up unemployment with adverse implications on wages and incomes, hence affecting private consumption. Subdued economic activity will also be reflected in a drop in government consumption due to a reduction in public compensation per employees and public consumption, which would dampen investment and consequently, contract GDP further. Moreover, the slowdown of the economy would put downward pressure on property prices, further exacerbated by the existing misalignment from their fundamental values. Owing to the high rate of home ownership, the drop in house prices will affect households' wealth leading to a further fall in private consumption.

On the other hand, the increased risk premia would negatively affect households' and NFCs' creditworthiness, which in turn, would cause an increase in banks' NPLs coupled with forgone interest income. Domestic banks would then face an increase in credit risk arising from borrowers' credit losses which would prompt banks to decrease the volume of loans to the private sector, both directly via credit rationing, as well as indirectly through an increase in lending rates. At the same time, banks would also suffer market losses owing to lower yields on their holdings of debt securities and falling equity prices. Moreover, falling asset prices would affect households' financial wealth, further worsening their ability to repay and constrain their consumption, whilst higher corporate bond yields would increase credit risk of NFCs and affect investment expenditure negatively. All this would lead to higher banks' funding costs as conditions tighten in the market and, consequently, credit would be rationed further.

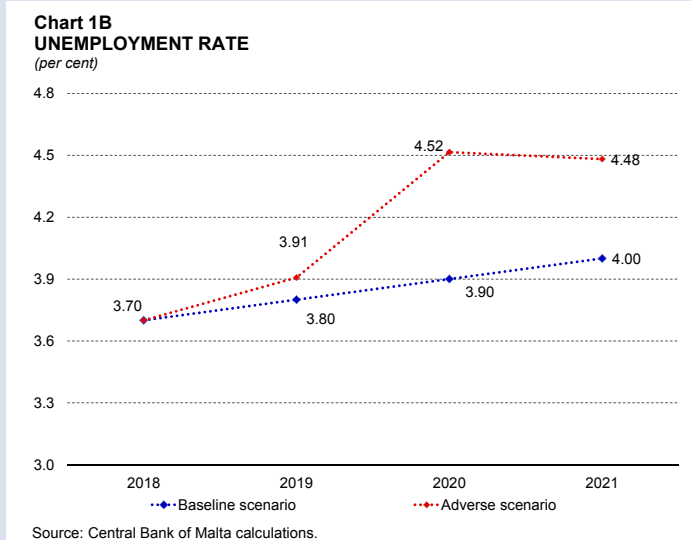
The baseline scenario is aligned with the Central Bank of Malta's Economic Projections for 2019-2021 integrated with the ECB's Staff Macroeconomic Projections for the euro area.⁶ These baseline projections foresee economic growth to remain strong, though at a slower pace, and unemployment is expected to rise slightly though still remaining low from a historical perspective.

Under the adverse scenario, permanent shocks to STREAM's exogenous macroeconomic factors relevant in the scenario narrative are calibrated statistically on the basis of their respective historical developments and serve as an input to the model to generate an internally consistent adverse scenario. Particularly, the geopolitical uncertainty described in the narrative of the adverse scenario is translated in terms of a world demand shock of -10% in year 1, -7% in year 2



⁶ For the purpose of this exercise, the baseline scenario is defined based on the Central Bank of Malta's Economic Projections published in [2019:1](#), integrated, where necessary, with ECB's Staff macroeconomic projections at the same cut-off date.

and -5% in year 3 of the scenario. The increase in the risk premia is calibrated taking into account STREAM's pass-through rates and translated in a permanent shock to the short term rate of +212bps, whilst equity prices are calibrated exogenously on the basis of the MSE stock market index with a drop of 24%, which affected directly households' financial wealth. The resulting adverse scenario featured a V-shape profile of real domestic GDP similar to the one experienced in 2009 during the financial crisis (see Chart 1A) and a slow reaction of the unemployment rate consistent with it being close to the non-accelerating inflation rate of unemployment (see Chart 1B).



Given the slow reaction of house prices to changes in macroeconomic and financial variables in the scenario, the magnitude of the shock to house prices is calibrated based on two components: a model-implied reaction driven by adverse demand factors and an exogenous component increasing the overall magnitude of the house price shock. The latter reflects the fact that in the first year of the scenario, property prices are brought to their equilibrium level by removing the mild sign of overvaluation as at the reference date. As a result, real estate prices would fall from their baseline level by around 9% in each year of the scenario.

Credit risk satellite models

Following the IMF 2018 MT FSAP, the credit risk module of the Central Bank of Malta's MST framework has been revised on the basis of newly-developed specifications for the projections of the NPL ratio for core and non-core domestic banks.⁷ Given that domestic banks follow the Standardised Approach, probability of default (PD) and loss given default (LGD) are not part of banks' regulatory reporting requirements. Instead, the NPL ratio is projected at bank level based on a set of macroeconomic and financial variables, both under the baseline and the adverse scenarios defined earlier. Moreover, considering that the NPL ratio at portfolio level would react to different macroeconomic and financial variables, credit risk is estimated separately for mortgages and loans to NFCs.⁸

In both cases, the estimation is based on quarterly bank-by-bank NPL ratios computed from FINREP reporting and back-casted on the basis of previous regulatory reporting, whilst the macroeconomic and financial variables are sourced from the National Statistics Office. The sample considered in the analysis spans from 2004Q3 till 2017Q4.

The NPL ratio is transformed using a logistic transformation to ensure that the projected NPL ratios at the bank level fall in the zero-to-one range for both mortgages and NFCs. This ensures that potential

⁷ Banks in the sample that have limited credit intermediation functions would be excluded for the purpose of credit risk determination.

⁸ The model being presented is developed for the projections of the NPL ratio (IFRS9 stage 3 loans) and it does not cater for transition to or from other stages. Extension of the module to consider transitions to other stages will be considered in the future.

non-linear relationships between the dependent variable (NPL ratio) and the independent variables (macroeconomic and financial variables) in the specifications are captured.

The NPL ratio is projected as a linear function of exogenous macroeconomic and financial variables using fixed effects panel regression for mortgages and loans to NFC as follows:

$$Y_{j,i,t} = \alpha_j + \beta_{j,i} + \gamma Y_{j,i,t-1} + \delta' X_{j,t} + \varepsilon_{i,j,t}$$

Where:

$Y_{j,i,t}$ refers to the logistic transformation of the NPL ratio of bank i , for the exposure class j at time t , with $j = \{\text{mortgages, NFCs}\}$;

$\beta_{j,i}$ indicates the fixed effect at bank level i in model specification j ;

$Y_{j,i,t-1}$ is the vector of lags of the dependent variables in model specification j , with γ being the vector of coefficients;

$X_{j,t}$ represents a vector of macroeconomic and financial variables in model specification j with δ' being the transposed vector of coefficients; and

$\varepsilon_{i,j,t}$ is a vector of independently and identically-distributed error terms in model specification j .

The panel is estimated via least squares method constraining the coefficient of the annual change in the unemployment rate in the mortgage specification to be in line with *a priori* expectations. To correct for individual-level cross-sectional correlation in the residuals both for mortgages and loans to NFCs, standard errors are clustered at bank level. Generally, the credit risk specifications suggest that the NPL ratios are sensitive to changes in their past values owing to the autoregressive component, the annual growth of real GDP, changes in real house prices and unemployment rate, amongst others.

Specifically, in the case of mortgages, NPLs could increase due to negative movements in households' income, adverse labour market dynamics as well as price pressures arising in the property markets. All these dynamics were considered when choosing the final specification for the mortgage NPL ratio projections, however, the income channel was not found to be statistically robust and it is not included in the final specification reported in Table 1.

The logistic transformation of the non-performing mortgage ratio is sensitive to changes in its first lag, the year-on-year growth of the transacted property price index, changes in the unemployment rate and bank-specific fixed effects capturing the different dynamics of the NPL ratio by bank related to bank-specific levels of legacy mortgage NPLs. Specifically, mortgage NPLs would depend on their

Table 1
CREDIT RISK SATELLITE FOR MORTGAGES

	Coefficient	Standard Error	P-value
Constant	-0.5130	0.1343	0.0002
L1 dependent variable	0.8315	0.0406	0.0000
L1 year-on-year growth of domestic house prices	-0.3986	0.2242	0.0766
L4 annual change in unemployment rate ⁽¹⁾	0.0704		
Durbin-Watson	2.11		
Adjusted R-squared	0.92		
Observations	260		

⁽¹⁾ Constrained coefficient. Note: the dependent variable (logistic transformation of the NPL ratio for mortgages) is regressed on its first lag, first lag of the year-on-year growth rate of the transacted property price index and fourth lag of the annual change of the unemployment rate considering bank-specific fixed effect. Reported standard errors are clustered at bank level.

lagged values, as well as the annual changes in the domestic real estate prices and bank-specific factors. In other words, in line with economic theory a borrower is more likely to experience difficulties in the repayment of a mortgage in the event of becoming unemployed or should property prices decrease though with a one-year lag.

In the case of non-performing loans of NFCs, banks are grouped according to their geographical risk exposures with reactions to different macroeconomic and financial variables. Based on this rationale, two models were developed for the projections of non-performing loans to NFCs: one considering banks providing lending to domestic NFCs and another for internationally-oriented banks.⁹ In both cases, the NPL ratio for NFCs *a priori* would be expected to display persistence and relate to macroeconomic variables which are either affecting domestic or foreign lending.

In the case of domestically-oriented banks, the ratio of non-performing loans to NFCs is sensitive to changes in domestic GDP, changes in real property prices as well as sovereign spreads, as reported in Table 2. As expected, the variability in the NPL ratio for NFCs is largely explained by the lagged changes in domestic GDP. Owing to a large fraction of NFC loans that are collateralised by real estate, dynamics of the domestic real estate market are also positively related with the dependent variable. On the contrary, an increase in the 10-year sovereign spread, which is used as a proxy for investors' risk premium, leads to higher NPLs for NFC.

In the case of internationally-oriented banks, the variability in the ratio of NFC NPLs would mostly be explained by changes in the euro area GDP due to the cyclical nature of the NFC lending by geographical exposure. A deterioration in interbank funding conditions will raise the cost of funding for banks which is passed on to NFCs in terms of higher interest rates. These higher costs will lead to an increase in the NPL ratio for NFCs for internationally-oriented banks, whilst annual changes in oil prices have a minor negative impact (see Table 3).

Once the models for mortgages and NFCs have been estimated, the NPL ratio is then projected over the stress test horizon (2019-2021) on the basis of the above-mentioned credit risk satellite models

Table 2
CREDIT RISK SATELLITE FOR NFC LOANS (DOMESTICALLY-ORIENTED BANKS)

	Coefficient	Standard Error	P-value
Constant	-0.1764	0.0830	0.0349
L1 dependent variable	0.6908	0.0688	0.0000
L2 dependent variable	0.1997	0.0676	0.0035
L5 domestic real GDP growth	-1.0613	0.3257	0.0013
L5 year-on-year growth of domestic house prices	-0.3532	0.1418	0.0135
L4 sovereign spread	0.0396	0.0191	0.0389
Durbin-Watson	2.03		
Adjusted R-squared	0.96		
Observations	206		

Note: The dependent variable (logistic transformation of the NFC NPL ratio) is regressed on its first two lags, fifth lag of real domestic GDP growth, fifth lag of the year-on-year growth rate of the transacted property price index and fourth lag of the sovereign spread (10-year MGS minus 10-year German Bund) considering bank-specific fixed effect. Reported standard errors are clustered at bank level.

⁹ Owing to short time series for the NPL ratio for NFC for some internationally-oriented banks, the model was estimated using a time series approach and applied to bank-specific starting points. The model could be replaced by a panel regression similar to the one for domestically-oriented banks should data become available.

Table 3
CREDIT RISK SATELLITE FOR NFC LOANS (INTERNATIONALLY-ORIENTED BANKS)

	Coefficient	Standard Error	P-value
Constant	-1.0121	0.2504	0.0002
L1 dependent variable	0.5410	0.1148	0.0000
L1 USD Libor	0.1162	0.0285	0.0002
L3 EA GDP growth	-4.6716	1.5838	0.0051
L1 oil price	-0.0031	0.0014	0.0374
Durbin-Watson	2.21		
Adjusted R-squared	0.84		
Observations	49		

Note: The dependent variable (logistic transformation of the NFC NPL ratio) is regressed on a constant, its first lag, third lag of real euro area GDP growth and first lag of year-on-year oil prices. Reported standard errors are robust.

using an inverse exponential function. Hence, for each bank in the sample, an NPL ratio for mortgages and NFCs is determined under the baseline and the adverse scenarios, which are described in this Box under “*Scenario narrative and calibration*”. Finally, the plausibility of these projections is assessed against the historical developments of the NPL ratio for each bank in the sample.

These projections form the basis for the quantification of credit risk in the loan book and together with the estimates of the LGD determine the loan loss provisions following an expected loss approach.

Additional Sensitivity Analyses: credit quality deterioration in the securities portfolio and house price correction

The following section presents the results of two additional tests on the banks’ solvency position under two distinct dimensions. Although both exercises were published in previous *Financial Stability Reports*, two main revisions were applied to the credit quality deterioration in the banks’ securities portfolio stress test. The first is that the magnitude of the widening of spreads has been aligned with the one used in the adverse scenario of the MST. The second is that the sample has been broadened to include international banks. The MST credit risk module for debt securities was run on the banks’ securities portfolio in isolation to produce results for this sensitivity test. Whilst the results from the MST framework are driven by the contemplated scenarios and take into consideration the impact of all the risk modules on the banks’ capital position, the credit quality deterioration test assesses the resilience of banks’ securities portfolio to a worsening in credit quality. In other words, the test zooms in on credit quality deterioration in the debt securities portfolio of banks captured in the MST framework.

The sensitivity test on house price correction remained unchanged relative to previous *Financial Stability Reports* with the same magnitude of shocks and sample of banks. However, the magnitude of the shock is different from that applied in the MST framework as the sensitivity analysis assumes an instantaneous and more severe shock to house prices and quantifies its impact on capital.

3.1.1 Credit Quality Deterioration

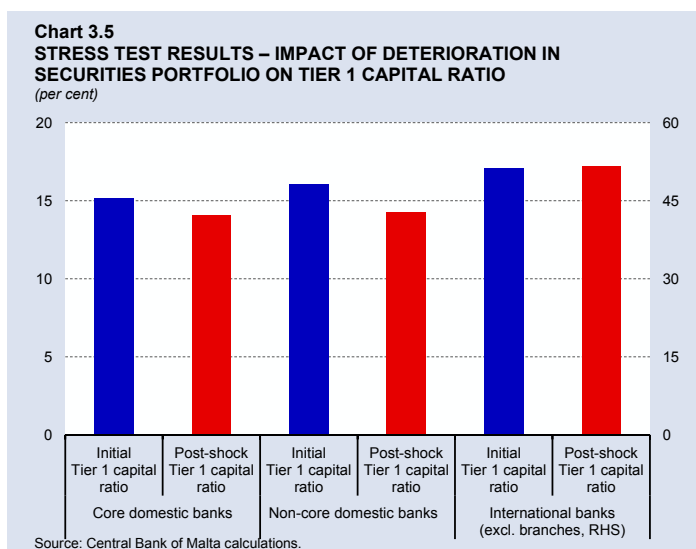
The debt securities portfolios of all banks operating in the domestic financial system were assessed against a potential deterioration in their credit quality. This test quantifies credit risk for debt securities held at amortised cost against a three-notch downgrade in their credit grade, whilst non-AMC non-sovereign debt securities are assessed by a similar magnitude of widening in credit spreads contemplated in the adverse scenario of the MST. Valuation haircuts on non-AMC sovereign debt securities are also applied.

The portfolios of all banks mainly consisted of investment grade securities. Indeed, 85% of core domestic banks' portfolio and around 80% of non-core domestic banks' securities portfolio was rated at A- or better as at December 2018.¹¹

Following the introduction of IFRS9 in January 2018, a shift was noticed in the accounting treatment of banks' securities portfolios, with the majority of securities still accounted for as AMC and FVOCI. Indeed, when compared to December 2017, a significant shift towards AMC securities was noticed for two core domestic banks. Whereas in

December 2017 their portfolio was completely accounted for as non-AMC, around 55% and 77% of their portfolio is now accounted for as AMC. Although AMC securities are not affected by market price movements, an assumed credit quality downgrade could affect their book value. In particular, when the book value is higher than the nominal value, these unrealised gains were netted from the resulting value of the instrument. Conversely, for those instances where the amortised cost is below the nominal value, the book value already takes into account that part of the losses which is assumed to materialise. In line with international practice, an LGD of 30-40% is assumed when quantifying the expected losses. Resulting losses are charged directly to capital whilst risk-weighted assets are assumed to remain constant.

The quantification of the aforementioned magnitude of shocks to AMC and non-AMC debt securities would result in a drop in the Tier 1 capital ratio of 0.93, 1.83 and 0.84 percentage points for core domestic, non-core domestic and international banks, respectively. Their Tier 1 capital ratios would drop to 14.23%, 14.24% and 48.81%, respectively. The materialisation of the assumed shocks would therefore leave domestic banks in a comfortable position to absorb potential losses when compared to the regulatory minimum Tier 1 capital ratio of 6% (See Chart 3.5).



3.1.2 House Price Correction

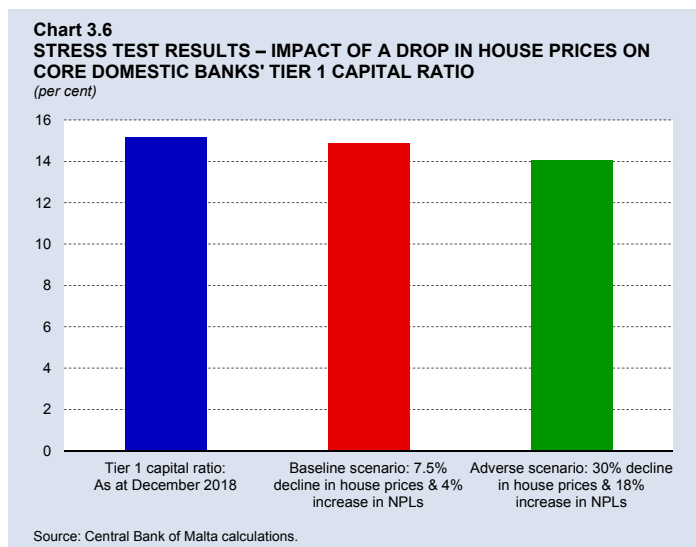
This sensitivity analysis tests for the impact of exogenous shocks to house prices on the core domestic banks' balance sheets over a one-year horizon. This test is run on the core domestic banks only – given that these banks are the main mortgage lenders. The drop in property prices is assumed to fully translate into lower property-related collateral values. Thus, non-real estate related loans are not directly hit by this shock. The impact corresponds to an increase in overall NPLs through the wealth effect channel whereby, the relationship between house prices and NPLs, for both households and NFCs is determined via STREAM. The magnitude of the assumed shocks to house prices is determined on the basis of the historical standard deviations of the house price index. Whilst the MST framework adopts shocks to house prices of a magnitude consistent with the macro-scenario, the sensitivity test considers two scenarios: an exogenous shock of 7.5% under a baseline scenario, approximately equivalent to one historical standard deviation, and a 30% drop in house prices under an adverse scenario, equivalent to around four historical standard deviations. Note that the shock to property prices is rather extreme given that it is applied to collateral values that are already discounted by haircuts that banks normally apply when approving loans.

¹¹ The rating grades are based on an internal index based on the second best credit rating of the three major rating agencies; namely Fitch, Moody's and Standard & Poor's.

The test considers that as collateral values decline, loan loss provisions would have to increase to satisfy the requirement of full coverage of NPLs. Furthermore, the additional NPLs would also lead to a further increase in loan loss provisions. Whilst the increase in provisions is charged to capital, on the basis of the uncollateralised part of the loan, the increase in NPLs affects risk-weighted assets owing to higher risk weights applicable to NPLs.

Results show that at the aggregate level, core domestic banks would comfortably withstand the severe shocks applied both under the baseline and adverse scenarios.

The core domestic banks' Tier 1 capital ratio would drop from 15.2% to 14.9% and 14.1% under the baseline and adverse scenarios, respectively (see Chart 3.6). The results are not directly comparable to those presented in the previous *Financial Stability Reports* owing to the introduction of IFRS9 which requires a more forward-looking approach in determining the way in which loan loss provisions are quantified.



3.2 Liquidity Stress Testing Framework

The following sub-sections present the stress test results on the banks' liquidity position.

3.2.1 Persistent Deposit Withdrawals

In addition to the core and non-core domestic banks, the coverage of the cash-flow based liquidity stress testing framework was broadened to also capture international banks (excluding foreign branches). Similar to the results published in previous *Financial Stability Reports*, the framework tests for a bank-run type scenario under extreme shocks to ensure that the counterbalancing capacity is sufficient to safeguard banks in times of stress. The counterbalancing capacity is defined as the quantity of funds at the disposal of a financial institution to meet liquidity requirements and includes *inter alia*: cash, the excess on the reserve deposit requirement and funds obtained following the sale of marketable assets.

The test assesses whether individual banks' liquidity buffers of the highest quality are sufficient to meet the assumed liquidity outflows arising from persistent deposit withdrawals. A survival period of five consecutive days and three additional weeks are assumed. Unlike the LCR-based stress test (included in the following section) which benchmarks the resulting LCR against the minimum regulatory requirement, the results under this framework are presented in terms of remaining excess liquidity. Under this test, a bank would fall short if the outflows on a specific day/week would exceed the available excess liquidity.

The framework sources data from prudential reporting templates and makes use of granular information on banks' bond holdings and market information, to assess individual banks' counterbalancing capacity.

The test consists of two scenarios. Under the first scenario, banks are allowed to obtain ECB funding only against securities that were pledged with the ECB as at the reference date – December 2018.¹² Under this scenario, banks would have to sell the remaining fair value securities at fire sale prices.

¹² Securities pledged with ECB are subject to a liquidity haircut as per the Guideline (EU) 2016/65 on the valuation haircuts applied in the implementation of the Eurosystem monetary policy framework (ECB/2015/35) <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02015O0035-20180416&from=EN>.

