



CNMV BULLETIN
Quarter IV
2020



CNMV BULLETIN

Quarter IV
2020

The CNMV publishes this Bulletin to spread research in order to contribute to the best knowledge of the stock markets and their regulation.

The opinions in these articles are the sole responsibility of the authors and do not necessarily coincide with those of the CNMV.

The CNMV distributes its reports and publications via the Internet at www.cnmv.es.

© CNMV. The contents of this publication may be reproduced, subject to attribution.

ISSN (digital edition): 1988-2025

Layout: Cálamo y Cran

Contents

I	Market survey	11
II	Reports and analysis	59
	Stress testing for non real-estate investment funds Ramiro Losada and Albert Martínez Pastor	61
	Innovation facilitators: innovation hub and sandbox (controlled testing environment) CNMV Fintech Team	75
	Central counterparty resolution: How to assess and treat available financial resources María José Gómez Yubero and Bárbara Gullón Ojesto	99
III	Legislative Annex	155
IV	Statistics Annex	165

Abbreviations

AA. PP.	Public administration service
ABS	Asset-Backed Security
AIAF	Spanish Market in Fixed-income Securities
AIF	Alternative Investment Fund
ANCV	Spanish National Numbering Agency
APA	Approved Publication Arrangement
APR	Annual Percentage Rate
ASCRI	Spanish Venture Capital & Private Equity Association
AV	Broker
BIS	Bank for International Settlements
BME	Spanish Stock Markets and Financial Systems
CADE	Public Debt Book-entry Trading System
CC. AA.	Autonomous regions
CCP	Central Counterparty
CDS	Credit Default Swap
CFA	Atypical financial contract
CFD	Contract For Differences
CISMC	CIS Management Company
CNMV	(Spanish) National Securities Market Commission
CP	Crowdfunding Platform
CS	Customer Service
CSD	Central Securities Depository
CSRD	Central Securities Depositories Regulation
DLT	Distributed Ledger Technology
EAF	Financial advisory firm
EBA	European Banking Authority
EBITDA	Earnings Before Interest Taxes, Depreciation and Amortisation
EC	European Commission
ECA	Credit and savings institution
ECB	European Central Bank
ECR	Venture capital firm
EFAMA	European Fund and Asset Management Association
EFSM	European Financial Stabilisation Mechanism
EICC	Closed-ended collective investment company
EIOPA	Occupational Pensions Authority
EIP	Public interest entity
EMIR	European Market Infrastructure Regulation
EMU	Economic and Monetary Union
ESFS	European System of Financial Supervision
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETF	Exchange Traded Fund
EU	European Union
EUSEF	European Social Entrepreneurship Fund
FICC	Closed-ended collective investment fund

FII	Real estate investment fund
FIN-NET	Financial Dispute Resolution Network
FINTECH	Financial Technology
FOGAIN	Investment Guarantee Fund
FRA	Forward Rate Agreement
FROB	Fund for Orderly Bank Restructuring
FSB	Financial Stability Board
FTA	Asset securitisation fund
FTH	Mortgage securitisation fund
GDP	Gross Domestic Product
HF	Hedge Fund
HFT	High Frequency Trading
IAGC	Annual corporate governance report
IARC	Annual report on director remuneration
IAS	International Accounting Standards
ICIS	Collective investment company/scheme
ICO	Initial Coin Offering
IF	Investment Firm / Investment Fund
IFRS	International Financial Reporting Standards
IIMV	Ibero-American Securities Market Institute
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IPO	Initial Public Offering (for sale/subscription of securities)
IPP	Periodic public information
IRR	Internal Rate of Return
ISIN	International Securities Identification Number
KIID/KID	Key Investor Information Document
Latibex	Market of Latin American Securities
LEI	Legal Entity Identifier
LIIC	Spanish Collective Investment Companies Act
LMV	Spanish Securities Market Act
MAB	Alternative Stock Market
MAD	Market Abuse Directive
MAR	Market Abuse Regulation
MARF	Alternative Fixed-Income Market
MBS	Mortgage Backed Securities
MEFF	Spanish Financial Futures Market
MFP	Maximum Fee Prospectus
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MOU	Memorandum Of Understanding
MREL	Minimum Requirement for Own Funds and Eligible Liabilities
MTF	Multilateral Trading Facility
MTS	Market for Treasury Securities
NCA	National Competent Authority
NDP	National Domestic Product
OECD	Organisation for Economic Cooperation and Development
OIS	Overnight Indexed Swaps
OTC	Over The Counter
OTF	Organised Trading Facility
PER	Price-to-Earnings Ratio
PRIIP	Packaged Retail and Insurance Based Investment Product
PUI	Loan of last resort
RAROC	Risk-Adjusted Return On Capital