Banks that account for securities at AMC would purchase them not with the intention of making capital gains by selling them when prices increase, but to receive coupon payments and the final principal upon maturity. Whilst this accounting treatment insulates these financial instruments from market risk, banks would be at a disadvantage given that, by way of extreme assumption in the test, these securities cannot be used to obtain liquidity unless they are already pledged for monetary policy operations.

Under the second scenario, banks are allowed to pledge all eligible securities with the ECB and sell the remaining fair value securities at fire sale prices.¹³ The main difference between the two scenarios relates to the use of unpledged eligible securities. Given that the haircuts assumed for fire sale prices are higher than the valuation haircuts that would be applied by the ECB, the second scenario is more plausible and results in banks having a potentially higher counterbalancing capacity compared to the first scenario.¹⁴

Furthermore, under both scenarios it is assumed that intragroup funding and interbank funding would be suspended and withdrawn for the duration of the stress period.

As an addition to the framework, a third scenario is also tested under which banks are assumed to taint their AMC portfolio and convert all securities held at AMC to FVOCI to be able to sell these securities. This scenario would generate additional counterbalancing capacity for the few banks that hold AMC securities, boosting further the excess liquidity presented for all three groups of banks in scenario 2. As mentioned in Section 3.1.1 above, when compared to December 2017, shifts were noted in a few banks from holding marketable securities to those accounted for as AMC.

In terms of outflows, the magnitude of deposit withdrawals during the survival period differs by type of customer, as well as by term-to-maturity. These have been compared to the cumulative outflow rates applied in the Single Supervisory Mechanism (SSM) 2019 Liquidity Stress Test (LiST) over a 5-day period and a 4-week period and are more severe than the adverse scenario and closer to the magnitudes applied in the extreme scenario.¹⁵

Charts 3.7 to 3.12 present the results for core domestic, non-core domestic and international banks under the two respective scenarios. These six charts plot the liquidity outflows from demand deposits, time deposits and others (mainly interbank), along with, the excess liquidity for the first five days followed by the subsequent three weeks. The total length of the bar in the chart represents the counterbalancing capacity which is assumed to remain fixed during the survival period. As the scenario progresses in time, the cumulative liquidity outflows increase and excess liquidity contracts. The system will remain liquid if all deposit withdrawals are met by the available post-shock counterbalancing capacity.

As mentioned in Chapter 2 banks continued to operate with ample liquidity in 2018. This is reflected in the length of the green bars in the six charts which represent the excess liquidity for each banking group under the respective scenarios. Excess liquidity stemming from the difference between counterbalancing capacity and outflows under the second scenario is higher than the excess liquidity under the first scenario. This is due to the possibility of pledging all eligible securities as collateral for monetary policy operations, provided that the bank is a signatory to the Central Bank of Malta [Directive No. 8](#), which enables the banks to participate in monetary policy operations.

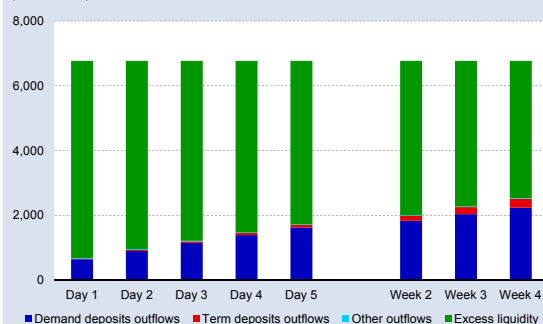
Deposit outflows remain the same under both scenarios on the basis of the applicable assumptions. The tests demonstrate that all three banking groups survive with ample liquidity during the four weeks of persistent deposits withdrawals.

¹³ Eligible securities refer to securities that satisfy the requirements to be pledged as collateral for Eurosystem monetary policy operations

¹⁴ See Box 2 in the *Financial Stability Report 2015* for further detail on the methodology and haircuts applied in the liquidity stress test. The haircuts on ECB eligible assets are updated in line with guidelines issued by the ECB.

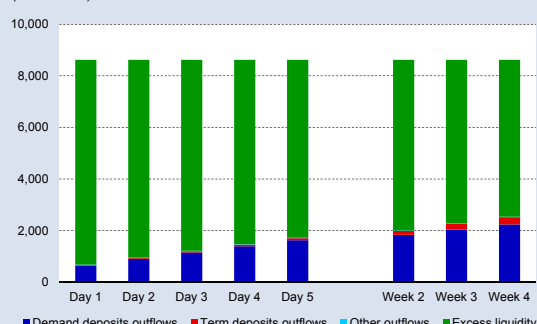
¹⁵ The methodology of the LiST was published on the SSM website on 6 February 2019 and is available online at <https://www.bankingsupervision.europa.eu/press/pr/date/2019/html/ssm.pr190206~3fc0116031.en.html>. The LiST will be run by the ECB on the banks it directly supervises, including a sample of domestic banks.

Chart 3.7
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 1, RESTRICTED ECB FUNDING,
CORE DOMESTIC BANKS
(EUR millions)



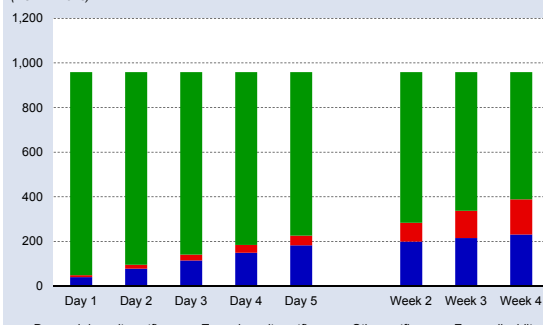
Source: Central Bank of Malta calculations.

Chart 3.8
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 2, UNRESTRICTED ECB FUNDING,
CORE DOMESTIC BANKS
(EUR millions)



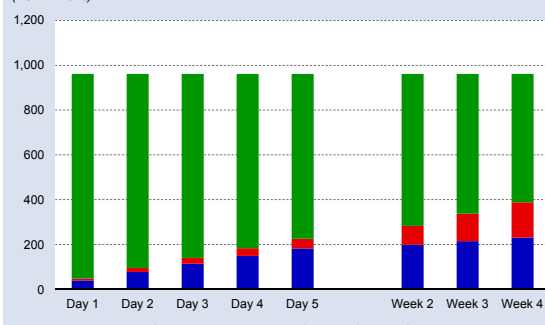
Source: Central Bank of Malta calculations.

Chart 3.9
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 1, RESTRICTED ECB FUNDING,
NON-CORE DOMESTIC BANKS
(EUR millions)



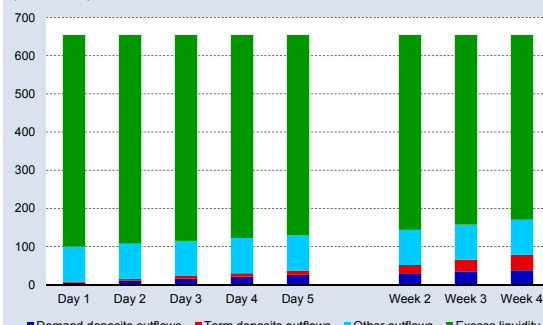
Source: Central Bank of Malta calculations.

Chart 3.10
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 2, UNRESTRICTED ECB FUNDING,
NON-CORE DOMESTIC BANKS
(EUR millions)



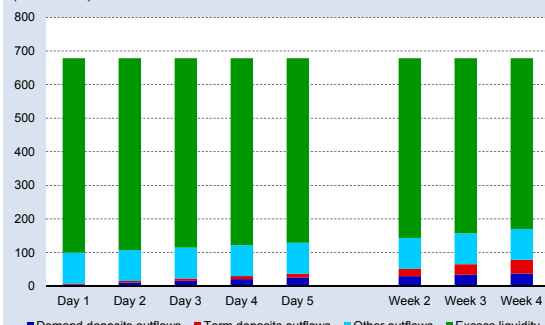
Source: Central Bank of Malta calculations.

Chart 3.11
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 1, RESTRICTED ECB FUNDING,
INTERNATIONAL BANKS
(EUR millions)



Source: Central Bank of Malta calculations.

Chart 3.12
STRESS TEST RESULTS – IMPACT OF PERSISTENT DEPOSIT
WITHDRAWALS – SCENARIO 2, UNRESTRICTED ECB FUNDING,
INTERNATIONAL BANKS
(EUR millions)



Source: Central Bank of Malta calculations.

3.2.2 LCR-based Liquidity Stress Test

The development of an LCR-based stress testing framework addresses one of the main IMF 2018 MT FSAP recommendations to incorporate further dimensions in liquidity stress testing. The new methodology draws from the framework adopted by the IMF for their stress testing exercises during the 2018 MT FSAP.

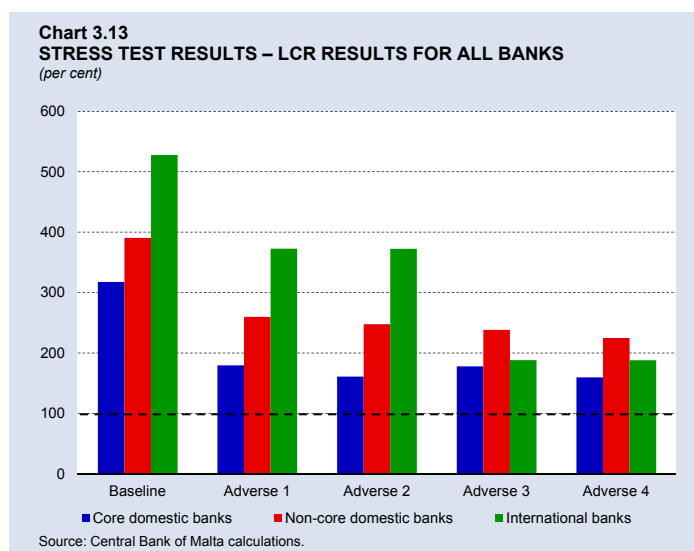
The framework is run on a baseline and four adverse scenarios. The baseline scenario applies the benchmark haircuts and inflow/outflow rates as prescribed by the [European Commission \(EC\) Delegated](#)

[Regulation](#) (EU) 2015/61 and acts as a monitoring tool for the LCR reported by banks. Under the adverse scenario, four sets of assumptions are applied (as per Table 1 of Box 4). The Central Bank of Malta also applies sensitivity analyses in line with some of the metrics outlined in Basel III documentation that are to be applied for consistent monitoring of banks' liquidity stance. The metrics include concentration of funding, available unencumbered assets, LCR by significant currency, contractual maturity mismatch and market-related monitoring tools.¹⁶

The results of the tests under the baseline and adverse scenarios are benchmarked against the LCR minimum requirement of 100%, which became fully phased-in as of January 2018. The framework is run across all core domestic, non-core domestic and international banks (excluding foreign branches), and thus, different sets of conditions under the adverse scenarios are applied to reflect the banks' diverse business models. Similar to the other tests, the LCR framework is applied with December 2018 as reference date, and results are presented in Chart 3.13.

Under the adverse scenario, the liquidity buffer (numerator of the LCR) is assumed to remain unchanged with net outflows being the target of the test. The first set of assumptions under the adverse scenario applies higher outflow rates when compared to the prescribed outflow/inflow rates applied under the baseline. Additional outflows applied to deposits with a maturity of up to 30 days result in a significant impact on the banks' liquidity stance since these deposits make up the largest share of the deposit base for the vast majority of banks. Indeed, current, savings and time deposits with a term of up to 30 days amount to 80%, 76% and 38% of total deposits of core domestic, non-core domestic and international banks, respectively or 78% of the aggregate banks' total deposits. In aggregate, under this adverse scenario the LCR drops from 318% to 180% for core domestic, from 396% to 260% for non-core domestic and from 516% to 373% for international banks.

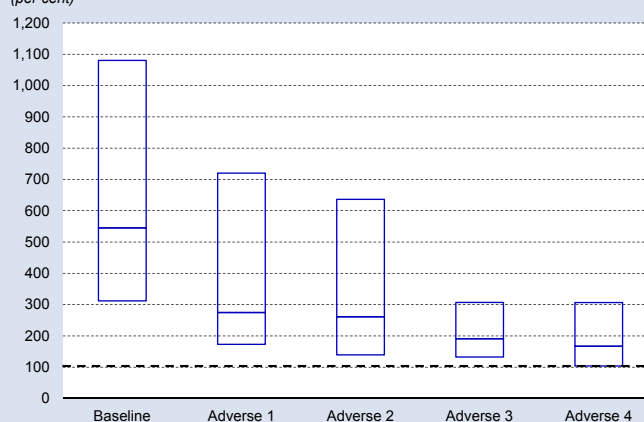
The second, third and fourth sets of assumptions under the adverse scenario were built to address an IMF 2018 MT FSAP recommendation. In this regard, these additional assumptions were specifically built taking into account different additional deposit outflows from fixed term deposits with a contractual maturity exceeding the 30-day period covered by the LCR regulation granted to residents (scenario 2), non-residents (scenario 3) or both (scenario 4). Indeed under scenario 4, the LCR drops further to 160%, 225% and 179%, respectively for core domestic, non-core domestic and international banks. Under this extreme set of conditions, the resulting LCR still remains comfortably above the minimum requirement of 100%, reaffirming the conclusion that banks are still operating with ample liquidity.



¹⁶ Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools. <https://www.bis.org/publ/bcbst238.pdf>

Nonetheless, despite an overall positive result, the stress tests revealed some weaknesses in individual banks. Even though banks are currently operating with ample liquidity, given the severity of the test assumptions applied on the banks' LCR ratios, some vulnerabilities are detected in smaller banks. In times of stress, banks are allowed to breach the LCR requirement as long as they provide a plan outlining ways of how the LCR would be restored.¹⁷ Chart 3.14 shows the interquartile ranges of resulting LCR ratios for all banks in the sample under the respective scenarios.

Chart 3.14
STRESS TEST RESULTS – INTERQUARTILE RANGE OF LCR RESULTS FOR ALL BANKS
(per cent)



Source: Central Bank of Malta calculations.

BOX 4: LCR STRESS TEST¹

As part of the Basel III reforms to improve banks' resilience against liquidity shocks, the Basel Committee on Banking Supervision (BCBS) introduced the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) as two complementary measures. Whilst the LCR assesses the ability of banks to survive a period of significant liquidity stress lasting 30 calendar days through their reserves of high-quality liquid assets (HQLA), the NSFR analyses structural resilience in terms of maturity mismatches between assets and liabilities over a longer period.

Given these developments, the Central Bank of Malta recognised a need to upgrade its stress testing capabilities to be able to simulate similar shocks. A gradual approach is being adopted in this upgrade, with priority being given to the development of a framework that assesses the adequacy of the LCR under adverse liquidity conditions.² The introduction of the LCR framework complements the current deposit-run type scenario analysis which assesses the banks' liquidity position in terms of their counterbalancing capacity. Whilst the LCR framework benchmarks the banks' stressed LCR against the minimum regulatory requirement, the Persistent Deposit Withdrawals framework presents a binary output, indicating whether banks' stressed counterbalancing capacity is sufficient or otherwise to absorb persistent liquidity outflows under a one-month survival period. Both tests are run on core domestic, non-core domestic and international banks, the results of which are presented in Section 3.2.2.

The introduction of the LCR framework coincided also with the conclusion of the IMF 2018 MT FSAP. The main findings of the FSAP were published in the Financial System Stability Assessment (FSSA) and included a near-term recommendation for the Bank to "*strengthen the risk analysis by incorporating new dimensions in liquidity stress testing.*"³ The introduction of this framework therefore addresses, and goes beyond this IMF recommendation.

¹ Prepared by David Law, Senior Quantitative Analyst and Christine Barbara, Manager within the Stress Testing and Risk Models Office of the Central Bank of Malta.

² A stress test for the NSFR will be considered in future.

³ FSSA available online at: <https://www.imf.org/~media/Files/Publications/CR/2019/1MLTEA2019003.ashx>

¹⁷ BIS commentary on BCBS LCR Guidelines available at <https://www.bis.org/fsi/fsisummaries/lcr.pdf>

The LCR is calculated as the ratio of the liquidity buffer (HQLA) to net liquidity outflows (outflows less inflows over a 30-day period) and should be at a minimum of 100%, as follows:

$$\frac{\text{Liquidity buffer}}{\text{Net liquidity outflows}} \geq 100\%$$

The [Commission Delegated Regulation](#) (EU) 2015/61 (hereafter, LCR Delegated Regulation) lays down rules for the liquidity coverage requirement provided for in the Capital Requirements Regulation (EU) No 575/2013. Consequently, the EBA issued Implementing Technical Standards (ITS) amending the regulation for Supervisory Reporting (COREP and FINREP) to reflect the LCR Delegated Regulation. Specifically, data templates in COREP were updated for banks to report the necessary information for estimating the LCR.

The LCR Delegated Regulation specifies minimum requirements on the haircuts for HQLA, as well as outflow and inflow rates for various categories of assets and liabilities which are necessary for the computation of the LCR. Furthermore, Article 5 of the LCR Delegated Regulation makes reference to seven scenarios that may be considered for assessing the adequacy of the LCR under stressful conditions, as follows:

The following scenarios may be regarded as indicators of circumstances in which a credit institution may be considered as being subject to stress:

- (a) *the run-off of a significant proportion of its retail deposits*
- (b) *a partial or total loss of unsecured wholesale funding capacity, including wholesale deposits and other sources of contingent funding such as received committed or uncommitted liquidity or credit lines*
- (c) *a partial or total loss of secured, short-term funding*
- (d) *additional liquidity outflows as a result of a credit rating downgrade of up to three notches*
- (e) *increased market volatility affecting the value of collateral or its quality or creating additional collateral needs*
- (f) *unscheduled draws on liquidity and credit facilities*
- (g) *potential obligation to buy-back debt or to honour non-contractual obligations.*

The framework developed by the Central Bank of Malta is run on a baseline and four adverse scenarios. Whilst the baseline scenario features the minimum haircuts/rates included in the LCR Delegated Act, the adverse scenarios draw both from the above list of scenarios and the IMF recommendation to assess whether the banks' LCR would fall short of the 100% minimum requirement. All scenarios target the denominator of the LCR by assuming higher liquidity outflow rates than those stipulated in the LCR Delegated Regulation. Table 1 describes the contemplated baseline and adverse scenarios.

Table 1
DESCRIPTION OF BASELINE AND ADVERSE SCENARIOS

Scenario	Description
Baseline	Haircuts and outflow/inflow rates as prescribed by the LCR Delegated Regulation
Adverse:	
Scenario 1	Higher outflows compared to the LCR Delegated Regulation
Scenario 2	Scenario 1 with additional withdrawals of resident time deposits (>30 days)
Scenario 3	Scenario 1 with additional withdrawals of non-resident time deposits (>30 days)
Scenario 4	Scenario 1 with additional withdrawals from both resident and non-resident time deposits

Source: Central Bank of Malta.

In particular, the first adverse scenario targets all transactions due within 30 days by applying higher outflow rates across the board over and above the LCR Delegated Regulation outflow rates. The only exceptions are when the LCR Delegated Regulation already applies a 100% outflow rate given that these rates cannot be increased further. Table 2 summarises the range of outflow rates (excluding 100%) for four main groups of transactions which fall due within 30 days as classified in the respective reporting templates.

The outflow rates in the remaining three adverse scenarios were complemented with additional withdrawals of fixed-term deposits with a maturity of over 30 days for resident, non-resident and a combination of both. By means of these scenarios, one is able to test the reliance of banks' funding on resident vis-à-vis non-resident deposits, and on short versus long-term deposits. These scenarios take into account that in times of bank liquidity shortage, depositors would be willing to forfeit any accumulated interest received on their fixed-term deposits in a bid to withdraw funds. Outflow rates for deposits within the 1-3 months maturity bucket are assumed to be the highest whereas depositors with longer contractual periods are assumed to be slower in their reactions and do not immediately forego any accumulated interest upon the first signs of concern. The maximum historical monthly changes observed between 2007 and 2018 were used as an indication for calibrating outflow rates. These stood at 30% and 31%, respectively for resident and non-resident deposits; however, the assumed outflow rate for the latter category in the 1-3 month time bucket was increased to 40%. Table 2 summarises the outflow rates applied to contractual maturities with a term greater than 30 days under adverse scenarios 2, 3 and 4.

Scenario 2 complements the outflow rates to the 'less than 30 days' maturity bucket applied under scenario 1, with additional outflow rates for resident fixed-term deposits. Scenario 3 also builds on scenario 1 but instead applies the respective additional outflow rates only to non-resident fixed-term deposits. Scenario 4 combines all three scenarios and applies the outflow rates as per Table 2 to the amounts due within 30 days, as well as, the applicable outflow rates to both resident and non-resident fixed-term deposits as shown in Table 3.

Table 2
ADDITIONAL OUTFLOW RATES ON DEPOSITS

Scenario	LCR Delegated Regulation	CBM stress test for LCR
Retail deposits	3.0%-20.0%	6.0%-40.0%
Operational deposits	5.0%-25.0%	8.0%-40.0%
Non-operational deposits	20.0%-40.0%	30.0%-60.0%
Remaining categories	5.0%-40.0%	6.4%-51.0%

Source: Central Bank of Malta.

Table 3
ADDITIONAL OUTFLOW RATES ON CONTRACTUAL MATURITY DEPOSITS

Scenario	Resident deposits	Non-resident deposits
31 days to 3 months	30.0%	40.0%
3 to 6 months	20.0%	25.0%
6 to 12 months	8.0%	10.0%
12 to 24 months	3.5%	5.0%
More than 24 months	1.0%	1.0%

Source: Central Bank of Malta.

3.3 Interest Rate Risk in the Banking Book (IRRBB)

Interest rate risk in the banking book (IRRBB) relates to the potential risk arising from movements in interest rates which would impact banks' earnings capacity in the immediate term, and ultimately their capital. IRRBB can be measured in terms of its impact on the banks' NII or the economic value of equity (EVE) with both interest-bearing assets and liabilities held in the banking book re-priced using discounted future net cash flows. The extent of interest rate risk is influenced, amongst others, by the interest rate type (fixed, variable or a combination of both), the currency denomination and the reset date of interest-bearing assets and liabilities. The latter is of particular relevance for banks which finance their variable-interest rate loans with longer-term funding due to potential re-pricing mismatches. For the purposes of this analysis, movements in interest rates under different scenarios are assessed in terms of the impact on the banks' NII and capital, determining the risk-bearing capacity of the banks under review.

In a context of a prolonged low interest rate environment, a number of regulatory requirements for the measurement and management of interest rate risks have been defined by international and national supervisory authorities. In 2015, the EBA issued guidelines on the 'management of interest rate risk arising from non-trading book activities' whilst, in 2016, the BCBS prescribed standards for IRRBB.¹⁸ In the following year, the ECB conducted a sensitivity analysis stress test on IRRBB for all the significant institutions under its direct supervision.¹⁹

The results of the IRRBB stress test are based on six different interest rates shocks as prescribed in Annex 2 of the 2016 BCBS standards.²⁰ The shocks, which are idiosyncratic in nature, capture various changes in the level and shape of the yield curve, and influence the results of NII projections depending on the maturity structure and currency denomination of assets and liabilities. The shocks are hypothetical and are not meant to project the future developments in interest rates, but rather to identify potential vulnerabilities in banks' banking books under different scenarios. Second round effects are not being considered.

The IRRBB framework differs slightly from the methodology that was presented in the *Financial Stability Report* 2016, such that results are not directly comparable with the current framework owing to improvements in three main areas. Firstly, data is now being sourced from one template (by currency) which categorises all interest-bearing assets and liabilities by the term to re-pricing rather than relying on multiple data sources, hence offering more consistency in terms of data sourcing. The second improvement relates to bank coverage which was extended to also include international banks (excluding foreign branches). This, in part also addresses one of the IMF 2018 MT FSAP recommendations. Finally, the third improvement relates to the incorporation of asymmetric pass-through rates as in Micallef, Rapa and Gauci (2016).²¹ Unlike the results reported in the *Financial Stability Report* 2017, the banks' reaction function has been amended to account for different responses by banks depending on whether interest rates have increased or decreased and the effect on their interest-bearing assets and liabilities. Banks tend to react faster to increases in interest rates and thus the pass-through rates are lower in instances when the interest rate drops when compared to pass-through rates for increases in interest rates.

The six scenarios prescribed by the BCBS consist of a parallel shift upwards and downwards of the yield curve as at the reference date, an increase and a decrease in the short rate end of the curve, and two composite shifts in the short and long-term rates referred to as the steepener and flattener scenarios. All six scenarios considered affect the term structure of the yield curve and differ in terms of the currency in which the instruments are denominated.

¹⁸ <https://eba.europa.eu/documents/10180/2282655/Guidelines+on+the+management+of+interest+rate+risk+arising+from+non-trading+activities+%28EBA-GL-2018-02%29.pdf>

¹⁹ In its 2017 sensitivity analysis of interest rate changes on the banks' banking books as part of its Annual Supervisory Review and Evaluation Process (SREP), the ECB also based its hypothetical shocks from the BCBS standards <https://www.bankingsupervision.europa.eu/press/pr/date/2017/html/sr170228.en.html>

²⁰ Annex 2 of <https://www.bis.org/bcbs/publ/d368.pdf>

²¹ Paper available at: <https://journals.aserspublishing.eu/jasf/article/view/494>

Following the extension of the coverage to include also international banks, US dollar and Pound Sterling remain the most relevant non-EUR currencies and thus the framework did not require updates to cover any additional currencies. Chart 3.15 shows the shift in the EUR term structure under the six different tested scenarios as at December 2018.

The sensitivity analysis tests the impact of IRRBB on NII over a 12-month horizon and assumes a static balance sheet, so any instruments that mature within the horizon are rolled over with similar instruments at the prevailing interest rates in the respective scenarios. The impact on NII would influence banks' retained earnings and in turn, their capital positions through a release or accumulation of capital. Charts 3.16-3.18 present the resulting impact on the Tier 1 capital ratio for core domestic, non-core domestic and international banks, respectively, under the six different yield curve structures, following the application of the corporate tax rate of 35%.²²

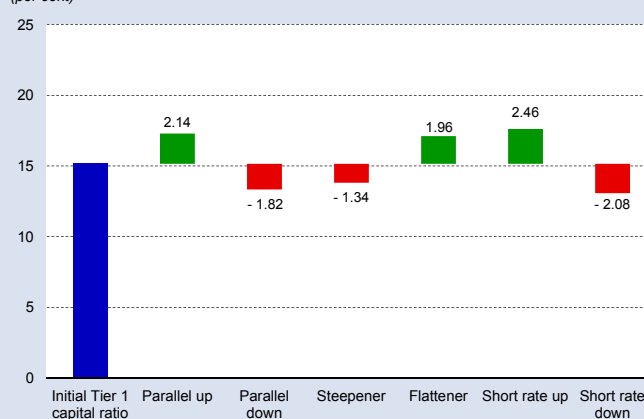
As illustrated in these charts, the *short rate down* scenario would impact most the three categories of banks, although the result is almost equivalent under the *parallel down* scenario for non-core domestic banks. Under the *short rate down* scenario the Tier 1 capital ratio would drop from 15.2% to 13.1%, from 16.1% to 14.8% and from 49.9% to 49.0%, respectively for core domestic, non-core domestic and international banks. Owing to the assumption of asymmetric pass through for increases and decreases in interest rate assumptions, a positive shift in the curve would have a higher impact on banks as opposed to downward interest rate shocks.

Chart 3.15
STRESS TEST SCENARIOS – CHANGE IN THE EUR TERM STRUCTURE OF INTEREST RATES UNDER THE 6 BCBS SCENARIOS
(per cent)



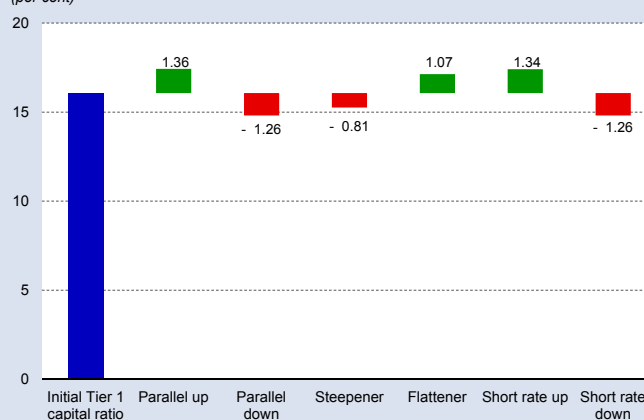
Sources: SNL; BCBS.

Chart 3.16
STRESS TEST RESULTS – IMPACT OF CHANGES IN NET INTEREST INCOME ON TIER 1 CAPITAL RATIO OF CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta calculations.

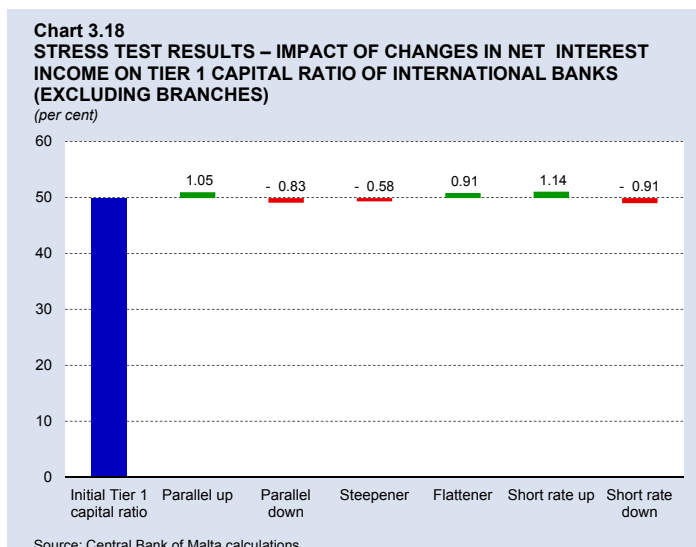
Chart 3.17
STRESS TEST RESULTS – IMPACT OF CHANGES IN NET INTEREST INCOME ON TIER 1 CAPITAL RATIO OF NON-CORE DOMESTIC BANKS
(per cent)



Source: Central Bank of Malta calculations.

²² Banks may apply a lower tax rate if in previous years they have accumulated deferred tax assets.

Given that banks hold the majority of their interest-bearing assets in loans and advances which are re-priced immediately, and fund their business mainly via open maturity deposits, shifts in the short end of the yield curve would influence banks the most. Moreover, the banks' current balance sheet structure would allow them to gain from potential increases in interest rates. Whilst loans are re-priced immediately, a large share of deposits are with an open ended maturity, and to a lesser extent, deposits maturing within the year, which attract 0% or very low interest rates. Indeed 92% of core domestic and 95% of non-core domestic and international banks' deposits mature within 1 year.



The impact of IRRBB was also analysed in terms of the impact of movements in interest rates on the net interest margin (NIM). The NIM is expressed as the difference between interest income and expenses divided by the interest-bearing assets. Under the *short rate down* scenario, the NIM would drop from 1.66% to 0.01%, from 1.23 % to -0.58% and from 6.14% to 4.91%, respectively for core domestic, non-core domestic and international banks. These results have to be seen within the context of the severity of the shock on the yield curve being assumed which pushes the current low interest rates considerably further into negative territory.

Conversely, the major positive impact would be from the *short rate up* scenario for core domestic and international banks and the *parallel shift up* scenario for non-core domestic banks. Under these scenarios, the Tier 1 capital ratio would increase from 15.2% to 17.6%, from 16.1% to 17.4% and 49.9% to 51.0%, respectively for core domestic, non-core domestic and international banks. In terms of NIM, this would increase to 3.62%, 3.15% and 7.69%, respectively for core domestic, non-core domestic and international banks.

4. INSURANCE COMPANIES AND INVESTMENT FUNDS

The year under review presented a number of challenges to the insurance sector such as the persistent low-yield environment, adverse effects of climate change and geopolitical uncertainties particularly stemming from Brexit negotiations. Whilst disruption to passporting arrangements into the UK for insurance could be costly, the need to maintain access to the European market also acts as an opportunity for UK business to relocate to Malta.¹ During 2018, the total number of insurance and reinsurance firms operating in Malta amounted to 66, a net increase of three. Of these, five new insurance companies were licensed in 2018, some of which sought to ensure that they can continue to operate in the EU post-Brexit.² In spite of this, total assets managed by these insurance companies declined to €10.1 billion – equivalent to around 82% of GDP – dropping by 12.6 percentage points since December 2017. This, however, still compares favourably to the EU's which stood at about 72% of GDP.³ Notwithstanding, the lion's share of these assets are attributable to insurance companies dealing with non-residents, with only eight insurance firms servicing and underwriting risks situated in Malta as their main line of business. These eight firms, given their systemic relevance, are classified as domestic insurance companies and are the focus of the following analysis.

4.1 Domestic Insurance Companies

In 2018, the balance sheet of these eight domestic insurance companies contracted by 11.9% to €3.4 billion, equivalent to 27.7% of GDP. These consisted of three life insurance companies, and five non-life insurance companies, with one of the latter operating as a protected cell company. Profitability of domestic insurers weakened in 2018, with pre-tax profits dropping by more than a quarter. Consequently, the domestic median return on assets (ROA) stood at 1.6% in 2018, down from 4.6% in the previous year. The median ROA of domestic insurers stood higher than the EU median of 0.4% in 2018.

Insurance density rose by 4.6% and stood at around €1,200. On the other hand the penetration rate fell marginally by 0.1 percentage point to 4.8% in December 2018.

Domestic insurance companies reinsured a median of 16.8% of their premia with non-resident reinsurance companies.⁴ Although reinsurance signals more protection in the case of large claims, it also increases cross-border links. However, contagion risk is deemed to be limited and somewhat contained, given that the reinsurance companies transacting with Maltese undertakings enjoy relatively high ratings and reinsurance is spread across a number of companies, thus reducing concentration risk.

Contagion risks from Brexit are also deemed to be contained. This is due to the fact that UK assets held by the domestic insurance companies were limited, accounting for 3.5% of domestic assets and fell by 0.3 percentage point from the previous year. Similarly, direct exposures through asset holdings in Pound Sterling were also contained amounting for less than 5% of total domestically-relevant assets in 2018.

4.1.1 Domestic Life Insurance Companies

Total assets of the three domestic life insurance companies fell by 13.1% annually to just below €3.0 billion, equivalent to 24.3% of GDP. Business remained concentrated in two companies, which together accounted for 97.0% of gross premia written by the life segment. The most common product is by far the 'insurance with profit participation', which represented more than three-fourths of their gross written premium, rising by 4.0% over the preceding year. In contrast 'index and unit-linked' products more than doubled, accounting for 16.6% of total premia written in 2018.⁵

¹ IMF Country Report No. 19/70.

² The importance that insurance undertakings have contingency plans in place is highlighted by EIOPA which continues to closely monitor undertakings from the UK with cross-border business in the European Economic Area (EEA), to ensure the necessary service continuity of cross-border insurance contracts even in the event of a no-deal Brexit.

³ Source: EIOPA December 2018 Financial Stability Report.

⁴ The median reinsurance part of premia for the life and non-life sectors in 2018 stood at 6.0% and 30.6%, respectively.

⁵ With profit participation is defined as saving products where the annual investment return is optional. For unit-linked policies, part of the premium paid is utilised to provide insurance cover to the policy holders, whilst the rest is invested on behalf of the policyholder. For index-linked policies, the returns are linked to the performance of one or more indices.

Asset composition

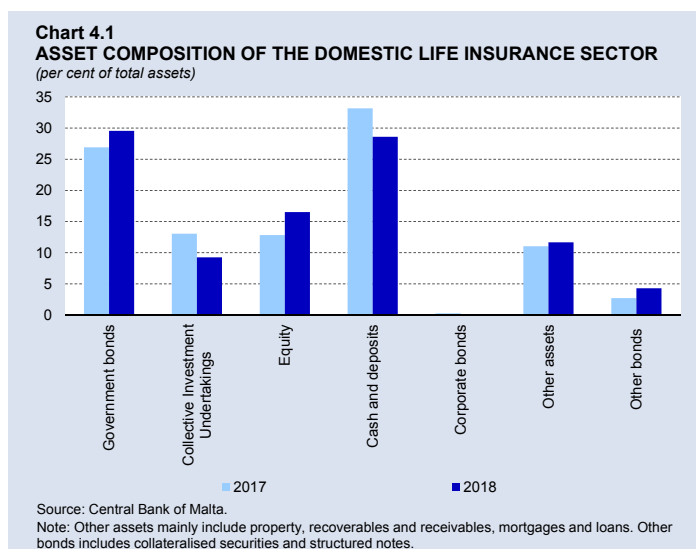
During 2018, the bond portfolio held by life insurance companies contracted by 15.9% to account for 38.9% of life insurers' assets (see Chart 4.1).⁶ This was accompanied by lower holdings of collective investment undertakings (CIU) whose share in total assets fell by 4.6 percentage points to 28.6%. On the other hand, equity holdings increased by 3.7 percentage points to 16.5% of total assets. The remaining assets were mainly held in cash and deposits. The latter are largely placed with domestic banking institutions. This reflects the fact that the two largest life insurance companies are part of the same

group of two core domestic banks. This group structure enables banks to pass on insurance undertakings requirements to their subsidiaries. This could be one potential transmission channel which poses some vulnerability to the profitability of the relevant insurance companies should domestic banks experience a downturn in their activity. Nonetheless, direct contagion risks are limited as the insurance companies are set up as separate legal entities, therefore isolating any potential spill-over effects within the same group.

Three quarters of the bond portfolio consists of government bonds with the rest mainly held in corporate bonds. During 2018, investments in sovereign bonds fell by 4.5%. This drop mainly developed in the second half of 2018, reversing the increases reported in 2017 and in the first half of 2018. Nevertheless, their share rose to 29.6% of the life insurers' assets. The decline mainly reflected lower holdings of Malta Government bonds, which fell by 10.8%, therefore limiting to some extent the insurers' home-bias behaviour. However, such holdings make up almost half of the sovereign bond portfolio. Home bias still poses a source of vulnerability both in terms of concentration and contagion risk. Meanwhile, foreign sovereign bond holdings increased by 2.0%, being largely issued by the French, Spanish, Italian and German governments. The sovereign bond portfolio had an overall average rating of A-.

Corporate bond holdings fell by 38.4% with their share in total assets contracting by 3.8 percentage points to 9.3%, equivalent to 23.8% of the bond portfolio. More than half of the corporate bonds were issued in euro area countries (excluding Malta) by NFCs, banks and captives, financial institutions and money lenders (CFIMs). Another 40.2% were issued outside the euro area, with most holdings in NFCs, banks and other financial intermediaries (OFIs) in the US. The rest of the corporate bond holdings were domestic, largely issued by CFIMs and banks. The majority (82.8%) of the corporate bond portfolio was held in the form of plain vanilla bonds, followed by subordinated bonds which represented 7.2% of corporate bond holdings.

The equity portfolio rose by 11.8%, mainly due to an increase of €39.3 million in common equity. This portfolio was largely concentrated abroad, predominantly in the US, UK and Switzerland, with equity issued in Malta accounting for about one-fourth of total equity holdings. Meanwhile, participation in CIUs decreased by 25.1% reflecting lower holdings in equity, debt and asset allocation funds. Nearly, 83% of CIUs are issued in the euro area mainly in Luxembourg and Ireland, with domestic CIUs limited to 10.2% of the total CIU holdings.



⁶ The bond portfolio is made up of government bonds, corporate bonds, structured notes and collateralised securities.

The domestic life insurers' participation in non-traditional non-insurance activities remained low, equivalent to only 0.2% of their total assets, largely being loans channelled to NFCs. This highlights that the insurance companies remained more focused on their core activities.

The life insurers' direct and indirect exposures to real estate stood at 5.9% (December 2017: 4.6%) of total life insurers' assets. Around 70% of such exposure reflected their tangible assets, of which 87.0% were held for investment purposes whilst the remaining 13.0% were held for own use. The other 30% consisted of real estate exposures through holdings of equity and corporate bonds in companies involved in real estate, as well as holdings in real estate funds and bonds secured by real estate.⁷

Funding

The life insurance companies chiefly funded themselves through premia paid by resident households. Indeed, technical reserves booked against policies held by local households denoted around 93% of their balance sheet. Almost all of these policies were booked as technical reserves held against estimated claims on the insurers' balance sheet which stood at €2.6 billion in 2018.

The domestic life insurers retrenched their index- or unit-linked business from 32.1% of technical reserves in 2017 to 17.5% in 2018, primarily due to the shedding of unit-linked assets and unrealised capital losses arising on assets held to cover linked liabilities. The euro area average unit-linked technical reserves stood at 27.8% of total technical reserves in December 2018.⁸

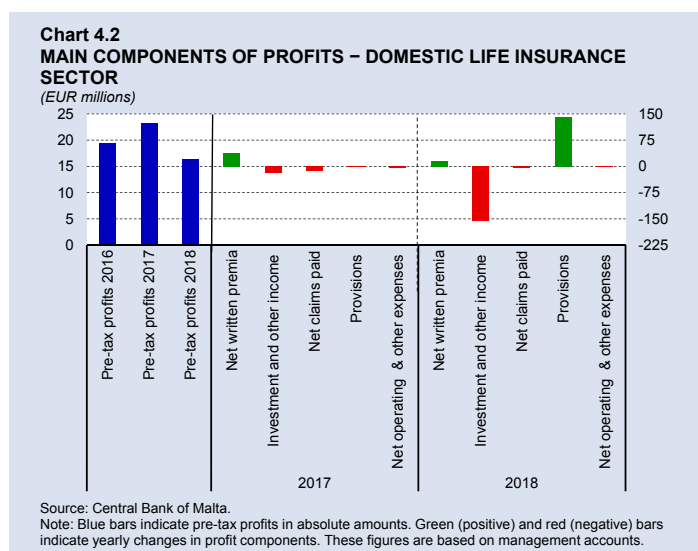
Profitability

During 2018, life insurers' pre-tax profits contracted by 30.0% to €16.3 million (see Chart 4.2). The reduction in profitability was primarily due to investment income which turned negative largely due to revaluation losses as a result of the downturn in global financial markets in 2018. Furthermore, one life insurance company divested a large unit-linked investment product to a third party, reducing its overall investment portfolio. This drop was attenuated by a significant decline in provisions set aside for unearned claims.

Otherwise, the underwriting performance remained stable and overall positive with net written premia rising by 3.9% to €384.9 million. Net claims paid stood at €208.4 million, increasing by 2.2% during the same period.

Overall profitability declined with the pre-tax profits return on equity (ROE) falling from 8.7% in 2017 to 6.2% in 2018. The pre-tax ROA dropped from 0.6% in 2017 to 0.5% in 2018. Similarly, the pre-tax return on net premia stood at 0.04% down from 0.06% in 2017.

The life insurance sector remained highly liquid with a liquid asset ratio of 79.5% compared to 76.9% a year earlier (see Chart 4.3).⁹ A healthy level of liquidity is necessary to



⁷ These investment holdings also form part of the life insurance companies' asset composition.

⁸ Source: Statistical Data Warehouse (SDW).

⁹ The liquid assets ratio shows the proportion of liquid assets on total assets (excluding assets held for unit-linked). The ratio is calculated by applying different weights (ranging from 100% for cash to 0% for intangible assets) to different assets, according to their liquidity profile).

meet payment obligations when they are due.

Capital adequacy

All the domestic life insurers remained adequately capitalised with an overall solvency ratio of 204.4% (median 181.1%). Despite dropping by 78.9 percentage points in 2018 due to a stronger increase in Solvency Capital Requirement (SCR) than own funds, this rate remained well above the 100% minimum threshold whilst also exceeding the EU median of 180% in December 2018 (see Chart 4.4).¹⁰ The capital composition of the life segment remained of very high quality, held almost entirely in Tier 1 own funds.