REIT	Real Estate Investment Trust
RENADE	Spanish National Registry for Greenhouse Gas Emission Allowances
RFQ	Request For Quote
ROA	Return On Assets
ROE	Return On Equity
SAMMS	Advanced Secondary Market Tracking System
SAREB	Asset Management Company for Assets Arising from Bank Restructuring
SENAF	Electronic Trading Platform for Spanish Government Bonds
SEND	Electronic Debt Trading System
SEPBLAC	The Executive Service of the Commission for the Prevention of Money Laundering and Monetary Offences
SGC	Portfolio management company
SGECR	Venture capital firm management company
SGEIC	Closed-ended investment scheme management company
SGFT	Asset securitisation fund management company
SIBE	Electronic Spanish Stock Market Interconnection System
SICAV	Open-ended collective investment company
SICC	Closed-ended collective investment company
SII	Real estate investment company
SIL	Hedge fund with legal personality
SME	Small and Medium Enterprise
SNCE	National Electronic Clearing System
SPV/SFV	Special purpose/financial vehicle
SRB	Single Resolution Board
SREP	Supervisory Review and Evaluation Process
STOR	Suspicious Transaction and Order Report
SV	Broker-dealer
T2S	Target2-Securities
TER	Total Expense Ratio
TOB	Takeover Bid
TRLMV	Recast text of the Spanish Securities Market Act
TVR	Theoretical Value of the Right
UCITS	Undertaking for Collective Investment in Transferable Securities
VCF	Venture Capital Firm / Venture Capital Fund
XBRL	Extensible Business Reporting Language

I Market survey (*)

(*) This report has been prepared by the Department of Research and Statistics of the Directorate General for Strategic Policy and International Affairs of the CNMV.

Index

1	Overview	15
2	International financial environment	18
2.1	Short-term interest rates	18
2.2	Exchange rates	21
2.3	Long-term interest rates	22
2.4	International stock exchanges	27
3	Recent trends in Spanish financial markets	35
3.1	Fixed income markets	36
3.2	Equity markets	43

1 Overview

The coronavirus pandemic marked the performance of the financial markets in 2020. The worst moments of the year were in March and April, when the general lockdown measures raised uncertainty among intermediaries to very high levels. This uncertainty, coupled with the dramatic worsening of the economic outlook, led to sharp falls in equity prices, historical spikes in volatility, liquidity losses and valuation problems in some segments of the debt markets. The rapid implementation of different types of measures by governments, central banks and other financial supervisors¹ helped cut short the negative spiral that the financial markets had entered, especially the debt markets, where the substantial new central bank asset purchase programmes helped to keep yields and risk premiums at very low levels. This crisis is of a different nature from those we have lived through in recent years, since it was caused not by any financial imbalance but by an exogenous shock to the system. However, this shock is testing the resilience of the financial system as a whole and especially that of the most vulnerable segments. Many initiatives have been rolled out by international working groups that aim to ascertain the performance of the financial system during the crisis and to identify and, where appropriate, propose regulatory changes in areas of interest.

In this context, the international equity markets began the year with heavy losses, which were concentrated in March and later tended to recover, albeit unevenly across the different regions.² First quarter losses ranged from 14.2% on the US Nasdaq index to 28.9% for the Spanish Ibex 35, and volatility indicators exceeded 80% in many indices – marking levels not seen since the global financial crisis. In the aftermath of these losses, the stock markets began to recover fairly well, forging an irregular path marked by uncertainty and by the good and bad news that emerged in relation to the fight against the virus and the impact of the crisis on economic activity. In the final part of the year, the easing of some uncertainties, most notably the start of vaccination programmes in several countries, the agreement avoiding a hard Brexit and confirmation of the victory of the Democratic party in the US elections, led to stronger growth in the equity markets. In some cases, such as the United States and Japan, the stock markets made gains throughout the year, partly due to the heavier weight of technology companies – which have benefited from the crisis –, while in Europe the indices ended the year with losses (with some exceptions such as the German Dax 30).

The international debt markets also came under pressure in the first weeks of the crisis and showed significant increases in yields and risk premiums – especially in

1 For instance, several European securities supervisors, including the CNMV, prohibited the creation or increasing of net short positions on certain securities for several weeks.

2 The closing date for this report is 31 December 2020, except for certain specific items of information.

high-yield debt assets – as well as liquidity reductions and valuation difficulties in certain segments of these markets. However, the prompt and far-reaching action of the main central banks, which maintained or further reduced interest rates and, above all, boosted bank financing and launched ambitious asset purchase programmes, radically broke this trend and ushered in a new phase of ultra-low interest rates, which is especially significant in Europe. In this area, a high proportion of long-term debt benchmarks ended the year in negative territory.

The Spanish financial markets followed a similar path to the rest of the international markets in 2020 except in regard to the performance of equity prices, which was more unfavourable. The composition of the Ibex 35, with a higher weighting of the sectors most affected by the crisis – banking, tourism, leisure, hotels, transport, etc. – was a determining factor in this worse relative performance. The decline in quoted prices reversed strongly in the final part of the year (with a gain of over 20% in the last quarter) but was not sufficient to offset the losses of the previous months. Thus, the Ibex 35 lost 15.5% of its value in 2020, the most negative performance recorded by any of the European benchmark indices, whose performances ranged from a loss of -7.1% for the French Cac 40 to a gain of 3.5% for the German Dax 30. Market liquidity conditions, which deteriorated significantly in the first weeks of the pandemic, improved significantly thereafter, although they have still not recovered to pre-crisis levels. Volatility, which rose above 80% in the worst moments, ended the year at rates close to 20%, which are normal values at times when there is no turbulence. Trading volumes increased temporarily in March and April, to subsequently decline. For the year as a whole, trading in Spanish equities came to €778 billion, 3.4% less than in 2019. Of this amount, €416 billion (-9.6%) was carried out through Bolsas y Mercados Españoles (BME) and €362 billion (+ 4.7%) corresponded to other trading venues.

In the Spanish debt markets, yields and risk premiums came under pressure in March and April, in line with other European benchmarks and, following the measures adopted by the European Central Bank (ECB), a reversal of this trend was observed in most assets. In the case of sovereign debt, at the end of 2020 negative yields were extending to ever longer terms (up to the 10-year tranche on some days in December) and in corporate fixed income yields were negative up to five years. Risk premiums for both the public sector and private sector entities ended the year at very low levels. Thus, the sovereign risk premium stood at 63 basis points (bp), a level below both the high reached in April (156 bp) and that registered at the end of 2019 (66 bp). However, companies' credit risk should continue to be periodically assessed and it could be adversely affected in the coming months by the slowdown in activity and consequent deterioration of their financial situation. Lastly, the increase in fixed income issues registered with the CNMV in 2020 stands out (up by 47%, to €132.11 billion), to the detriment of issues made abroad (which decreased by 9.2% to €82.77 billion, with data to November), thereby interrupting the trend of recent years.

Summary of financial indicators

TABLE 1

	I 20	II 20	III 20	IV 20
Short-term interest rates (%)¹				
Official interest rate	0.00	0.00	0.00	0.00
3 month Euribor	-0.42	-0.38	-0.49	-0.54
12 month Euribor	-0.27	-0.15	-0.41	-0.50
Exchange rates²				
Dólar/euro	1.10	1.12	1.17	1.23
Yen/euro	118.9	120.7	123.8	126.5
Yield on medium- and long-term government bonds³				
Germany				
3 year	-0.80	-0.67	-0.73	-0.78
5 year	-0.71	-0.64	-0.69	-0.75
10 year	-0.52	-0.40	-0.49	-0.57
United States				
3 year	0.50	0.22	0.16	0.19
5 year	0.58	0.34	0.27	0.38
10 year	0.86	0.72	0.68	0.93
Private debt risk premiums: Spread on 10-year public debt³ (bp)				
Euro area				
High yield	760	603	534	443
BBB	230	181	152	124
AAA	121	71	56	53
United States				
High yield	786	604	530	418
BBB	22	211	87	126
AAA	117	87	61	47
Equity markets				
Performance of the main international stock indices ⁴ (%)				
Eurostoxx 50	-25.6	16.0	-1.3	11.2
Dow Jones	-23.2	17.8	7.6	10.2
Nikkei	-20.0	17.8	4.0	18.4
Performance of other indices (%)				
Merval (Argentina)	-41.5	58.7	6.7	24.2
Bovespa (Brazil)	-36.9	30.2	-0.5	25.8
Shanghai Comp. (China)	-9.8	8.5	7.8	7.9
BSE (India)	-29.2	20.1	9.4	23.8
Spanish stock market				
Performance of the Ibex 35 (%)	-28.9	6.6	-7.1	20.2
PER of Ibex 35 ⁵	9.8	17.2	16.6	18.2
Volatility of Ibex 35 ⁶ (%)	26.6	30.5	23.5	22.8
SIBE trading volumes ⁷	1,995	1,745	1,248	1,614