4.1.2 Domestic Non-life Insurance Companies

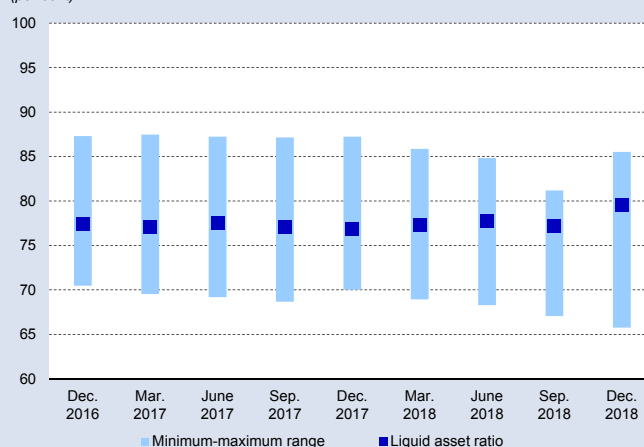
Total assets held by the domestic non-life insurance sector fell by 2.0% to €410.7 million in 2018, equivalent to just 3.3% of GDP. The business of the five non-life insurance companies is mainly concentrated in motor vehicle-related business, which in total accounted for 46.7% of the total premia written, followed by fire and other property damage at 23.5% (see Chart 4.5). This level of dependence and concentration is, however, also observable in other euro area countries. The high level of competition could result in mispricing of risks, in an attempt to win a larger market share.

Asset composition

The equity portfolio remained a significant asset component of the domestic non-life insurances' balance sheet amounting to 30.4% of their assets. This asset class has nonetheless decreased slightly during 2018 (see Chart 4.6). Recoverables and receivables and bond holdings accounted for 17.6%

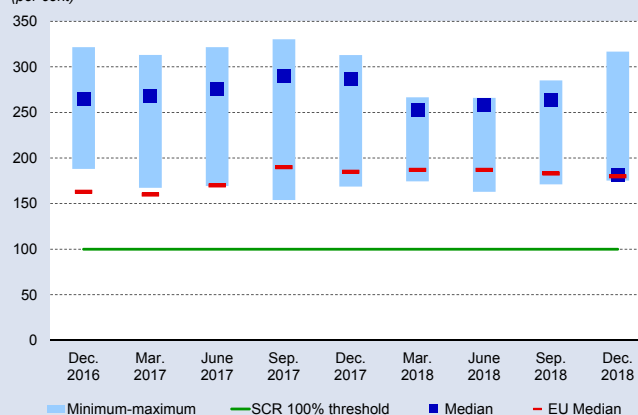
¹⁰ Source: EIOPA Risk Dashboard, April 2019.

Chart 4.3
LIQUID ASSETS RATIO OF THE DOMESTIC LIFE INSURANCE SECTOR
(per cent)



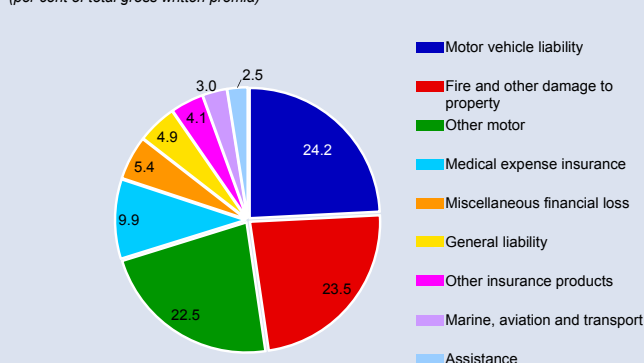
Source: Central Bank of Malta.

Chart 4.4
SOLVENCY CAPITAL RATIO OF THE DOMESTIC LIFE INSURANCE SECTOR
(per cent)



Sources: Central Bank of Malta; EIOPA Risk Dashboard, April 2019.

Chart 4.5
GROSS WRITTEN PREMIUM OF THE DOMESTIC NON-LIFE INSURANCE SECTOR BY LINE OF BUSINESS
(per cent of total gross written premia)



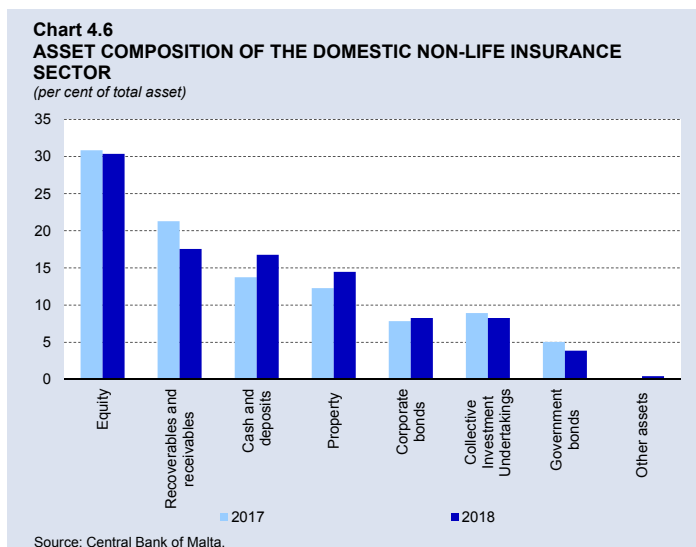
Source: Central Bank of Malta.

Note: Solvency II Reporting. Other insurance products include workers' compensation, income protection, other life insurance and profit participation, index-linked and unit-linked insurance.

and 12.1% of the non-life insurers' assets, respectively. The rest of the assets consisted of cash and deposits (16.8%), property (14.5%), CIU (8.3%) and other assets (0.4%).

Non-life real estate exposures stood at 15.1% of total non-life assets (December 2017: 12.8%) making the non-life sector vulnerable to a potential downturn in real estate markets.¹¹ However the majority of such exposure is composed of direct property holdings, around 60% of which was office and commercial building for investment purposes, with the rest held for own use. Meanwhile, other

forms of real estate exposures are limited to just 4.3% of total real estate exposure, and are mainly in the form of equity and corporate bonds of companies involved in real estate.



Almost 87% of the equity holdings were issued in Malta and consisted mainly of holdings in related companies, which fell by 1.6% during the year. Any possible channels of contagion are curtailed since these companies are set up as separate legal entities, having their own capital and liquidity requirements. Holdings of foreign equities also contracted at a much faster rate of 15.0% to €16.4 million. These were largely issued in Germany, France and the US, mostly as common equity in insurance corporations and NFCs. Participations in CIUs declined by 9.3% to €33.9 million. Such holdings are mainly in resident debt funds with another 44.1% issued in the euro area as equity and money market funds.

Corporate bonds accounted for more than two thirds of their bond portfolio, with almost half of the bond portfolio consisting of bonds issued by firms in the US and in other EU countries (excluding Malta), whilst 19.9% were corporate bonds issued in Malta. Meanwhile, foreign sovereign bonds amounted to 12.3% of their bond portfolio whilst another 19.9% were MGS.

Only 0.3% of non-life insurers' assets were loans which primarily consisted of uncollateralised loans to domestically-related insurance companies.

Funding

The non-life insurance companies were primarily funded through premia paid by resident insurers, and NFCs. Technical reserves booked against policies held by local households amounted to 11.0% of their balance sheet.

Profitability

Pre-tax profits stood at €24.7 million deteriorating by 22.6% from the previous year (see Chart 4.7). The drop mainly reflected the downturn in global financial markets in 2018 which led to revaluation losses on their financial assets.¹²

Meanwhile, net written premia increased by 8.5%, driven by one insurance company which started to write a new line of health-related business, thus generating higher levels of premia. Net claims paid, however, increased by a faster rate of 10.3%. As a result, the loss ratio fell marginally to 52.4%, which however still

¹¹ These investment holdings also form part of the non-life insurance companies' asset composition.

¹² These figures are based on management accounts.

represented positive underwriting activities, with the non-life undertakings earning twice as much premia compared to their claims.¹³ At around 81%, the median combined ratio for non-life business fell by 4.4 percentage points compared to the previous year, and remained below 100% indicating that non-life insurers were able to generate positive underwriting results (excluding profits from investments). This positive trend followed more pronounced drops in 2016 and 2017, further evidencing improved underwriting business in the non-life insurance sector (see Chart 4.8).¹⁴

However, outliers can be observed across lines of business, in particular for medical expenses and marine insurance, indicating that non-life insurers have experienced underwriting losses in these lines of businesses in 2018. The overall net expense ratio stood at 30.4%, improving further on the previous year due to the fact that net premia earned rose at a faster rate than expenses incurred. This further indicated an underwriting profit, being below 100%.¹⁵

Driven mainly by investment losses mentioned earlier, profitability indicators deteriorated when compared with the previous year. Whereas the pre-tax return on net premia remained stable at 0.2% compared to a year ago, the pre-tax ROE and ROA contracted to 15.1% and 5.7% from 20.5% and 7.8%, respectively.

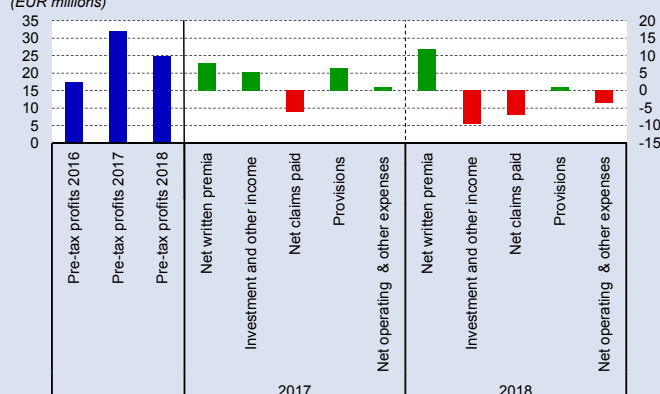
Liquidity

The liquidity level of the non-life sector stood at 40.0% rising by 2.7 percentage points from December 2017 (see Chart 4.9). The minimum in the chart is driven by one company, whereby the lower liquidity levels reflected intragroup equity holdings and recoverables and receivables which are deemed less liquid asset classes.¹⁶

Capital

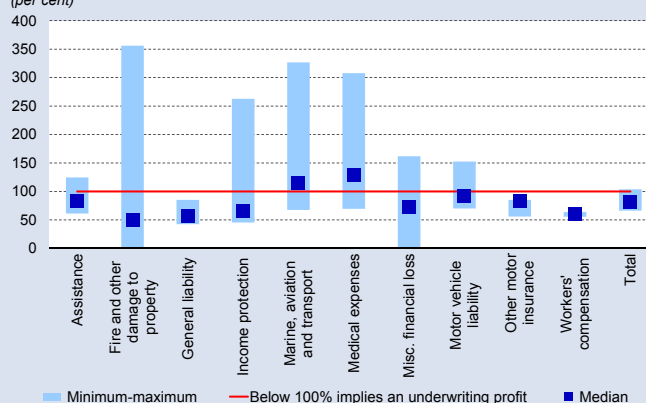
The large majority of total own funds of the domestic non-life sector was held in the form of Tier 1 own funds, with these firms staying very well capitalised. In this regard, although the solvency ratio narrowed to 241.6%

Chart 4.7
MAIN COMPONENTS OF PROFITS – DOMESTIC NON-LIFE INSURANCE SECTOR
(EUR millions)



Source: Central Bank of Malta.
Note: Blue bars indicate pre-tax profits in absolute amounts. Green (positive) and red (negative) bars indicate yearly changes in profit components. These figures are based on management accounts.

Chart 4.8
COMBINED RATIO OF THE DOMESTIC NON-LIFE INSURANCE SECTOR
(Dec. 2018)
(per cent)



Source: Central Bank of Malta.
Note: Figures refer to direct business and accepted proportional reinsurance and are based on Solvency II Reporting.

¹³ See footnote 10.

¹⁴ Figures are based on Solvency II reporting.

¹⁵ See footnote 12.

¹⁶ Intragroup equity holdings account for 23.9 % of assets and receivables and recoverables represent another 17.6% of assets. These carry a zero weighting when determining the extent of liquidity.

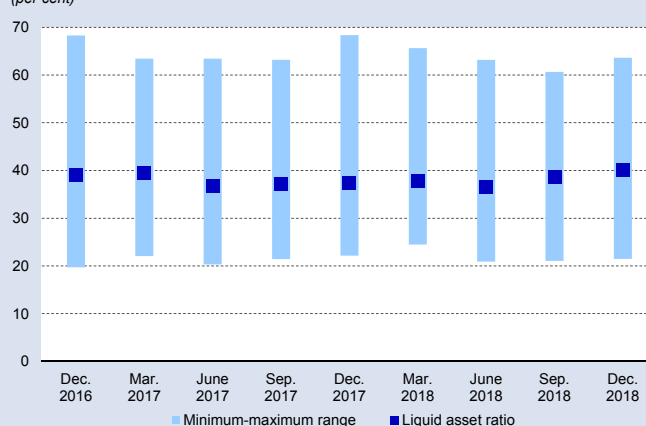
(median 228.3%) from around 264% (median 254.0%) a year earlier, the domestic non-life insurers continued to surpass both the regulatory minimum of 100% as well as the EU median which stood at around 210% in December 2018.¹⁷ The solvency ratio dropped owing to a stronger increase in SCR than own funds (see Chart 4.10).

Domestic insurance risk outlook

Overall, the outlook for the domestically-focused life insurance sector remains positive, buttressed by a robust macroeconomic environment, as well as healthy capital and liquidity buffers. Nevertheless, profitability for the life insurance sector declined, and is expected to remain under pressure given the prevailing low-yield environment and the considerable volatility in financial markets. Investment income may continue to be eroded as bonds mature and are replaced by newly-issued lower-yielding bonds. Still, contagion risk is considered to be low and contained.

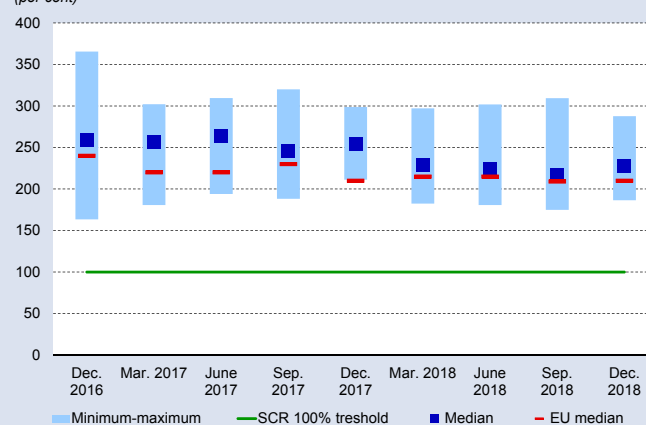
Similarly, the outlook for the non-life insurance sector remains positive supported by healthy capital levels. Although profitability declined during 2018, as a result of lower investment income and higher claims reported, the loss and median combined ratio continued to indicate positive underwriting results for the non-life insurers.

Chart 4.9
LIQUID ASSETS RATIO OF THE DOMESTIC NON-LIFE INSURANCE SECTOR
(per cent)



Source: Central Bank of Malta.

Chart 4.10
SOLVENCY CAPITAL RATIO OF THE DOMESTIC NON-LIFE INSURANCE SECTOR
(per cent)



Sources: Central Bank of Malta; EIOPA Risk Dashboard, April 2019.

4.2 Domestic Investment Funds

By the end of the year there were around 500 licensed and reporting sub-funds domiciled in Malta, of which 63 were considered to be domestically-relevant since their main investors were Maltese residents. Around 41% of non-domestically-relevant sub-funds' net asset value (NAV) were held by entities located in the euro area, with 53.3% held by investors located in non-euro area countries. Maltese investors also hold some interest in non-domestically-relevant sub-funds, which however is more limited, amounting to 5.3% of their NAV. The largest Maltese investors in non-domestically-relevant sub-funds were NFCs accounting for 3.8% of NAV.

The domestically-relevant sub-funds represented a net increase of four sub-funds compared to December 2017.¹⁸ Malta's resident investment funds predominantly consisted of retail Undertakings for the Collective

¹⁷ See footnote 10.

¹⁸ The total number of domestically relevant sub-funds as at December 2017 has been revised to 59 following data revisions. Their total assets amounted to €2.0 billion.

Investment in Transferable Securities (UCITS) which amounted to 35 licensed sub-funds, representing around 63% of domestic funds' total assets. The remainder consisted of 16 Professional Investor Funds (PIFs) which represented an estimated 9% of total assets, nine Alternative Investment Funds (AIFs) accounting for a further 27%, and three retail non-UCITS characterising just 0.2% of total assets. Compared to December 2017, these figures represented an overall increase of three retail UCITS and two AIF licences, whilst 1 PIF licence was withdrawn. Assets of domestic investment funds as at December 2018 totalled around €2.1 billion, an increase of approximately 2.6% compared to a year ago, and amounted to about 17% of GDP.

Investment strategy

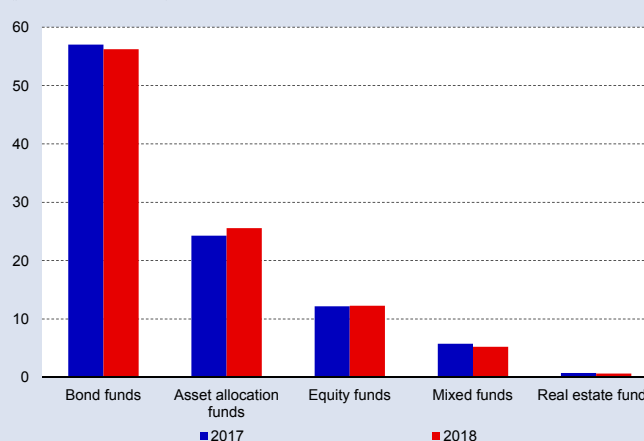
The investment strategy of domestically-relevant investment funds remained generally stable. More than half of the domestic investment funds' assets were bond funds (56.2%), whilst slightly more than a quarter (25.6%) were asset allocation funds, with another 12.3% as equity funds. The remainder was split between mixed strategy funds (5.3%) and 0.7% in real estate funds (see Chart 4.11).

Asset composition

Reflecting the main business strategy, domestic investment funds' holdings of debt securities amounted to almost 56% of their total assets, a two percentage points drop compared to December 2017, whereas equities accounted for around 26% (December 2017: 28%). The fall in both bond and equity holdings led the share of deposits to increase to 14.4% of the domestic investment funds' assets, equivalent to a seven percentage point increase over December 2017. Such a rise in deposits was partly cushioned by lower cash holdings, which fell to 1.5% of assets (December 2017: 2.7%). Amongst the other financial assets, there has been an increase in outstanding derivatives, which amounted to only 0.3% of total assets. Meanwhile the share of loans in total assets narrowed by three percentage points compared to December 2017 figures (see Chart 4.12).

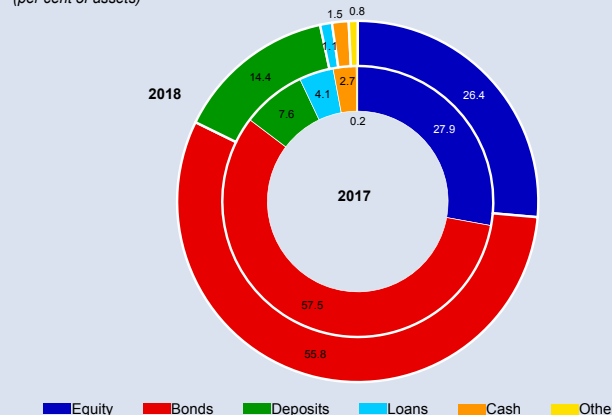
By the end of the year, the bond portfolio contracted by 0.3% to €1.2 billion. It remained largely skewed towards sovereign paper, accounting for almost half of the bond portfolio. The Maltese Government made up almost 90% of these sovereign bond holdings, followed by US and UK governments'

Chart 4.11
DOMESTIC INVESTMENT FUNDS BY MAIN STRATEGY
(per cent of total assets)



Source: Central Bank of Malta.

Chart 4.12
ASSET COMPOSITION OF THE DOMESTIC INVESTMENT FUNDS
(per cent of assets)



Source: Central Bank of Malta.

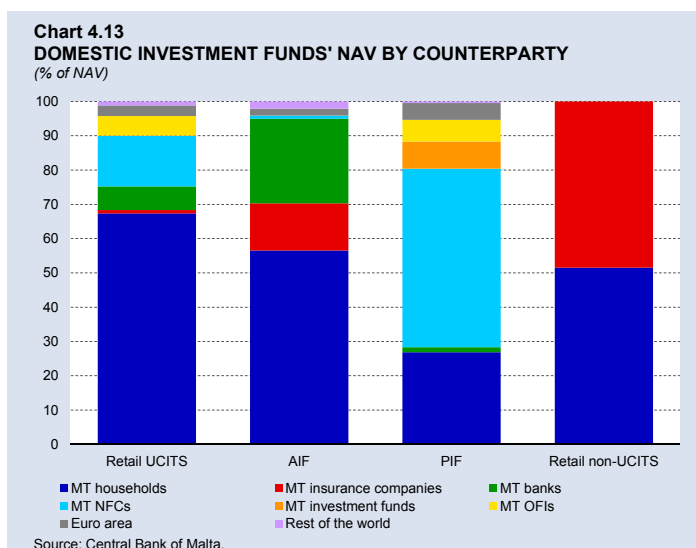
Note: The 'Other' category mainly consists of financial derivatives and, to a lesser extent, non-financial assets.

securities, with the overall bond portfolio having a medium investment-grade rating. The remaining bond portfolio is largely invested in financial entities, with bonds of non-bank financial institutions representing almost a fourth of total bond holdings – mainly from Malta, and other EU countries. Around another 9% was invested in bank bonds – also mainly from Malta, with the US and the UK also having an important share of the overall bank bond holdings. The rest are mainly invested in NFCs which represented about 12% of the bond holdings and were predominantly of Maltese companies, as well as corporates from the US and France. The remainder represented bonds issued by foreign non-profit institutions serving households (NPISH).

The equity portfolio of the domestic investment funds amounted to approximately €550 million as at December 2018, a 3.1% reduction over December 2017. This contraction was noted nearly across all sectors, but was primarily driven by a 46% drop in shareholdings in financial auxiliaries and a further 14% decline in equities of insurance corporations, whereas shareholdings in OFIs nearly doubled. Almost 48% of the domestic investment funds' equity holdings were placed as units in other non-money market investment funds which, however, represented a 0.7 percentage point drop over a year ago. These were situated mainly in Malta and other EU countries. Meanwhile, shareholdings in NFCs amounted to about 27% of the equity portfolio, down by 9.6% over a year ago; the majority (58%) of which represented investments in Maltese companies. Another 14.5% of equity investments were held in monetary financial institutions, a proportion similar to December 2017 levels and almost all of which (95%) were investments in domestic banks. The balance of equity holdings was held in captive financial institutions, insurance corporations, OFIs, financial auxiliaries and money market funds.