Source: CNMV, Thomson Datastream and Madrid Stock Exchange.

- 1 Monthly average of daily data. The benchmark interest rate corresponds to the marginal rate of the weekly auction at the close of the period.
- 2 Data at the close of the period.
- 3 Monthly average of daily data. In the euro area, the spread is calculated relative to the German government bond.
- 4 Cumulative quarterly yields in each period.
- 5 Price-to-earnings ratio (PER).
- 6 Implied volatility. Arithmetic mean of the quarter.
- 7 Daily average, in millions of euros.

2 International financial environment

2.1 Short-term interest rates

Short-term interest rates in the main advanced economies continued to show significant differences in 2020, although these tended to ease as the year progressed due to the expansionary measures adopted by practically all monetary authorities to combat the coronavirus crisis. Thus, at the beginning of last year the difference between short-term interest rates in the United States and in the euro area was 229 bp, while in December it had reduced to 78 bp.

The Federal Reserve cut its official interest rate on two occasions in March 2020 to a range of 0-0.25%, levels seen during the 2008 financial crisis, and increased its holdings of treasury bills and covered bonds to keep the market running smoothly and support the flow of credit. At its last meeting of the year, the central bank undertook not to raise official rates until labour market conditions reach levels consistent with full employment and inflation is over 2%. It also kept its asset purchase programme unchanged (US\$120 billion in treasury bills and mortgage backed assets). As a result, 3-month interest rates marked a downward trend throughout the year, reaching 0.24% at the end of December, 167 bp lower than at the end of 2019 (see Figure 1).

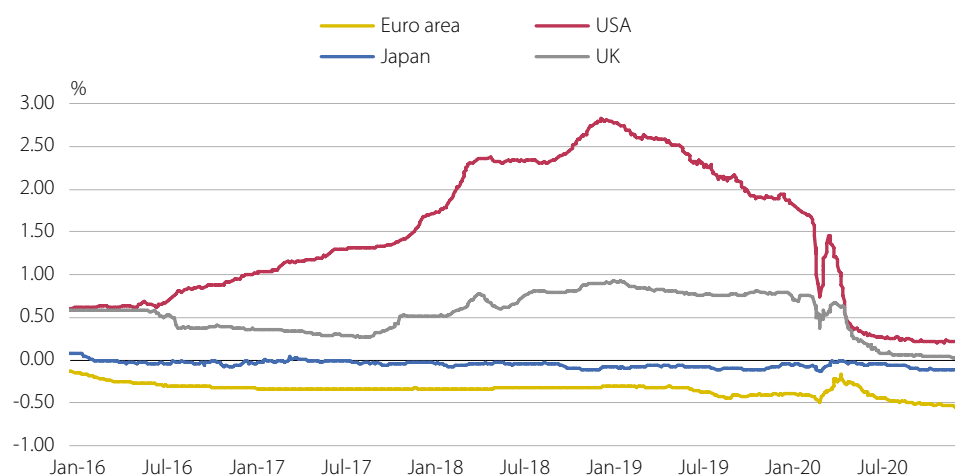
In the euro area, the ECB kept its official interest rates, marginal lending facility and the deposit facility, unchanged during the year (currently at 0%, 0.25% and -0.50% respectively). However, it implemented expansive measures to address the economic crisis caused by the COVID-19 pandemic, which increased in duration and scope as the year progressed. Thus, at its last meeting of 2020, the ECB extended its pandemic emergency purchase programme (PEPP), designed to provide additional liquidity to the system, for a second time, by €500 billion and extended purchases until 2022.³ It also readjusted the terms of the additional targeted longer-term refinancing operations (TLTRO III). Thus, 3 additional operations will be carried out between June and December 2021, the period in which significantly more favourable terms will be available to credit institutions offering loans to the real economy will be extended (for a further 12 months, to June 2022), and the total amount of funding that they may obtain will be increased (from 50% to 55% of the stock of eligible loans). The monetary authority also announced that it would offer 4 pandemic emergency purchase operations (PELTRO) for a longer term in 2021 and that net purchases under the asset purchase programme (APP) would continue at the