Maltese households and NPISH remained the largest holders of domestic investment funds in December 2018, accounting for almost 61% of total NAV, whilst resident NFCs and domestic banks accounted for 14.3% and 11.2%, respectively. Other resident investors were insurance companies and pension funds, OFIs, and other investment funds.

In contrast, non-residents' holdings were limited to around 4.2% of the overall NAV of the domestically-relevant investment funds. Specifically, resident households and NPISH remained the largest shareholders in retail UCITS accounting for 67.6% of retail-UCITS' NAV, whereas NFCs located in Malta held another 14.8% (see Chart 4.13). Maltese households and NPISH held also the majority of units in AIFs (56.5% of AIFs' NAV) and retail non-UCITS (51.6% of retail non-UCITS NAV). Nevertheless, NFCs invested more heavily in PIFs, with 52.1% of shares in PIFs owned by Maltese NFCs whilst the rest was principally held by resident households and NPISH at 26.9%. That said, total NAV held by resident households and NPISH represented just 4.7% of their financial wealth, with the share of NFCs even more limited to just 1.0% of their financial assets. Hence, these figures confirm the low exposure of resident households and NFCs' balance sheets to financial market volatility.¹⁹ The large majority of domestic investment funds do not use leverage as their main source



¹⁹ Total NAV held by resident households and NPISH, and NFCs, in both domestically-relevant and non-domestically relevant funds as a proportion of total household and NPISH financial assets and total NFC financial wealth stood at 4.8% and 2.1% respectively.

of funding, since around 98.6% of their inflows originated from investors' moneys. Moreover, debt financing by investment funds is restricted by regulation.²⁰

Risk Outlook

Structural

Potential contagion risks exist since 24 sub-funds are managed by asset management companies owned by core domestic banks. Although these funds are set-up as separate legal entities subject to the provisions of the Maltese Companies Act and the Investment Services Act, and have tools to avoid potentially destabilising liquidation requests (such as gating mechanisms and redemption fees), they may still pose reputational risk or step-in risks, in case a parent bank may have to provide financial support to their asset management companies.

Furthermore, domestic investment funds are characterised by some sectorial concentration and home bias given that more than half of their assets are invested in bonds, largely of the domestic sovereign. Yet, at the current juncture potential fiscal risks are deemed to be limited owing to the robust economic growth supported by job creation, which in turn, has enabled government's fiscal balance to tilt into surplus territory with further improvements envisaged in the coming years.

Cyclical

Looking ahead, if interest rates remain at the current low levels for a prolonged period, it may push fund managers to step up their search-for-yield behaviour, potentially impacting already-stretched asset prices. The risk of re-pricing in global risk premia is rising owing to an escalation of uncertainties relating to growth prospects in Europe coupled with geopolitical events including Brexit and the potential increase in trade protectionism. However, the direct impact of Brexit on the domestically-relevant investment funds is manageable with exposures to the UK and in Pound Sterling limited to 4.3% and 3.9% of assets, respectively.

²⁰ UCITS are only allowed to use leverage provided that funds are borrowed temporarily and do not exceed 15% of total assets. Global exposure to financial derivatives is also capped by regulation and should not exceed the total net value of their portfolio. Only experienced Professional Investor funds (PIFs) are allowed to fund investments through borrowed funds and keep synthetic leveraged positions via the use of derivative instruments. However such leverage is still limited to 100% of the NAV.

SPECIAL FEATURE: BANKS' EXPOSURE TO REAL ESTATE MARKET AND THE CENTRAL BANK OF MALTA'S MACROPRUDENTIAL POLICY RESPONSE

This special feature provides an evaluation of potential risks and vulnerabilities emanating from the residential real estate market in Malta which could have an impact on the banking sector; and the Central Bank of Malta's policy response as the relevant macroprudential authority. The feature is divided into three parts: Panel A describes the general trends in the property market and banks' lending behaviour towards this segment of the market. It indicates that whilst house prices have picked up recently, monthly average repayment to average wage ratios remain well below the mid-2000s. Banks' exposure to the property market may have risen but it is mainly through mortgages, as lending to developers has fallen.

The second panel discusses the theoretical and empirical case for the implementation of borrower-based measures, based on international evidence. Its main conclusion is that empirical evidence suggests that macroprudential instruments are effective in smoothing cyclical fluctuations. Establishing a macroprudential framework allows policy-makers to anticipate and act in the build-up phase of the credit cycle.

Panel C, in turn, gives a detailed overview of the borrower-based measures introduced in Malta through the Central Bank of Malta [Directive No. 16](#) published in March 2019. This panel also features an impact assessment of these policy measures on the economy and households in particular. It indicates that the reduction in mortgage credit due to these measures should have a negligible impact on the domestic economy in the short term, whilst improving its resilience to any future shocks.

Panel A: Trends in the Real Estate Market and Banks' Lending Practices in Malta¹

Introduction

A well-functioning property market is important for economic and financial stability. Apart from being the prime component of households' wealth where homeownership is prevalent, real estate also influences the accommodative capacity of any given economy as well as being an important source of investment. Thus, large and volatile house price fluctuations tend to adversely affect a country's economic performance and consequently threaten financial stability. These adverse effects were laid bare during the global financial crisis of 2008. Specifically, falling property prices exerted a negative wealth effect on households, resulting in lower private consumption. Meanwhile, the construction sector experienced a contraction, with ripple effects on other economic sectors affecting their profitability and in turn wages. This led to increased defaults for the banking sector, which impacted their asset quality and profitability. Firms' borrowing capabilities also declined, as the value of their collateral decreased.

According to provisional data from the third wave of the Household Finance and Consumption Survey in Malta, 86.7% of households' total assets in 2016 were predominantly in the form of real assets, around 80% of which were in the form of real estate.² Malta boasts a high homeownership rate with 81.3% of households owning their own property in 2017, significantly surpassing the euro area average of 66.1%.³ Real estate also serves as collateral for households and corporates to obtain their financing needs. Indeed, by end 2018 immovable property represented 87.4% of total extendable collateral on the core domestic banks' balance sheets. This covered almost two-thirds of the loans granted by this group of banks, in turn highlighting the importance of collateral as a credit risk mitigation policy.

Property Price Developments

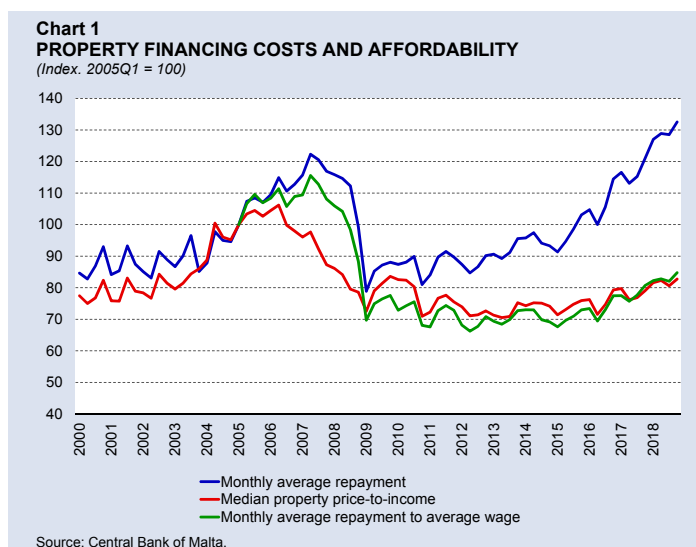
Though they went through various phases in the last three decades, house prices have historically withstood adverse economic developments in Malta. Between 1985 and 2007, house prices grew almost uninterrupted. This, amongst other factors, reflected limited alternative investment opportunities due to exchange

¹ Prepared by Andrew Spiteri, a Senior Expert within the Financial Stability Surveillance and Assessment Office of the Central Bank of Malta.

² The third wave of the Household Finance and Consumption Survey is the latest survey available which was conducted in the first half of 2017, with reference date of 2016.

³ Source: Eurostat, Financial Balance Sheets

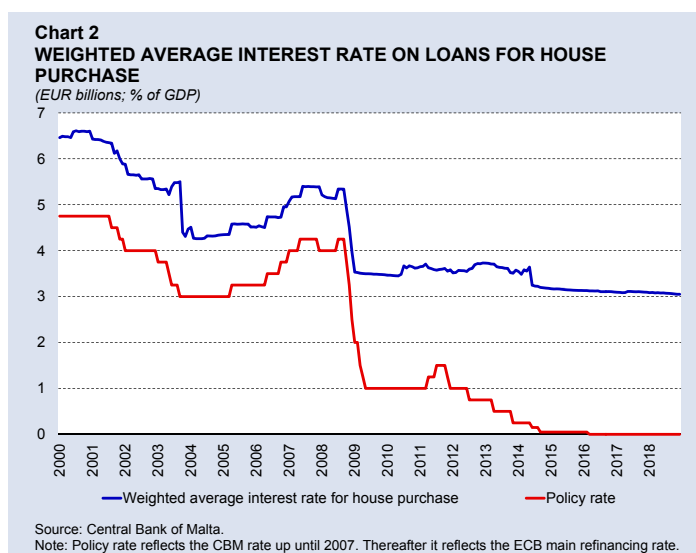
controls in place, which were completely abolished in 2004, and the steady growth of income which was channelled to the property market. Furthermore, the liberalisation of the banking sector in the early 1990s ended an era of financial repression which led to declines in interest rates, fuelling demand further. In addition, the repatriation schemes adopted between 2001 and 2005 diverted significant funds towards the property market. Malta's accession in the EU in 2004 also led to improved expectations of economic prospects, driving house prices further up.⁴ As a result both the average monthly repayments – based on an assumed maturity period of 40 years to purchase a median property – and the median property price-to-income – which measures housing affordability – increased significantly, peaking in 2007 and 2006 respectively (see Chart 1).⁵



“The low interest rate environment ... contributed to drum up housing demand as borrowers could finance the acquisition of property at a relatively cheaper rate”

Thereafter, house price growth slowed down with drops recorded in 2009, 2011 and 2013 as the global financial crisis resulted in some spill-over effects. The accommodative monetary policy response by the European Central Bank pushed down the weighted average interest rate on loans for house purchase from more than 5% in 2007 to just above 3% in 2010 and remained relatively stable thereafter (see Chart 2). Lending rates in Malta are based on the banks' base rate which in turn tend to follow – albeit sometimes with a lag – developments in the ECB's main refinancing operations rate.⁶ As a result both the average monthly repayments and the median property price-to-income ratio declined to levels generally in line with those reported in 2000 and remained generally stable until 2014.

Since 2014, house price growth gathered momentum, averaging at around 5.8% in 2018. Various factors can be attributable for this increase including the low interest rate environment which contributed to drum up housing demand



⁴ Source: Central Bank of Malta, Annual Report 2016, Box 3: An assessment of the Maltese Housing Market

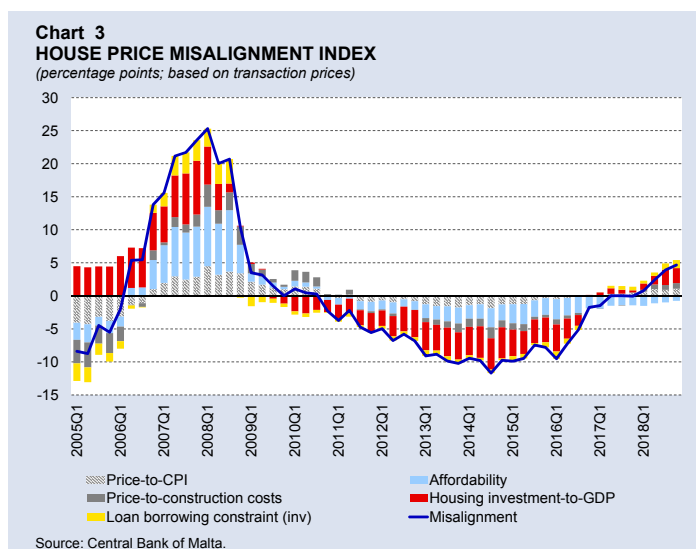
⁵ The average monthly repayment is based assuming a down-payment of 10% and a mortgage with a term of 40 years. A shorter maturity would result in a larger monthly average repayment.

⁶ Source: Interest rate pass-through in Malta, Central Bank of Malta, 2014. The responsiveness of lending rates in Malta to changes in the ECB's main refinancing rate decreased in recent years as observed by the increased spread between the two rates.

as borrowers could finance the acquisition of property at a relatively cheaper rate. Demand was further incentivised via budgetary measures first announced in November 2013 aimed at first-time buyers and, more recently, also for second-time buyers.

Inward migration also drove up demand, together with a flourishing tourism industry which has seen a greater share of tourists staying in rented private accommodation.

At the same time, robust job-rich economic growth has led to increases in disposable income, supporting borrowers to climb up the property ladder. Female participation in the labour market also increased significantly, from just 37.7% in 2007 to 63.4% in 2018, boosting households' income, which in turn may have cushioned the impact of higher property prices. Indeed, whilst the average monthly repayments increased significantly in recent years surpassing the peak in 2007, the increase in the monthly average repayment compared to the average wage was much more contained and below the levels reported in 2006-2007. This development is also mirrored in the median price-to-income ratio.



“This represented the highest number of dwelling permits issued in one year, compared to the previous high of 11,343 units reported in 2007”

Demand pressures led supply to respond, with the number of permits for the construction of dwellings increasing by more than 30% annually in these last four years, to reach 12,885 in 2018. This represented the highest number of dwelling permits issued in one year, compared to the previous high of 11,343 units reported in 2007.⁷

Such house price increases in part corrected for past price misalignments, though in recent quarters the Central Bank of Malta's house price misalignment index showed house prices to be slightly above the level consistent with fundamentals. Still, this level remains significantly contained when compared to the level reported prior to the intensification of the global financial crisis (see Chart 3).

Banks' Exposure to other Property-related Loans

Resident credit by the core domestic banks was predominantly driven by mortgage lending, which picked up further in 2018, growing by 8.8%, 0.6 percentage point higher than in the previous year. Despite this increase, growth was still significantly lower than the double-digit growth rates recorded pre-2008, and it was still proportionate to nominal GDP growth. The share of resident mortgages to total resident lending rose to account for almost half of the banks' lending portfolio compared to around 32% a decade before. Meanwhile, lending to resident construction and real estate rose by 7.0% during 2018, following a number of years of anaemic or negative growth as supply was correcting for previous imbalances in the market.

“The share of property-related lending in the banks' loan portfolio increased from 52.2% in 2008 to about 63% in 2018”

Overall, the share of property-related lending in the banks' loan portfolio increased from 52.2% in 2008 to about 63% in 2018 (see Chart 4).

⁷ Other measures include a relaxation of height restrictions in highly urbanised areas and amendments to the legal framework of the rental market, increasing the supply of properties for rent.

As can be seen in the chart, the composition of banks' exposure to the real estate market shifted considerably in the last ten years, away from the construction and real estate sector towards mortgages. From a risk-based perspective, this translates into lower concentration risk as lending is increasingly spread among a larger number of small borrowers rather than concentrated on a small number of large borrowers. This is more so since households' balance sheets have remained generally resilient in the past decade. In fact, despite the increase in borrowing by households, household debt-to-GDP continued to decrease to just below 50% in 2018, whilst household debt-to-disposable income stood at 89.8% in 2018, below the euro average of 93.5% (see Chart 5).⁸ Furthermore, households continued to accumulate wealth, with their net financial wealth expanding by 4.6% in 2018 to around 158% of GDP. This growth mainly stemmed from higher holdings of currency and deposits and deposits which accounted for more than half of their financial wealth.

“Lending is increasingly spread among a larger number of small borrowers rather than concentrated on a small number of large borrowers”

Chart 4
SHARE OF PROPERTY-RELATED LOANS
(per cent of total resident loans)

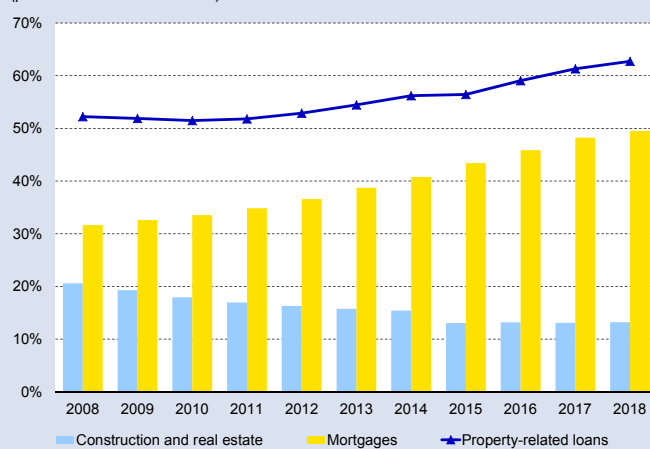
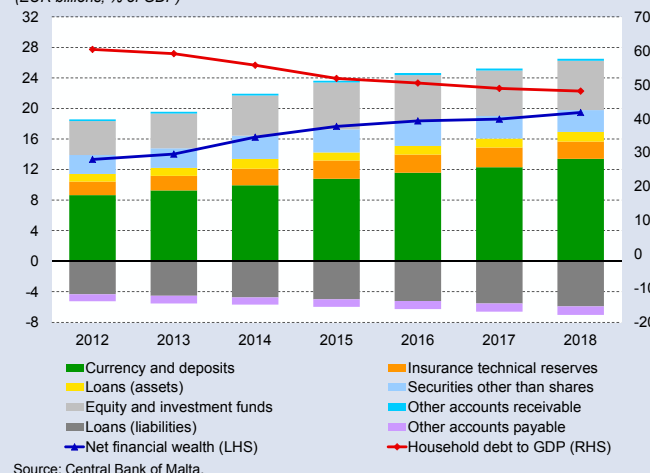


Chart 5
NET HOUSEHOLD FINANCIAL WEALTH
(EUR billions; % of GDP)



Lending Practices by Core Domestic Banks

To better assess developments in banks' lending behaviour towards real estate, in 2015, the Central Bank of Malta launched a Real Estate Lending Practices Survey (RELPS) among the core domestic banks to gather granular information on their lending policies. The survey distinguishes between first-time buyers and other buyers, the latter further split between those upgrading their primary residence and others purchasing their second property. This survey was supplemented with a one-time exercise to collect a sample of loans granted between 2011 and 2015.

Survey results indicated that the overall weighted loan-to-value (LTV), loan-to-income (LTI) and loan-service-to-income (LSTI) ratios for residential real estate loans at origination remained conservative at an aggregate level.⁹ In 2018, the overall weighted average residential LTV stood at 72.7%, with a LTI and LSTI of about

⁸ Source: ECB Household sector report, 2018 Q4.

⁹ For each bank, the LTI and LTV ratios are weighted on the credit limit whilst the LSTI is weighted on the debt servicing (annual repayment) of the residential real estate loan. Subsequently the individual banks' ratios are weighted according to the respective bank's market share to arrive at the overall weighted average ratios.

Table 1
CORE DOMESTIC BANKS' LENDING PRACTICES – 2018

RRE Market	LTV (per cent)	LTI (per cent)	LSTI (per cent)	Maturity (years)
90th percentile	90.0	606.7	30.0	39.0
75th percentile	88.2	517.3	26.3	35.0
Median	77.3	400.7	21.3	30.0
Average	69.4	392.1	20.9	28.6
Weighted average	72.7	423.3	23.3	27.7

Source: Central Bank of Malta.

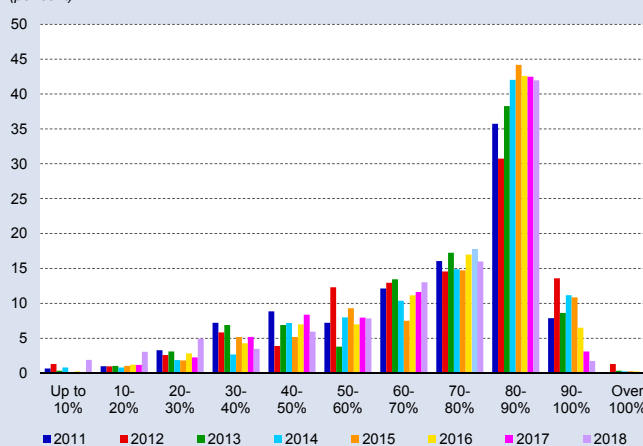
4.2 times and 23.3%, respectively. The average maturity of such loans stood at just under 28 years (see Appendix 1).

Aggregate levels, however, hide dispersions in the data, with some pockets of vulnerabilities existing at the tail ends of the distribution (see Table 1). At the 90th percentile, the LTV ratio was 90%, in line with the internal banks' policy which generally requires a minimum down-payment of 10%. Residential real estate (RRE) loans remained mainly concentrated in the 80-90% LTV bucket (see Chart 6). The share of loans exceeding 90% has decreased throughout the years assessed, indicating that tail end risks declined. Indeed in 2018, only 1.9% of total RRE loans exceeded the 90% LTV ratio in 2018, compared to a high of almost 15% in 2012, some of which are backed by additional collateral.

“Borrowers are increasingly required to borrow more compared to their income, resulting in higher loan repayments, possibly indicating increasing pockets of vulnerability should there be a downturn”

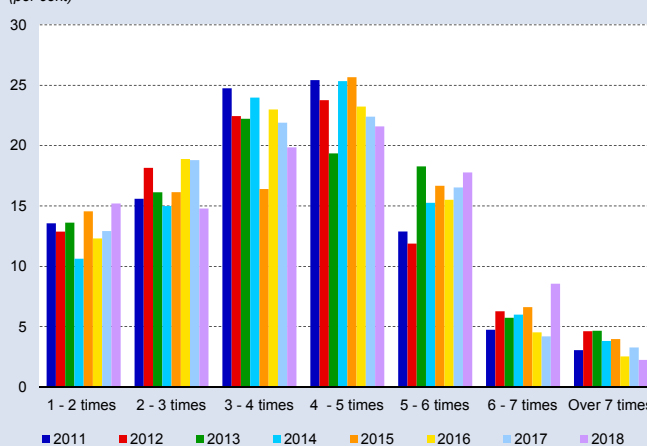
Almost half of loans are concentrated within the three to five times the gross income. However, the share of loans within the 5-6 times bucket increased throughout the periods assessed (see Chart 7). Similarly, a shift was observed in the LSTI which moved from 15%

Chart 6
LTV – DISTRIBUTION TIME SERIES
(per cent)



Source: Central Bank of Malta.