3 The PEPP was established in March and was endowed with €750 billion for the purchase of assets. In June, the ECB modified its scope and increased purchases by €600 billion to €1.35 trillion. Following the latest extension of the PEPP announced at the December meeting, the purchase programme is endowed with €1.85 trillion and its completion date has been extended from June 2021 to March 2022. However, the ECB indicated that the full programme will not be implemented if conditions do not require it. The ECB has also extended the reinvestment of proceeds from maturing securities until at least the end of 2023.

same monthly rate of €20 billion. In this context, 3-month interest rates in the euro area decreased by 16 bp compared with 2019 and ended the year at -0.55%.

3-month interest rates

FIGURE 1



Source: Thomson Datastream. Data to 31 December.

3-month interest rates in the United Kingdom fell to 0.03% in December (77 bp lower than at the beginning of the year) as a result of the Bank of England's official interest rate reductions in March. At the beginning of that month, it lowered rates to 0.25% (they had been at 0.75% since July 2018), and just one week later made a further cut to 0.10%, where they remained for the rest of the year. The UK monetary authority recently admitted that it is studying the potential effects of introducing negative rates. The Bank of Japan kept its official interest rate unchanged at -0.10% (where it has been since the beginning of 2016), although in March it introduced measures to counteract the effects of the economic crisis caused by the pandemic. Despite the slight upturn in March, the annual trend marked by 3-month interest rates is slightly downward, ending the year at around -0.08%, (4 bp lower than in 2019).

Although differences in rates among the main economies narrowed significantly in 2020, as shown in Table 2, in the last quarter of the year short-term interest rates were still higher in the United States than in the rest of the advanced economies. All areas saw a decline in interest rates in 2020, in line with the monetary policy decisions taken by the respective central banks, although the scope for rate cuts in Europe and Japan was smaller due to the low starting levels. Thus, in the United States, where the greatest variations were recorded, 6- and 12-month rates stood at 0.26% and 0.34% respectively in December⁴ (well below the figures of 1.90% and 1.97% of December 2019). In the United Kingdom, 6- and 12-month rates also fell, by 83 bp and 87 bp respectively, to stand at 0.04% and 0.10% in December. In the euro area, 6- and 12-month rates ended the year at -0.52% and -0.50% (with an accumulated fall in the year of 18 bp and 24 bp respectively) and in Japan, where the

4 Monthly average of daily data.

variation in interest rates was lower than in other economies, the decline was 7 bp and 5 bp respectively.

Short-term interest rates¹

TABLE 2

%

	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Euro area								
Official ²	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 month	-0.33	-0.31	-0.40	-0.54	-0.42	-0.38	-0.49	-0.54
6 month	-0.27	-0.24	-0.34	-0.52	-0.36	-0.22	-0.46	-0.52
12 month	-0.19	-0.13	-0.26	-0.50	-0.27	-0.15	-0.41	-0.50
United States								
Official ³	1.50	2.50	1.75	0.25	0.25	0.25	0.25	0.25
3 month	1.61	2.79	1.91	0.23	1.10	0.31	0.24	0.23
6 month	1.77	2.89	1.90	0.26	0.96	0.43	0.28	0.26
12 month	2.05	3.08	1.97	0.34	0.92	0.60	0.39	0.34
United Kingdom								
Official	0.50	0.75	0.75	0.10	0.10	0.10	0.10	0.10
3 month	0.52	0.90	0.79	0.03	0.53	0.19	0.06	0.03
6 month	0.58	1.03	0.87	0.04	0.61	0.34	0.10	0.04
12 month	0.77	1.16	0.97	0.10	0.71	0.52	0.18	0.10
Japan								
Official ⁴	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
3 month	-0.02	-0.10	-0.06	-0.10	-0.09	-0.05	-0.09	-0.10
6 month	0.02	0.00	0.01	-0.06	-0.07	-0.01	-0.05	-0.06
12 month	0.11	0.11	0.11	0.05	0.03	0.11	0.08	0.05

Source: Thomson Datastream.