Chart 7
LTI – DISTRIBUTION TIME SERIES
(per cent)



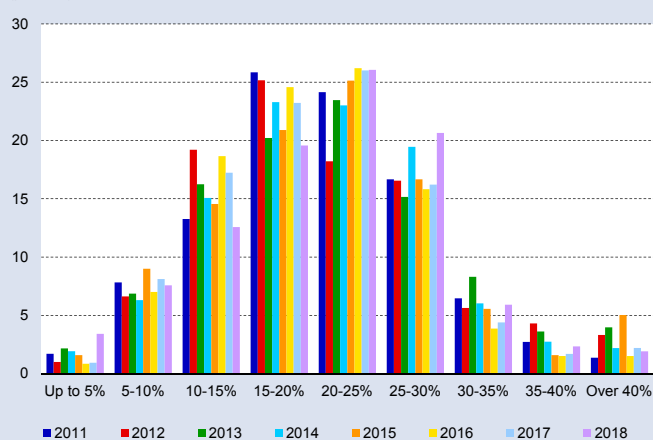
Source: Central Bank of Malta.

to 20% between 2011 and 2014 to 20% and 25% bucket in recent years (see Chart 8). This indicates that borrowers are increasingly required to borrow more compared to their income, resulting in higher loan repayments, possibly indicating increasing pockets of vulnerability should there be a downturn.

Some differences are also observable between categories of borrowers. First-time buyers tend to be younger, taking loans with a longer term-to-maturity generally until retirement age. Indeed, during the period under review, the weighted average term-to-maturity stood at an average of 32 years, about six years longer than loans taken up by other buyers. First-time buyers also tend to have a lower down payment which is reflected in a higher average LTV. On average it stood at 77.3%, again noticeably higher than for other buyers, particularly for those purchasing their primary residences which, in turn, tend to have a lower LTV, as the down payment is generally available from the sale of their previous primary property. Indeed, on average almost half of first-time buyers were granted a LTV of between 80 to 90%, with the share increasing during the period assessed, whilst loans with LTVs in excess of 90% declined. Meanwhile, the share of loans within the 80 – 90% bucket are lower for the two groups within the non-first time buyers segment, particularly those purchasing a new primary residence (see Chart 9).

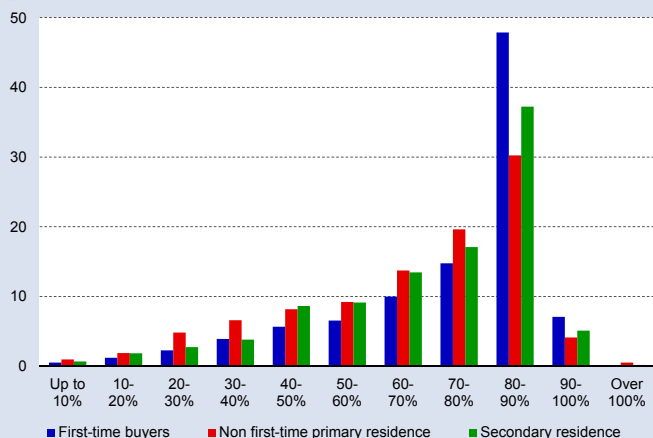
The LTI for first-time buyers stood on average at 4.3 times the gross income, higher than the 4.1 times reported by other buyers. The higher average LTI ratio for first-time buyers is attributable to the larger number of loans within the '4 to 5' and '5 to 6' times the gross income (see Chart 10).¹⁰ In

Chart 8
LSTI – DISTRIBUTION TIME SERIES
(per cent)



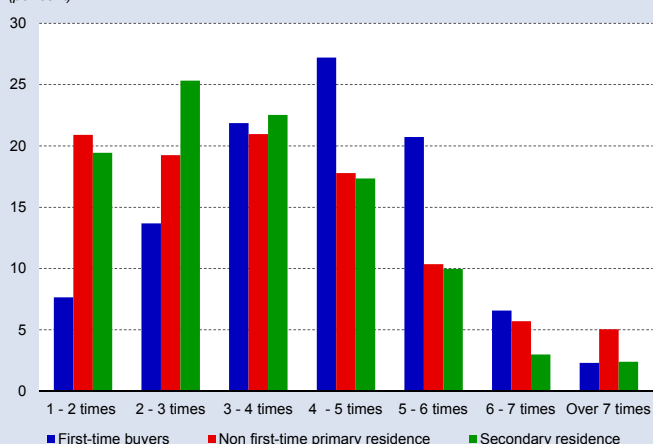
Source: Central Bank of Malta.

Chart 9
LTV – DISTRIBUTION BY CATEGORY
(per cent)



Source: Central Bank of Malta.

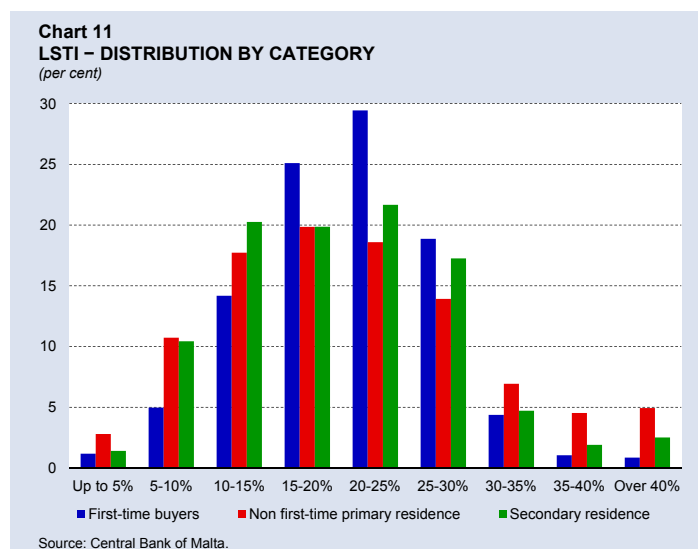
Chart 10
LTI – DISTRIBUTION BY CATEGORY
(per cent)



Source: Central Bank of Malta.

¹⁰ A substitution effect was observed where loans within the 3-4 times the gross income decreased throughout the period assessed and instead more borrowers were granted loans of 5-6 times their gross income.

contrast, second-time buyers are more inclined to have lower LTI ratios. Nevertheless, given the longer maturity, the debt repayment burden for first-time buyers tends to be somewhat lower at 21.8%, as repayments are spread across a longer timeframe, compared to 26% for other buyers. Indeed, most first-time buyers have an LSTI in the 15%-25% buckets with only 6.3% of loans exceeding the 30% level. Non-first time buyers have a larger number of loans in the tail ends, with 16.4% of loans for primary residence exceeding an LSTI of 30% whilst 9.1% of the loans for secondary residences exceeded this limit (see Chart 11).



Characteristics of Mortgage Loans

Based on information obtained from the RELPS, the vast majority of mortgage loans granted in Malta are amortising variable rate loans. Drawing from the banks' regulatory reporting in 2018, 62.1% of the loans for house purchase were granted at variable rates or at a fixed rate for up to one year; compared with 74.3% in 2017. Almost all of the remaining mortgage lending was granted with an initial interest rate fixation period of between one and five years. These are typically loans granted with a fixed interest rate period of between two to three years, at a rate which is somewhat lower than that for variable rate loans. When the fixed interest rate period expires, these loans become variable rate loans in line with the normal practice in Malta. The share of such loans increased in 2018, amounting to 37.7% of total loans granted, compared with 25.4% granted in 2017. Meanwhile, only 0.2% of the total mortgages have a fixed interest rate for over five years.

“Tests show that on the back of already conservative lending practices, the debt service burden is estimated to remain sustainable under a stressed scenario, though pockets of vulnerabilities do exist”

Variable rate loans contribute to mitigate interest rate risk for banks but may be considered as riskier from a borrowers' perspective – particularly in the event of rising interest rates, leading to higher debt servicing costs and potentially higher credit risk. For this reason, the Central Bank of Malta runs regular stress tests on households' ability to pay, sampled from the RELPS simulating a scenario in which interest rates increase by 150 basis points. These tests show that on the back of already conservative lending practices, the debt service burden is estimated to remain sustainable under a stressed scenario, though pockets of vulnerabilities do exist given households' income heterogeneity. Indeed, in such a stressed scenario, based on the 2018 sample of mortgage loans, the share of all exposures to exceed a LSTI of 40% would increase by only 2.5 percentage points to 4.4%. Given the small magnitude of resulting distressed households, these are not expected to be systemic in nature. Meanwhile, only 0.8% of first-time buyers exceeded the 40% LSTI threshold when shocked, with only 10.1% and 5.3% for non first-time primary residence and secondary residence, respectively.

Panel B: Borrower-based Measures – Theory and Practice¹¹

The Case for Borrower-based Macroprudential Policy

Borrower-based measures, such as Loan-to-Value (LTV), Loan-to-Income (LTI) and Debt-Service-to-Income (DSTI) ratio restrictions, operate on households which seek to part-finance the purchase of residential property through a bank loan. In the case of LTV ratio restrictions, a bank typically offers to lend up to a maximum fraction of the value of the property under consideration. This fraction is the maximum LTV ratio, and the relationship between the loan offer, the property value and the maximum LTV ratio can be represented by the inequality:

$$\text{Loan offer} \leq LTV^{max} \times \text{Property Value} \quad (1)$$

Prospective buyers decide how much of the property value they can finance using own funds, and determine the funding gap that needs to be filled through a bank loan.¹² If the loan offer is just enough to satisfy this funding gap, then the borrower is said to be *constrained* by the borrowing limit implied by the maximum LTV ratio. If, on the other hand, the funding requirements are lower than the limit, then the borrower is unconstrained. A high maximum LTV ratio allows potential buyers to leverage up their purchase of the property, reducing their reliance on internal funds.

In the case of LTI ratio restrictions, the bank lends up to a multiple of one's annual income, whilst a limit on the DSTI ratio aims to keep the servicing requirements manageable, such that the loan is less likely to become 'non-performing' in the event of an economic slowdown.¹³

Note that in inequality (1) above, the maximum loan that is offered is affected by both the maximum LTV ratio and the value of the property. In theory, a rise in property prices could, all else equal, lead to a rise in mortgage credit if borrowers are unable to finance the increase in price using own funds.

In this scenario, property demand may keep on rising despite the increase in prices, and banks may continue to extend high LTV loans which are backed by the rising collateral value of housing.¹⁴ Left unchecked, this process can spiral off to unsustainable trends and may even lead to a financial crisis that is followed by a recession, similar to the events that unfolded across several advanced economies in 2007/2008.¹⁵

“Highly leveraged house purchases across a large cross section of households in the economy can lead to an overheated property market and ultimately increased systemic risk”

Whilst a single 'high LTV' transaction may not pose any risks to the individual or to the financial system as a whole, highly leveraged house purchases across a large cross section of households in the economy can lead to an overheated property market and ultimately increased systemic risk.¹⁶ This is because high indebtedness makes households more vulnerable to negative shocks, such as rising interest rates or a fall in asset prices. Indeed, high economy-wide leverage in the real estate market is shown to be the single most important predictor of financial crisis across many countries (Jorda et al. 2016; Schularik and Taylor, 2012). Maintaining financial stability by, *inter alia*, limiting vulnerabilities brought on by excessive credit growth is therefore a prime objective of macroprudential policy (ECB, 2016). To this end, policy tools which aim to limit a rise in leverage such as maximum LTV, LTI and DSTI ratios are needed.

¹¹ Prepared by William Gatt, Principal Research Economist in the Research Department of the Central Bank of Malta, and Ph.D. Candidate, School of Economics, University of Nottingham. I would like to thank Brian Micallef for valuable comments and suggestions.

¹² Note that $(1 - LTV^{max})\%$ is the down payment made on a mortgage.

¹³ Mortgage payments would subsequently reduce the level of disposable income the borrower has available to finance other expenditure. If the monthly payment eats up a big chunk of the borrower's salary, then it is likely that the borrower becomes unable to meet the monthly obligations if hit by an adverse shock, such as unemployment.

¹⁴ This phenomenon is referred to as the financial accelerator; see Kiyotaki & Moore (1997) and Iacoviello (2005).

¹⁵ Whilst a financial accelerator can also take place due to an LTI constraint, empirically property prices are much more volatile than income, and therefore the key link is between credit and house prices.

¹⁶ It is for this reason that some countries have opted for a 'speed limit' approach, allowing some individuals to take on higher leverage than the regulatory threshold. See below for further details.

Introducing lower LTV and LTI ratio requirements during real estate booms would limit an economy-wide rise in mortgage credit.¹⁷ In this case, a prospective borrower who was previously unconstrained but is now up against either the LTV or LTI limit would need to accumulate more internal funds. To this end, such macroprudential policies not only reduce leverage but also encourage household saving.¹⁸ Furthermore, proactive policy establishes the regulatory framework ahead of a rise in systemic risk, introducing leverage limits which are not presently constraining, but readily available for any anticipated rise in vulnerability.

Whilst some countries have been using borrower-based macroprudential tools for several years, many more have established such policies in the wake of the financial crisis of 2008. Cerutti et al. (2017) use the Global Macroprudential Policy Instruments survey database compiled by the IMF and document that, in 2000, 9% of countries from a sample of 119 had at least one borrower-based policy in place. This rose to 34% by 2013. The authors find that the implementation of borrower-based tools had a negative and statistically significant effect on household credit in advanced economies.¹⁹ Although the success or lack thereof of these policies is not conditional on which institution implements these policies, the authors document that 70% of all policy tools across the 119 countries are implemented by the central banks of these countries.

Selected Case Studies

We now look at a few case studies of countries which adopted one or several of these borrower-based tools for macroprudential considerations since the financial crises.²⁰ In practice, there is a general tendency to treat differently the purchase of a house for own residency, and that for rental investment purposes (henceforth buy-to-let). The latter is typically subject to tighter restrictions as such loans are regarded as riskier and more prone to speculation (Bank of England, 2015; Cassidy and Hallissey, 2016).

Sweden was amongst the first in Europe to introduce a maximum LTV requirement of 85% in October 2010, and at the time it was estimated to have affected one in every five new buyers (Andersson et al., 2018). This measure was introduced by Finansinspektionen, the financial supervisory authority in Sweden, during a time of rising household leverage. Andersson et al. (2018) conducted formal analysis based on survey data and showed that the introduction of the mortgage cap in Sweden lowered borrowing by households who were constrained by the limit and led them to purchase less expensive houses. Additionally, this policy affected mostly borrowers younger than 30 and older than 65 years, lowering the debt they took on by about 20%. Meanwhile, mortgage applicants aged between 31 and 65 lowered their total debt by around 10%. In June 2016, an additional amortisation requirement was imposed for households taking on mortgages with an LTV ratio greater than 50%. This causes households to repay the principal component of the loan quicker, thus reducing household indebtedness and increasing household resilience.²¹ The authors show that these policies have played a role in further reducing household indebtedness by leading households to take on smaller mortgages.

The Reserve Bank of New Zealand introduced its macroprudential policy framework in October 2013, when the property market in New Zealand was running hot and both interest rates and inflation were very low. Instead of imposing a maximum LTV limit across the board, it adopted a so-called ‘speed limit’ approach, in which banks can issue a small fixed share of new loans at an LTV greater than the maximum (Hargreaves, 2016). Therefore, although this policy set the maximum LTV ratio for house loans at 80%, it allowed banks the possibility to write up to 10% of new loans for a higher share of the total value of the property to be purchased. It revised these thresholds a few times since 2013. In November 2015, the Reserve Bank of New Zealand relaxed the speed limit to 15% for mortgages across all cities except for Auckland, which was rather

¹⁷ Crowe et al. (2013) find a positive relationship between the maximum LTV in an economy and the extent of house price appreciation. Although not necessarily causal, it illustrates an important link between these two variables. Alam et al. (2019) recently provide evidence in favour of a causal relationship from a reduction in LTV limits to lower credit growth, especially when maximum LTV regulation is introduced in an environment of a generally loose LTV cap.

¹⁸ A smaller loan with the same maturity for the same property also implies lower mortgage payments relative to income.

¹⁹ See also Kuttner and Shim (2016), who find that DSTI ratio reductions slow down growth in housing credit.

²⁰ It is worthwhile noting that the Hong Kong Monetary Authority has been using maximum LTV ratio policy since 1991.

²¹ Households with LTV ratio greater than 70% must amortise at least 2% of the loan each year, whilst those with an LTV between 50% and 70% must amortise at least 1%. These requirements were tightened further in March 2018 for households with an LTI ratio greater than 4.5, which must amortise an additional 1% a year; see Finansinspektionen (2018).

uniquely experiencing strong house price and credit growth. Furthermore, it introduced lower limits for buy-to-let loans at 70% (with a speed limit of 5%).²²

The Reserve Bank of New Zealand does not stick to any formal policy rules to re-assess these thresholds but instead opts for “guided discretion” by looking at several indicators and publishes these considerations in its Financial Stability Reports (Rogers, 2014, p. 7). It has described its experience so far with this borrower-based macroprudential policy as a “qualified success” (Spencer, 2018, p. 4).

The Central Bank of Ireland introduced maximum LTV and LTI ratios in February 2015, during a period of strong house price growth, following a two-month consultation process. The aim of these mortgage market measures is “to mitigate the risks of credit-house price spirals emerging” (Central Bank of Ireland; 2017, p. 4). However, the objective of these policies is not to influence house prices directly. The policy set an LTV ratio limit of 90% on loans for first-time buyers on the first €220,000, and 80% for values above this, whilst second and subsequent buyers faced a maximum LTV ratio of 80% on the full amount. A speed limit of 15% for both categories applies.²³ On the other hand, buy-to-let borrowers were subject to a 70% LTV ratio limit, with a 10% speed limit allowance. The Central Bank of Ireland also introduced complementary maximum LTI ratios of 3.5 of borrowers’ combined gross annual income, with a speed limit of 20% for primary dwelling homes.²⁴ In January 2018, it tightened policy by revising the LTI ratio speed limit down to 10% for second and subsequent buyers. However, it kept the speed limit for first-time buyers unchanged since most borrowers in this category tend to be young and therefore are more likely to experience strong income growth until the loan matures.²⁵

The Bank of Portugal very recently introduced three borrower-based macroprudential measures in the form of maximum LTV ratios, DSTI limits and limits on term-to-maturity. Maximum LTV limits of 90% and 80% apply for the purchase or construction of one’s residence and for purposes other than own residence, respectively. At the same time, most loans must carry a DSTI ratio of up to 50%, with up to 20% of new loans limited to a 60% DSTI ratio, and a further 5% with no limit. Furthermore, the term-to-maturity of these mortgages is limited to 40 years, with an aim to reduce the average maturity of new mortgages to 30 years by 2022. The DSTI limits are ‘stressed’ limits, in the sense that the debt servicing calculation for variable rate mortgages takes into account the effect of a potential future rise in the interest rate. This approach makes borrowers more resilient to a higher cost of borrowing brought on by monetary policy tightening, reducing the potential for non-performing loans.

²² In October 2016 the speed limit for residential mortgage loans was again tightened to 10%, and the maximum LTV ratio for buy-to-let loans was further reduced to 60% at the same speed limit of 5%. This was due to continued strong activity in the housing market. After signs of a moderation in the housing market, in January 2018 the Reserve Bank of New Zealand relaxed the speed limit on residential mortgages to 15%, and raised the maximum LTV ratio on buy-to-let loans to 65%.

²³ To reflect developments in house prices, the Central Bank of Ireland removed the property value threshold and allowed all borrowing to first time buyers to be capped at a 90% of the total value of the property. At the same time, it reduced the speed limit to 5% for loans above this ratio, and raised the speed limit for non-first time buyers to 20%. See Central Bank of Ireland (2016).

²⁴ Some borrowers were exempted from these measures; see Cassidy and Hallissey (2016) for further details.

²⁵ See Central Bank of Ireland (2017).

Panel C: The Policy Response²⁶

Real estate lending is prone to cyclical fluctuations. In the booming phase, strong labour markets, optimistic economic outlook and abundant credit feed into high demand, which tends to push property prices up. This pro-cyclicality may be further exacerbated if credit standards are eased during an upswing. Such risky behaviour may lead to a deterioration in the resilience of both borrowers and lenders to potential future shocks. Empirical evidence suggests that macroprudential instruments are effective in smoothing cyclical fluctuations (Panel B). The introduction of pre-emptive borrower-based measures (BBMs) reduces the need for further policy measures in case of a turning point in the domestic real estate market and concurrently preserves the current prudent and sound lending standards. To reach this objective, the Bank issued [Directive No. 16](#) on the Regulation on Borrower-Based Measures. Measures had already been taken by domestic authorities to mitigate vulnerabilities in the RRE market, including:

- (i) the adoption by the MFSA since 2008 of more stringent measures than those specified in Article 124 of the Capital Requirements Regulation (CRR).²⁷ In this respect, mortgages secured by residential property attract a higher risk-weight of 35% for that part of the loan where the loan-to-value (LTV) does not exceed the 70% compared to 80% stipulated in the CRR, and a 100% risk-weight is applied for the remaining part of the loan where the LTV exceeds 70%;²⁸
- (ii) the revised [Banking Rule No. 9](#) – to ensure that domestic banks hold adequate reserves as a buffer against the stock of non-performing loans (NPLs) to strengthen the banks' loss absorbing capacity.²⁹ This measure acts as an incentive for credit institutions to grant loans in a prudent manner. The Rule also requires the Board of Directors and senior management of a credit institution to implement a robust impairment loss measurement policy and valuation policy as part of its credit risk management framework. The collateral valuation policy should at least comprise the following: (a) the criteria for expertise and independence of the appraiser; (b) the determination of fair value; (c) the determination of costs to sell, if applicable; (d) the assumed time line for recovery; (e) clear instructions to appraisers for the evaluation; and (f) the allocation of fees; and
- (iii) the [MFSA publication of Banking Notice on the Management of Credit Risk by Credit Institutions](#), provides best practice guidelines on effective management of credit risk. This Notice is modelled on the main requisites of the document dated September 2000 entitled [Principles for the Management of Credit Risk](#) issued by the Basel Committee on Banking Supervision (BCBS).

“Such risky behaviour may lead to a deterioration in the resilience of both borrowers and lenders to potential future shocks”

These policy measures contribute to ensuring financial stability, with capital-based tools targeting lenders' resilience and borrower-based tools strengthening borrowers' resilience and households' financial sustainability. Simultaneously, such tools help protect the banks' balance sheets against any cyclical fluctuations in the property market.

The Bank, as the macroprudential authority, is responsible for formulating and implementing macroprudential policy through a number of tools aimed at containing the build-up of systemic risk. In line with its macroprudential mandate set out in [Directive No. 11](#) and following a recommendation by the Joint Financial Stability Board (JFSB), on 1 October 2018, the Bank launched a public consultation on the proposed regulation on BBMs (see Figure 1).³⁰

²⁶ Prepared by Svetlana Privitelli, Senior Economist within the Policy and Crisis Management Office of the Central Bank of Malta.

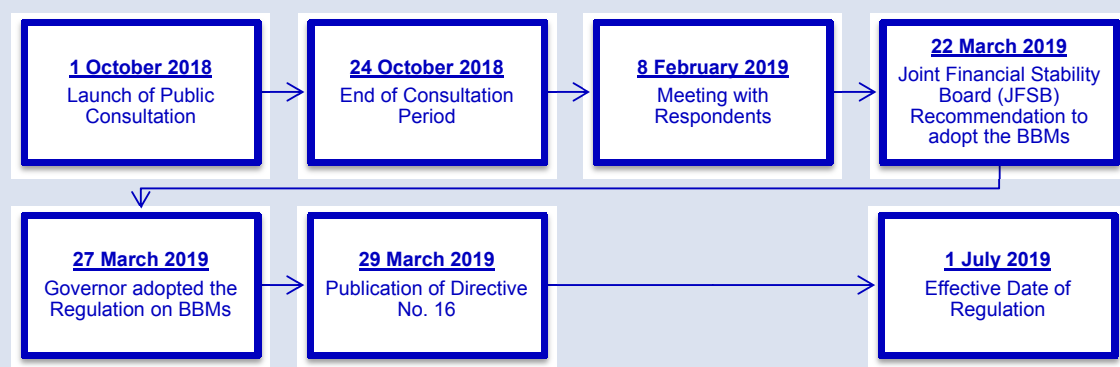
²⁷ Capital Requirements Regulation <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0575&from=EN>

²⁸ As per the current Article 124 of the CRR, domestic authorities have the power to set a risk weight of up to 150% or stricter criteria with respect to the LTV level.

²⁹ BR/09/2013 (Measures Addressing Credit Risks Arising from the Assessment of the Quality of Asset Portfolios of Credit Institutions Authorised under the Banking Act 1994) was revised in December 2016. Credit Institutions with NPL levels higher than the stipulated threshold of 6% would be required to implement an NPL Reduction plan.

³⁰ [Consultation on the Proposed Directive on Borrower-Based Measures](#)
[Draft Directive on the Regulation of Borrower-Based Measures](#)

Figure 1
TIMELINE OF BBMs



The Bank received feedback from the Malta Bankers' Association, credit institutions and advisory service firms. On 8 February 2019, the Bank jointly with the MFSA held a meeting with the respondents to discuss the main amendments applied to the proposed Directive following the analysis of the feedback received. Apart from meeting with the banks and their representative bodies, the Bank and the MFSA discussed the proposed Directive with IMF and ECB experts. Following these consultations, on 29 March 2019, the Bank published [Directive No. 16](#) on the regulation of BBMs with an effective date of 1 July 2019. The publication of the Directive was accompanied by a post-consultation [feedback statement](#).

The policy measure introduces limits on specific lending criteria adopted by lenders, including the (i) Loan-to-Value at Origination (LTV-O) ratio, (ii) stressed Debt-Service-to-Income at Origination (DSTI-O) ratio and (iii) maturity (see Table 1). Restricting RRE lending volumes at high LTV-O ratios, DSTI-O ratios and maturities contributes to safeguard the current prudent lending standards adopted by domestic lenders. It is also important to highlight that these measures are not intended to replace lenders' existing internal credit risk assessment policies but rather to strengthen the existing menu of credit risk mitigation tools adopted by domestic lenders. In addition, the limits imposed in the Directive act as a minimum standard and lenders may adopt stricter limits according to their existing internal credit risk assessment policies provided that these are not in breach of the Directive.

In this regard, the measures introduced by the Directive cover all lenders engaged in the granting of domestic new RRE loans secured by RRE to both resident and non-resident borrowers.³¹ This means that the Directive does not limit its scope to credit institutions but covers also any potential financial institutions that could grant RRE loans. Such a wider scope, in turn, addresses any potential risk of policy circumvention or regulatory arbitrage.

In terms of the targeted borrowers, the measures distinguish between two categories referred to as Category I and Category II Borrowers in the Directive based on their respective risk profile.

Category I Borrowers includes first-time buyers (FTBs) and non-FTBs purchasing their primary residence who do not have outstanding RRE loans upon the signing of the deed. It also includes borrowers who already own or have owned a primary residence and at the origination of the mortgage loan such primary residence has either already been sold or is covered by a promise of sale agreement. This category also includes borrowers who have pending proceedings before the Civil Court (Family Section) which are hindering the sale of their primary residence. Category I Borrowers purchasing RRE with a collateral market value below €175,000 (excluding haircuts) are exempted from the LTV-O and DSTI-O limits specified in the Directive.³² Notwithstanding this exemption, loans falling below this threshold are still subject to prudent lending policies

³¹ New RRE loans granted to a natural and/or legal person/s from 1 July 2019 are subject to the limits specified in the Directive.

³² There are no exemptions on the maturity limits.

in terms of the [MFSA Banking Notice on the Management of Credit Risk by Credit Institutions](#) authorised under the Banking Act 1994 (BN/01/2002).

On the other hand, Category II borrowers includes any other RRE loan not classified under Category I, including Buy-to-Let (BTL) lending and purchases of summer residences. When compared to Category I borrowers, the borrowers in this category are deemed as exhibiting a higher risk profile and hence merit tighter policy parameters.

In the process of designing the macroprudential measure, the Bank deemed that a combination of borrower-based tools is the most appropriate technique to fulfil the outlined objective of the policy measure. Caps on the LTV-O are considered to lower the potential loss-given default (LGD) for borrowers and banks, whilst income-related caps (e.g. DSTI-O caps) lower the probability of default (PD) of the borrowers (see Panel B). Several EU countries have decided to jointly activate LTV and income-related quantitative restrictions as the joint activation of borrower-based tools prevents the potential circumvention of the policy measure. Whilst on one hand the LTV can directly lower LGD and also the PD of the exposures, the valuation of collateral can be procyclical and less binding in boom periods. Conversely, income limits act as automatic stabilisers as they are less sensitive to the credit cycle.³³

“A less accommodative monetary policy stance may exacerbate these risks, particularly in the domestic context where mortgage credit is granted at variable interest rates”

During the calibration process, the Bank analysed data on the current lending standards applied by domestic lenders and assessed the potential impact of the BBMs on total credit, house prices and the macro-economy.³⁴ The limits were calibrated in a manner to impact loans for borrowers with a riskier profile without significantly affecting lending to households in general as explained above. Furthermore, financial stability risks posed by the current monetary policy stance were also taken into account throughout the calibration process. The current low interest rate environment may act as an incentive for higher leverage and risk-taking as very low interest rates contribute to lower debt servicing and credit risk. Against this background, a less accommodative monetary policy stance may exacerbate these risks, particularly in the domestic context where mortgage credit is granted at variable interest rates. Accordingly, to mitigate these risks, an interest rate shock of 150bps was included in the DSTI-O calculation. The stress test assesses the borrower’s ability to repay in the case of an adverse interest rate shock and simultaneously generates a buffer to withstand a

Table 1
SUMMARY OF BORROWER-BASED MEASURES

	LTV-O	DSTI-O	Maturity
Category I Borrowers	90% LTV-O cap with a ‘ <i>speed limit</i> ’ of 10% on the volume of loans, for loans with a market value in excess of EUR175,000	A stressed DSTI-O of 40% for loans with a market value in excess of EUR175,000 with a shock to interest rates of 150 bps	A maturity term of 40 years or the official retirement age – whichever occurs first: 1952-1955: 62 years 1956-1958: 63 years 1959-1961: 64 years Born after 1961: 65 years
Category II Borrowers	<u>Gradual Phase-in:</u> <u>1st year:</u> 85% LTV-O cap with a ‘ <i>speed limit</i> ’ of 20% on the volume of loans <u>2nd year:</u> 75% LTV-O cap with a ‘ <i>speed limit</i> ’ of 20% on the volume of loans	A stressed DSTI-O of 40% with a shock to interest rates of 150 bps	A maturity term of 25 years or the official retirement age – whichever occurs first: 1952-1955: 62 years 1956-1958: 63 years 1959-1961: 64 years Born after 1961: 65 years

³³ ESRB – Notifications of Other National Macroprudential Measures https://www.esrb.europa.eu/national_policy/other/html/index.en.html

³⁴ Data was extracted from the Quarterly Survey on Mortgage and Commercial Lending Practices.

potential future increases in the level of interest rates. The Central Bank of Malta and MFSA have the discretion to adjust the extent of the interest rate shock if prevailing conditions in the RRE market change.

The definitions adopted in the Directive are significantly in line with the [ESRB Recommendation on Closing Real-Estate Data Gaps](#). For the purposes of the Directive, the LTV-O should encompass the sum of all loans or loan tranches secured by the borrower/s on the immovable property at the moment of loan origination relative to the market value of the property at that time. The collateral value should be determined in a prudent and conservative manner, in accordance with the collateral valuation policy criteria set out in [Banking Rule No. 9](#). Only the RRE backing the loan should be included in the calculation of the LTV-O.

The Directive provides the right flexibility to lenders in granting a proportion of their RRE lending volume with higher LTVs, and hence a lower deposit via what this Directive calls 'speed limits'. In other words, lenders will have the discretion to waive the limits and grant loans with an LTV-O ratio of more than 90% (i.e. a required deposit of less 10 %) for 10% of clients classified as Category I borrowers. Similarly, for the case of Category II borrowers, banks will have the leeway to set an LTV-O ratio higher than 75%, hence an upfront deposit of less than 25%, for 20% of their clients in this category. However, when the lender exercises its discretion for a higher LTV-O ratio within the speed limits prescribed in the Directive, additional collateral (both financial and non-financial) ought to be included. Such additional collateral should be in compliance with the internal policies of the lender. Given that the speed limit is based on a semi-annual basis, lenders have adequate time to compensate for any divergences.

The Directive also stipulates that the DSTI-O should include the annual total debt service relative to the total annual gross income of the borrower/s at the moment of loan origination, whilst the annual total debt should cover the total committed secured and unsecured borrowing of the borrower/s. Furthermore, the Directive states that the stressed DSTI-O should be calculated as follows:

$$\text{DSTI-O}_{\text{stressed}} = \frac{(\text{Annual Repayment} | \Delta r_{\text{stressed}})}{\text{Gross Income}}$$
$$\Delta r_{\text{stressed}} = +150 \text{ bps}$$

As explained earlier, this is in essence an affordability test which is done both in the interest of the borrowers and the banks. What this means in practice is that the banks will still charge borrowers their current mortgage interest rate when applying for a new loan and beyond. However, since mortgage loans are granted at variable rates and for a long period of time, interest rates may vary and increase over the period of the loan. To ensure that borrowers will afford to repay the principle including the interest over the term of the loan, the Directive obliges banks to add 150 bps to the current interest rate when calculating borrowers' affordability. The Directive stipulates that the stressed loan repayments cannot exceed 40% of gross income of the borrower. As also mentioned earlier this does not mean that the rate that the client would be required to pay as interest would increase by 150 bps. On the contrary, the interest rate offered to the client will remain the same as that agreed with the bank.

The Directive gives direction on the definition of gross income, namely the inclusion of the total annual monetary income received by the borrower/s, which is stable and recurrent, before any tax deductions. For joint loans, this should also include the joint gross income. With regard to BTL loans, gross income should also comprise the prospective rental income to be derived from the mortgage-backed property. However, the projected rental income should be subject to adequate haircuts in accordance with the internal policy of the lender. As for corporates, gross income should be calculated on the basis of Earning Before Interest, Tax and Depreciation and Amortisation (EBITDA).

The effectiveness and efficacy of the BBMs depend on the extent of compliance by lenders, and hence one of the keys to success for such measures is effective monitoring. Accordingly, the Bank granted a three-month transition period between the announcement of the measures and their application to ensure effective

compliance. Lenders are required to assess compliance with the regulation by means of an annual internal audit assessment and through an external audit assessment at the end of the financial year of the third year of application of the Directive. These assessments will, in turn, be forwarded to the Central Bank of Malta and MFSA for review and compliance purposes. Furthermore, these authorities will have the discretion to carry out additional measures beyond the audited assessments such as on-site inspections and the appointment of external auditors. In case of any breaches of the Directive, the Bank has the right to impose sanctions in accordance with Article 56 of the Act and the provision of [Directive No 12 on Administrative Measures and Penalties for Infringement under the Central Bank of Malta Act](#). This macroprudential measure reinforces the importance of promoting an adequate credit risk assessment framework. This has also been addressed at an EU level by means of the [Mortgage Credit Directive](#). The latter was designed to foster a single market for mortgages and to protect consumers.³⁵

The macroprudential measures presented above are designed to mitigate risks and vulnerabilities and strengthen the resilience of both lenders and borrowers through the setting of prudent lending standards.

The Central Bank of Malta intends to review this Directive and will seek to assess the impact of the measures introduced therein once enough time elapses to permit the gathering of adequate data. In this regard, the Bank is currently working on the enhancement of RRE data collection to target the requirements set forth in the [ESRB Recommendation on Closing Real-Estate Data Gaps](#) and simultaneously monitor compliance with the Directive.

The Impact Assessment³⁶

The Bank carried out an impact assessment using its macro-econometric model (STREAM) to quantify the impact of the proposed policy measures on the domestic economy via the credit channel.³⁷

Survey data on newly-issued loans submitted by core domestic banks was used to quantify the extent of the potential credit rationing due to the policy alternatives that were contemplated for this exercise. The data was probability-weighted so that survey data was up-scaled to represent the population of new mortgages grouped by ranges of the market value of collateral.

Given that *a priori* the financial conditions of borrowers could not be determined, the impact assessment was conducted under the assumption that, should the policy be in place, a borrower would still be able to purchase the desired property by settling for a lower credit limit that satisfies all applicable caps. This would be achieved either by making up for the difference through a higher initial deposit or by purchasing a cheaper property. For each loan, three new credit limits were calculated taking into account the respective cap on the:

- (i) LTV
- (ii) the stressed DSTI-O, and
- (iii) the maturity term by type of borrower.

Specifically, if in the first case, banks granted loans with an LTV higher than the prescribed LTV cap for Category I or Category II borrowers, the credit limit of these loans would be reduced to satisfy the policy requirement. If instead, loans would not satisfy the latter two caps, the credit limit was reduced on the basis of the revised monthly loan repayments to ensure that the borrowers would satisfy the respective stressed DSTI-O cap at the higher interest rate and the potentially reduced term-to-maturity. The extent of the credit rationing for the respective period could then be determined. The largest reduction for each loan, if any, was aggregated and compared with the total credit granted by core domestic banks for the purchase of a residential property in the absence of a policy. Assuming that the loan portfolio would retain its current composition,

³⁵ The Mortgage Credit Directive was transposed through Legal Notice 259 of 2016, which amended [S.L. 378.10](#) entitled 'Credit Agreements for Consumers Relating to Residential Immovable Property Regulations.'

³⁶ Prepared by Dr Alessandra Donini, Senior Economist and David S. Law, Senior Quantitative Analysis Officer within Stress Testing and Risk Models Office of the Central Bank of Malta.

³⁷ For further methodological details on the Bank's macroeconometric model, see O. Grech and N. Rapa (2016), "[STREAM: A Structural Macro-Econometric Model of the Maltese Economy – Version 3.0](#)", [Central Bank of Malta WP/01/2016](#).

the estimated extent of credit rationing defined the magnitude of the shock to housing credit in STREAM and the resultant impact on domestic macroeconomic variables.

Internal estimates indicate that the extent of credit rationing related to mortgages following the introduction of BBMs would be around 1.74% cumulatively over the three years of the analysis, as per Table 2 below. The estimated credit rationing mostly originates from a reduction in credit limits for loans granted to Category II borrowers, which constituted around a quarter of all new loans granted in a given period. In fact, the BBMs prescribed in Central Bank of Malta's Directive No. 16 are tighter for Category II borrowers when compared with Category I borrowers, i.e. a higher upfront stake would be required when purchasing the second property. By design therefore, Category II borrowers are impacted more heavily than Category I borrowers who in general will continue to face the same parameters existing prior to the Directive. In fact when considering only Category I borrowers, the measures are estimated to impact just 2.7% of this cohort. On the other hand when considering both Category I and II borrowers together, the impact is still limited to 13.2% of borrowers.

“The extent of credit rationing related to mortgages following the introduction of BBMs would be around 1.74% cumulatively over the three years of the analysis”

Under the assumption that the composition of the loan portfolio would remain the same as at the reference date, the *ex-ante* impact assessment reveals a minor impact on the domestic economy over the three-year horizon. Particularly, as displayed in Table 2, real GDP would experience a negligible cumulative drop over three years and unemployment and consumer prices would remain stable, whilst real house prices would drop by around 0.1%.

Thus, the reduction in mortgage credit due to BBMs is expected to have a negligible impact on the domestic economy in the short term, whilst significantly improving its resilience to any future shocks.

Table 2

IMPACT OF BBMs ON CREDIT AND SELECTED MACRO VARIABLES

Percentage deviation from baseline (no BBMs) (Per cent; *Percentage Points)	Year 1	Year 2	Year 3
Credit rationing: mortgages	-1.020	-1.740	-1.740
Real GDP	-0.001	-0.003	-0.004
Nominal GDP	-0.001	-0.004	-0.006
Unemployment rate*	-0.001	-0.003	-0.003
Real House Prices	-0.029	-0.074	-0.104
HICP	0.000	0.000	-0.001

Source: Central Bank of Malta calculations.

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Appendix 1

Table A1
CORE DOMESTIC BANKS' LENDING PRACTICES

Core Domestic Banks	Weighted LTV (<i>per cent</i>)								
	2011	2012	2013	2014	2015	2016	2017	2018	Average
Total Residential Real Estate Loans	72.4	73.1	72.9	73.9	77.8	75.1	73.5	72.7	73.9
First-time Buyers	75.3	75.2	76.9	80.2	78.9	77.4	76.5	77.9	77.3
Non-first-time Buyers	70.9	68.0	70.6	68.8	76.6	72.9	71.0	69.0	71.0
<i>Primary Residence (Other)</i>	69.3	71.6	69.6	68.2	77.1	71.4	71.0	67.7	70.7
<i>Secondary Residence</i>	75.1	74.1	82.4	71.4	72.2	75.1	70.9	69.7	73.9
Core Domestic Banks	Weighted LTI (<i>per cent</i>)								
	2011	2012	2013	2014	2015	2016	2017	2018	Average
Total Residential Real Estate Loans	384.9	457.9	434.0	398.9	456.0	429.0	428.1	423.3	426.5
First-time Buyers	388.7	429.7	413.9	397.8	490.9	436.3	437.9	440.8	429.5
Non-first-time Buyers	380.4	443.0	442.0	393.9	429.4	420.4	408.8	401.2	414.9
<i>Primary Residence (Other)</i>	413.9	476.5	456.6	396.5	445.6	442.6	405.3	402.1	429.9
<i>Secondary Residence</i>	277.1	424.0	328.1	368.6	309.9	381.8	388.0	421.8	362.4
Core Domestic Banks	Weighted LSTI (<i>per cent</i>)								
	2011	2012	2013	2014	2015	2016	2017	2018	Average
Total Residential Real Estate Loans	22.1	26.6	26.2	28.0	26.6	23.8	23.2	23.3	25.0
First-time Buyers	20.3	21.1	19.8	20.2	27.9	22.6	21.1	21.6	21.8
Non-first-time Buyers	22.7	26.8	28.4	32.0	25.7	24.8	23.8	24.0	26.0
<i>Primary Residence (Other)</i>	23.6	28.8	29.5	33.1	26.5	26.6	23.8	24.5	27.1
<i>Secondary Residence</i>	19.9	24.8	19.3	22.6	19.4	21.9	23.1	23.3	21.8
Core Domestic Banks	Weighted Maturity (<i>years</i>)								
	2011	2012	2013	2014	2015	2016	2017	2018	Average
Total Residential Real Estate Loans	28.7	28.4	27.4	27.6	28.9	28.8	28.3	27.7	28.2
First-time Buyers	33.2	33.5	34.0	30.8	29.9	31.4	32.0	31.7	32.0
Non-first-time Buyers	26.9	26.0	24.5	25.2	27.8	26.4	25.6	24.3	25.8
<i>Primary Residence (Other)</i>	27.8	25.8	24.3	25.1	28.2	26.5	25.6	24.8	26.0
<i>Secondary Residence</i>	23.7	22.9	26.6	25.2	27.9	26.3	25.6	23.6	25.2

Source: Central Bank of Malta.

APPENDICES AND GLOSSARY

Appendix A IMPLEMENTED POLICY MEASURES																		
Capital Buffer for Other Systemically Important Institutions (O-SII)	2016				2017				2018				2019				Implementation date	
Medirect	0.125%				0.250%				0.375%				0.500%				1 Jan. 2016	
HSBC Group Malta	0.375%				0.750%				1.125%				1.500%					
Bank of Valletta Group	0.500%				1.000%				1.500%				2.000%					
Countercyclical Capital Buffer (CCyB)	2017				2018				2019				Implementation date					
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3							
All credit institutions	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1 Jan. 2016					
Macro-prudential policy Reciprocity	2016				2017				2018				Implementation date					
Reciprocity of the Systemic Risk Buffer implemented by Estonia	1.0% for risk exposures exceeding €200 million				1.0% for risk exposures exceeding €200 million				1.0% for risk exposures exceeding €200 million				24 Oct. 2016					
Measures Addressing Credit Risk	2017				2018				Implementation date									
Borrower-based measures					Launch of public consultation with stakeholders				1 July 2019									
All credit institutions (BR/09/2019)	Implementation of NPL Reduction Plan for banks which exceed the 6% NPL ratio threshold				Implementation of NPL Reduction Plan for banks which exceed the 6% NPL ratio threshold				2 Jan. 2017									

Appendix B Financial Soundness Indicators

	Core Domestic Banks					Non-Core Domestic Banks					International Banks					Total Banks				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Core FSIs																				
Regulatory capital to risk-weighted assets ¹	14.44	15.00	16.16	17.28	17.29	17.44	22.11	15.48	16.68	16.89	69.15	56.34	49.20	47.93	52.51	25.65	21.75	21.17	21.68	21.94
Regulatory Tier 1 capital to risk-weighted assets ¹	11.53	12.15	13.98	15.19	15.15	17.05	18.59	12.27	13.31	16.84	69.14	56.19	46.69	45.28	49.88	23.58	19.19	18.53	19.39	19.95
Non-performing loans net of specific provisions & interest in suspense to total own funds ¹	42.21	42.84	28.90	22.37	20.61	7.71	7.86	11.98	6.87	11.99	2.16	3.79	8.15	6.89	11.81	18.27	24.32	20.10	16.34	17.07
Non-performing loans to total gross loans ¹	7.56	7.22	5.35	4.11	3.35	4.37	4.04	3.99	2.26	3.84	0.69	1.18	1.70	1.50	2.20	5.98	4.68	4.12	2.99	2.97
Sectoral distribution of resident loans to total loans																				
Agriculture	0.24	0.23	0.19	0.16	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.12	0.09	0.08
Fishing	0.09	0.10	0.07	0.35	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.05	0.20	0.14
Mining and quarrying	0.06	0.09	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.04	0.01	0.00
Manufacturing	2.73	2.75	2.57	2.64	2.49	0.55	0.57	0.31	0.43	0.34	0.00	0.00	0.01	0.01	0.00	1.67	1.68	1.60	1.50	1.50
Electricity, gas, steam and air conditioning supply	2.93	2.15	2.30	1.55	1.38	5.14	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	2.04	1.30	1.41	0.90	0.87
Water supply, sewerage waste management and remediation activities	0.63	0.54	0.46	0.43	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.33	0.28	0.25	0.23
Construction	7.32	5.24	4.88	4.54	4.37	0.00	0.00	0.03	2.51	3.30	0.00	0.00	0.00	0.00	0.00	4.39	3.15	2.99	2.74	2.78
Wholesale and retail trade; repair of motor vehicles and motor cycles	8.27	8.19	7.80	6.85	6.27	0.67	1.11	0.42	2.23	5.24	0.00	0.00	0.00	0.00	0.01	5.00	4.99	4.80	4.07	4.01
Transportation and storage	2.82	2.80	2.30	2.27	1.68	0.80	0.00	0.00	0.00	0.00	0.11	0.22	0.15	0.16	0.24	1.77	1.76	1.46	1.38	1.09
Accommodation and food service activities	3.78	4.12	3.47	2.78	2.96	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	2.48	2.12	1.61	1.77
Information and communication	0.93	0.93	0.67	0.48	0.52	0.11	0.11	0.02	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.56	0.50	0.41	0.28	0.31
Financial and insurance activities	4.79	5.68	6.79	6.26	6.13	0.74	0.80	2.59	3.71	1.91	0.02	0.03	1.31	0.06	0.00	2.92	3.58	4.74	3.61	3.76
Real estate activities (includes imputed rents of owner-occupied dwellings)	6.63	6.70	7.26	6.95	6.90	3.55	3.50	4.18	4.36	4.76	0.00	0.45	0.03	0.00	0.00	4.17	4.37	4.70	4.21	4.36
Professional, scientific and technical activities	0.87	1.12	1.26	1.42	1.69	0.00	0.00	0.00	0.86	0.80	0.00	0.00	0.00	0.00	0.00	0.52	0.68	0.77	0.86	1.05
Administrative and support service activities	1.37	1.22	1.02	0.81	0.65	0.08	0.11	0.69	1.09	0.76	0.01	0.01	0.01	0.03	0.03	0.83	0.74	0.67	0.52	0.43
Public administration and defence; compulsory social security	1.54	1.58	1.13	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.95	0.69	0.76	0.72
Education	0.36	0.44	0.33	0.29	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	0.21	0.17	0.17
Human health and social work activities	0.67	0.73	0.71	0.72	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.40	0.44	0.44	0.42	0.47
Arts, entertainment and recreation	0.52	0.47	0.38	0.32	0.27	0.39	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.33	0.29	0.24	0.18	0.16
Other services activities	0.28	0.27	0.21	0.18	0.19	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.17	0.16	0.13	0.11	0.13
Households and individuals (excl. Sole Proprietors)	43.60	46.18	46.26	47.51	46.85	0.11	0.14	0.14	2.62	3.45	0.01	0.01	0.01	0.00	0.01	26.15	27.78	29.56	27.66	28.15
Mortgages	36.87	39.77	42.28	42.37	42.29	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.11	23.91	25.89	24.57	25.24
Activities of extraterritorial organisations and bodies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-resident loans to total loans	9.60	8.37	7.84	12.16	14.62	87.62	93.57	91.60	82.10	78.25	99.86	99.26	96.46	99.73	99.72	46.07	44.31	42.57	46.22	47.84
Return on assets ²	0.71	0.71	0.76	0.70	0.51	-1.32	0.18	0.30	0.25	0.38	0.86	1.01	0.96	1.48	1.37	0.71	0.85	0.84	1.04	0.87
Interest margin to gross income	64.64	64.48	62.25	70.79	62.34	46.31	43.54	31.24	31.06	29.81	201.85	137.81	62.57	78.62	79.67	115.13	92.86	72.99	73.28	68.96
Non-interest expense to gross income	51.23	54.15	52.21	58.80	64.23	56.14	73.39	66.52	78.25	61.46	11.87	24.78	31.89	28.13	32.14	36.76	43.31	44.70	44.04	48.86
Non-interest income to gross income	35.16	35.52	37.75	29.21	37.66	53.69	56.46	68.76	68.84	70.19	-101.85	-37.81	7.43	21.18	20.33	-15.13	7.04	27.01	26.72	31.04
Liquid assets to total assets ³	28.31	31.77	36.52	29.36	27.57	31.68	36.34	33.45	28.58	32.01	19.67	22.72	30.14	20.56	18.66	27.28	31.19	35.56	16.80	27.18
Liquid assets to short-term liabilities ³	50.42	50.24	55.80	43.49	38.49	77.92	63.26	67.79	37.36	39.02	84.73	83.59	96.31	43.69	63.27	53.89	52.61	56.71	42.96	37.72
Other FSIs																				
Total coverage ratio ⁴	40.40	43.52	45.91	45.24	44.84	77.11	65.24	53.86	65.89	62.46	40.45	50.37	54.81	51.85	67.20	37.54	39.88	47.96	47.44	51.91
Liquidity Coverage Ratio ²	165.10	164.43	259.58	318.22	318.22	100.17	194.89	263.87	421.34	421.34	188.27	357.63	279.41	356.67	356.67	159.65	173.87	198.23	203.79	203.79
Domestic debt securities to total assets	9.63	9.30	7.90	7.00	6.45	4.56	7.74	4.86	3.16	2.00	0.00	0.17	0.09	0.15	0.11	3.86	4.54	4.02	3.57	3.67
Foreign debt securities to total assets	23.25	21.80	20.62	16.83	16.81	19.48	12.45	14.96	11.87	14.09	52.44	50.39	46.91	42.65	29.68	39.93	35.99	32.83	28.89	21.20
Unsecured loans to total lending	26.97	27.41	25.36	27.70	28.59	65.23	70.87	65.39	67.16	73.39	48.44	30.69	26.69	16.23	17.29	37.70	30.83	26.18	24.07	28.85
Assets to total capital and reserves	14.05	13.72	13.33	11.99	12.14	8.41	8.42	12.12	11.49	8.81	1.67	1.96	2.91	3.36	2.85	6.43	7.88	9.56	9.25	8.91
Large exposures to total own funds ¹	103.40	96.48	110.94	88.40	100.10	339.94	197.63	286.59	274.94	215.20	46.31	129.94	129.77	119.22	93.44	88.86	115.63	130.11	111.05	107.69
Gross asset position in financial derivatives to total own funds ¹	1.06	1.27	1.65	0.87	0.66	0.84	0.33	0.61	0.29	0.03	15.74	67.23	103.03	131.24	169.91	8.93	25.85	37.83	42.68	54.66
Gross liability position in financial derivatives to total own funds ²	4.49	2.02	2.04	1.03	0.88	2.24	0.27	3.60	0.29	0.91	10.43	15.86	69.19	80.24	104.76	10.43	15.34	22.57	26.41	34.12
Personnel expenses to non-interest expenses	50.81	51.18	48.76	48.05	37.99	44.98	42.46	49.74	45.61	49.81	27.40	23.18	19.88	16.22	14.06	47.40	43.95	40.52	37.58	31.26
Customer loans to customer deposits	63.98	59.22	55.95	58.87	69.91	75.69	60.68	46.51	47.14	50.56	93.05	104.08	108.14	111.55	189.52	71.79	67.69	65.66	70.35	78.04
Net open position in equities to total own funds ¹	14.43	15.44	14.01	13.10	11.39	44.97	81.83	146.79	138.75	108.83	0.26	2.74	1.45	3.40	4.67	8.98	18.10	35.95	18.58	17.48
Loan-to-value ⁶																				
Residential	73.94	77.77	75.12	73.53	72.71															
Commercial ⁷	64.54	56.88	67.49	65.14	56.65															

¹ Capital data based on the COREP returns from 2014. Large exposures data is based on COREP returns from 2015. NPL data is based on NPL return for September 18 refer to stage 3 allowances.

² Based on profit after tax.

³ The liquid assets to total assets and liquid assets to short-term liabilities figures for 2017 and 2018 are based on COREP returns.

⁴ For the core domestic banks the ratio includes 'Reserves for General Banking Risk' as per the revised Banking Rule 09/2019.

⁵ The LCR ratio as from 2017 includes a refinement by one bank in its LCR quantification methodology, resulting in lack of comparability compared to previous ratios.

⁶ The Loan-to-value is a weighted average ratio.

⁷ The market share of the banks was adjusted to cater solely for the banks that provided commercial real estate loans. Also, the limited transaction of these banks explain the volatility in the weighted indicators.

Glossary

Asset Purchase Programme (APP): includes all purchase programmes under which private sector and public sector securities are purchased to address the risks of a too prolonged period of low inflation.

Amortised cost: an accounting method which requires cumulative amortisation to be considered in addition to the initial acquisition value of a financial instrument. An instrument can be measured at amortised cost if the asset is held with the intention of collecting contractual cash flows until its maturity.

Borrower-based measures: a combination of instruments that set limits to the amount of money that a natural or a legal person can borrow to purchase a residential property. The measures introduced by the Central Bank of Malta in July 2019 include loan-to-value at origination (LTV-O), debt service-to-income ratio at origination (DSTI-O) and limits on the term-to-maturity of the loan.

Collective provisions: the amount of provisions allocated for the estimated losses incurred on a collective basis, but which have yet to be individually identified.

Combined ratio: calculated as the sum of net claims and expenses incurred divided by net premia earned.

Countercyclical Capital Buffer (CCyB): requires credit institutions to set aside additional common equity tier 1 capital during periods of excessive credit growth. The aim of the CCyB is to increase banks' resilience in good times to be able to absorb potential losses that could arise in a downturn, enabling the continued supply of credit to the real economy.

Collective Investment Undertakings: undertakings that raise capital from investors (fund holders) to carry out collective investments in transferable securities and/or in other financial assets.

Cost-to-income ratio: defined as operating expenses (net of amortisation but including intangible assets other than goodwill) to gross income (net interest income and non-interest income).

Coverage ratio: the ratio of total provisions and interest in suspense to total non-performing loans (NPL).

Covered bonds: debt securities issued by an institution which are collateralised against a pool of assets. In the event the issuing institution becomes insolvent, the bond is covered by these assets.

Credit standards: banks' internal guidelines for loan approvals. These specify the borrower's characteristics such as income levels, age and employment status, which the banks consider in their credit scoring methods.

Credit terms and conditions: the conditions of a specific loan. These consist of the interest rate, loan size, fees, collateral requirements, maturity and other conditions.

Customer deposits: deposits of (i) money market funds (ii) central government (iii) other general government, and (iv) other remaining economic sectors, including households and corporates, but excluding the financial intermediation sector.

Customer loans: loans to (i) money market funds (ii) central government (iii) other general government, and (iv) other remaining economic sectors, including households and corporates, but excluding the financial intermediation sector.

Debt Service to Income Ratio at Origination (DSTI-O): the annual total debt service relative to the total annual gross income of the borrower/s at the moment of loan origination.

Deposit Guarantee Schemes (DGS): national schemes funded by banks that protect depositors by guaranteeing repayment of deposits up to a limited amount in the event of a bank failure.

Deposit Insurance Fund: a joint fund, managed by the Single Resolution Board (SRB) representing all members of the Banking Union. It would be built up by contributions owed and paid by banks out of which pay-outs would be met.

Eurosystem funding: credit provided to eligible counterparties (banks) on a collateralised basis. The ECB coordinates the operations and the national central banks carry out these transactions.

Expected credit loss (ECL): under IFRS 9, lifetime ECL is the expected present value of losses that arise if borrowers default on their obligations at some time during the life of the financial asset. For a portfolio, ECL is the weighted average credit losses (loss-given-default) with the probability of default as the weight.

Fair value through profit and loss (FVTPL): instruments measured at fair value which are recognised entirely in the profit and loss account.

Fair value through other comprehensive income (FVOCI): instruments measured at fair value which are recognised directly in the balance sheet as part of other comprehensive income.

Financial Sector Assessment Programme (FSAP): a comprehensive and in-depth analysis of a country's financial sector and is run by the International Monetary Fund.

Haircuts: risk control measures applied to underlying assets whereby the value of such assets is calculated as the market value less a percentage (the "haircut"). The size of the haircut reflects the perceived risk of holding such an asset.

High-Quality Liquid Assets (HQLA): comprises Level 1, Level 2A and Level 2B assets. Level 1 assets include cash, central bank reserves, and certain marketable securities backed by sovereigns and central banks, amongst others. Level 2A assets include, for example, certain government securities, covered bonds and corporate debt securities. Level 2B assets include lower-rated corporate bonds, residential mortgage backed securities and equities that meet certain conditions.

Impairment charges: costs incurred as a result of the decline in the value of assets. These include write-down of loans, investments and non-financial assets, net of recoveries and reversals from an impaired state.

Index-linked policies: life insurance policies where the premia are invested in instruments whose returns are linked to the performance of one or more indices.

Insurance density: an indication of the development of the insurance industry within a country. It is calculated as the gross written premia in respect of risks and commitments based in Malta relative to population size.

Internal rating-based (IRB) approach: under the Basel II guidelines, banks are allowed to use their own estimated risk parameters for the purpose of calculating regulatory capital. This is known as the internal ratings-based approach to capital requirements for credit risk.

iTraxx European Senior Financial index: an index composed of credit default swaps covering senior European financials.

The Liquidity Coverage Ratio (LCR) Regulation: The European Commission Delegated Regulation which supplements the (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for credit institutions. It lays down detailed rules of the liquidity coverage requirement. It includes details of the assets that can be considered as HQLA and the estimation of total net cash flows over a 30-calendar day period.

Leverage ratio: calculated by dividing Tier 1 capital by the bank's average total consolidated assets (sum of the exposures of all assets and non-balance sheet items). Credit institutions are required to maintain a minimum leverage ratio of 3%.

Liquidity coverage ratio (LCR): promotes the short-term resilience of a bank's liquidity risk profile by ensuring that a bank has an adequate stock of unencumbered HQLA that can be easily and immediately converted into cash to meet a bank's liquidity needs for a 30-calendar day liquidity stress scenario.

Loan loss provisions: an amount set aside to cover for non-performing loans.

Loss ratio: measures the total incurred losses in relation to the total collected insurance premia.

Loan-service-to-income ratio (LSTI): the annual total loan payments relative to the total annual gross income of the borrower/s.

Loan-to-deposit ratio: the ratio for assessing a bank's liquidity by dividing the bank's total loans by its total deposits. If the ratio is too high, it means that banks might not have enough liquidity to cover any unforeseen funding requirements; if the ratio is too low, banks may not be earning as much as they could be earning.

Loan-to-income ratio (LTI): the total loan borrowed relative to the total annual gross income of the borrower/s.

Loan-to-value ratio: the amount lent for the purchase of a property, expressed as a proportion of the market value of the property purchased.

Loss given default (LGD): the ratio of the loss on an exposure due to the default of a counterparty to the amount outstanding at default.

Minimum requirement for own funds and eligible liabilities (MREL): banks' minimum requirement for own funds and eligible liabilities so as to be able to absorb losses and restore their capital position.

Net expense ratio: defines the level of expenses incurred by insurance companies as a share of net premia earned.

Net interest income: is the difference between the revenue/interest generated by a bank from assets and the expenses/interest paid on its liabilities.

Net interest margin: expressed as a percentage of the difference between interest income and interest expense to interest-bearing assets.

Net stable funding ratio (NSFR): the amount of available stable funding relative to required stable funding. This ratio should be equal to at least 100% on an on-going basis. It aims to promote resilience over a longer period by creating incentives for banks to fund their activities with more stable sources of funding.

Non-performing exposures: credit facilities and debt securities which are classified as non-performing. The non-performing exposures ratio is calculated by taking the value of non-performing loans and securities as a share of the total credit facilities and debt securities held by the bank.

Non-performing loans: credit facilities with payments of interest and/or capital overdue by 90 days or more, as well as those facilities about which a credit institution has reason to doubt the eventual recoverability of funds. The non-performing loans ratio is calculated by taking the value of non-performing loans as a share of the total loan facilities held by the bank.

Own funds: is the summation of Common Equity Tier 1 (CET1) capital, Additional Tier 1 capital, Tier 2 capital as well as deductions from the different types of capital, and transitional provisions for own funds in terms of grandfathering.

Other Systemically Important Institutions (O-SII): are institutions that, due to their systemic importance, are more likely to create risks to financial stability. Whilst maximising private benefits through rational decisions, these institutions may bring negative externalities into the system and contribute to market distortions.

Overall capital requirement (OCR): the sum of the total SREP capital requirement (TSCR), capital buffer requirements and macroprudential requirements, expressed as own funds requirements.

Penetration rate: is defined as the percentage share of Gross Written Premium (GWP) over Gross Domestic Product (GDP) and gives an indication of the size of the insurance sector relative to the economy of the country.

Plain vanilla bond: a bond that pays a constant interest and at maturity pays back the principal that was originally invested. A plain vanilla bond is the most basic of debt instruments with no special features such as embedded options. It is also known as a straight bond or a bullet bond.

Probability of default (PD): an estimate of the likelihood that a borrower is unable to meet his/her debt obligations.

Protected cell company: a corporate structure in which a single legal entity comprises a core business activity and a number of activities, which are segregated from the main business, called “cells”. The undertakings of one cell have no bearing on the other cells, with each cell identified by a unique name. The assets, liabilities and activities of each cell are also ring-fenced from other cells.

Recapitalisation amount: an amount at least equal to that necessary to satisfy applicable capital requirements in order to comply with the conditions for authorisation established through the preferred resolution strategy.

Return on assets (post-tax): annual post-tax profits/losses divided by a 12-month moving average of total assets.

Return on equity (post-tax): annual post-tax profits/losses divided by a 12-month moving average of shareholders' funds.

Risk-weighted assets (RWA): assets multiplied by their respective risk weights as specified in the Capital Requirements Directive.

Solvency capital requirement (SCR): the capital required for insurers to meet their obligations over the next 12 months with a probability of at least 99.5%.

Sovereign bond-backed securities (SBBS): securities with varying levels of seniority backed by a diversified portfolio of euro-denominated central government bonds.

Supervisory Review and Evaluation Process (SREP): a core function of the supervisory authorities in assessing banks' resilience in terms of capital and liquidity requirements. It also considers the viability of banks' business models and overall risk management.

STREAM: the Central Bank of Malta's Structural Macro-Econometric Model of the Maltese economy, which is a traditional structural model built around the neo-classical synthesis.

Systemic Risk Buffer: aims to address systemic risks of a long-term, non-cyclical nature that are not covered by the Capital Requirements Regulation. The buffer level may vary across institutions or sets of institutions. There is no maximum limit on the rate applicable for this buffer, but depending on its level and the impact on other Member States, authorisation from the European Commission may be required.

Targeted longer-term refinancing operations: Eurosystem monetary operations that provide finance to credit institutions for periods of up to four years. These offer attractive conditions to banks to alleviate private sector credit conditions and stimulate bank lending to the real economy.

Technical reserves: funds set aside by insurance companies from profits to cover claims.

Tier 1 Capital: mainly composed of equity and retained earnings.

Tier 1 Capital Ratio: Tier 1 capital expressed as a percentage of risk-weighted assets.

Tier 2 Capital: includes, inter alia, undisclosed reserves, revaluation reserves, general provisions, and subordinated term debt.

Total Capital Ratio: own funds expressed as a percentage of risk weighted assets.

Total SREP capital requirement (TSCR): the sum of own funds requirements as specified in Article 92 of Regulation (EU) 575/2013 and additional own funds requirements determined in accordance with the criteria specified in the EBA SREP guidelines.

Undertakings for Collective Investment in Transferable Securities (UCITS): a regulatory framework by the European Commission that creates a harmonised regime for the management and sale of mutual funds. The objective was to create a single European market for retail investment funds, while at the same time ensuring a high level of investor protection. This framework allows such funds to seek a single authorisation in one EU member state, and to register for sale and market across EU member states.

Value at Risk (VaR): measures the worst expected loss under normal conditions over a specific time interval at a given confidence level.