1 Monthly average of daily data, except official rates, which correspond to the close of the period. Data to 31 December.

2 Minimum bid rate at weekly auctions.

3 Federal funds rate.

4 Monetary policy rate.

In regard to interest rate expectations, forward interest rates (FRAs) suggest that short-term benchmarks in both the euro area and the United States will not vary in the next few months and that there will continue to be differences between them, although these will be significantly smaller than in previous years.

3-month forward interest rates (FRA)¹

TABLE 3

%

	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Euro area								
Spot	-0.33	-0.31	-0.38	-0.55	-0.36	-0.42	-0.50	-0.55
FRA 3x6	-0.32	-0.30	-0.39	-0.55	-0.38	-0.46	-0.51	-0.55
FRA 6x9	-0.31	-0.29	-0.38	-0.55	-0.40	-0.46	-0.52	-0.55
FRA 9x12	-0.28	-0.28	-0.38	-0.55	-0.41	-0.48	-0.53	-0.55
FRA 12x15	-0.23	-0.25	-0.36	-0.56	-0.41	-0.50	-0.54	-0.56
United States								
Spot	1.69	2.81	1.91	0.24	1.45	0.30	0.23	0.24
FRA 3x6	1.78	2.70	1.73	0.17	0.49	0.27	0.23	0.17
FRA 6x9	1.94	2.68	1.69	0.17	0.36	0.28	0.19	0.17
FRA 9x12	2.06	2.66	1.64	0.18	0.34	0.19	0.19	0.18
FRA 12x15	2.15	2.64	1.62	0.21	0.29	0.18	0.19	0.21

Source: Thomson Datastream.

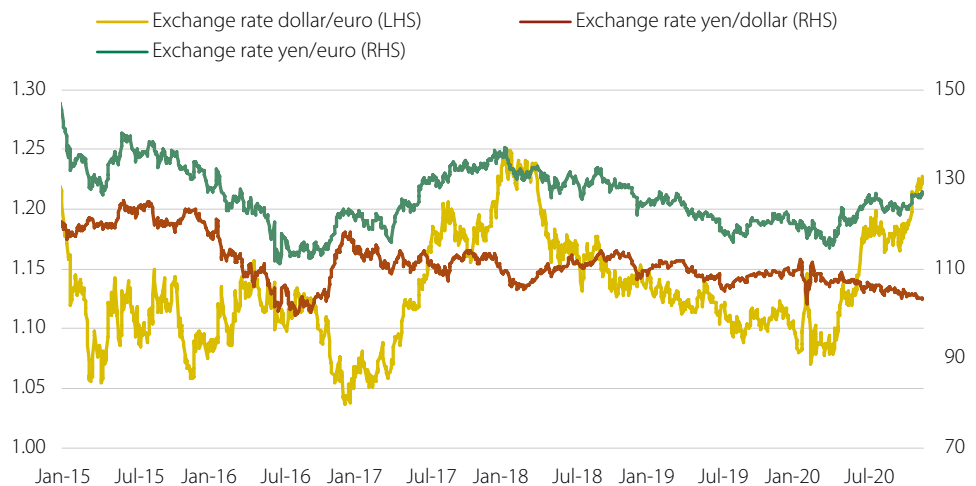
¹ Data to 31 December.

2.2 Exchange rates

The euro/dollar exchange rate, which started the year at US\$1.12 per euro, stood at around US\$1.23 in December (see Figure 2), a figure unseen since March 2018 and which implies an annual gain of over 9% by the European currency (+14.6% from the low of US\$1.07 reached in March). The appeal of the European currency over the US currency is partly explained by the improved outlook for economic recovery triggered by the vaccine and expectations surrounding the implementation of a sizeable economic stimulus package in the United States (both these factors diminish the attractiveness of the dollar as a safe haven asset). In addition, the negotiations between the United Kingdom and the European Union to avoid a hard Brexit have caused the euro to strengthen, with the exchange rate going from £0.85 per euro at the end of 2019 to £0.90 at the end of 2020. The euro/yen exchange rate followed a similar pattern to the euro/dollar: between December 2019 and December 2020 the exchange rate moved from ¥122 to ¥126 per euro.

Dollar/euro and yen/euro exchange rate

FIGURE 2

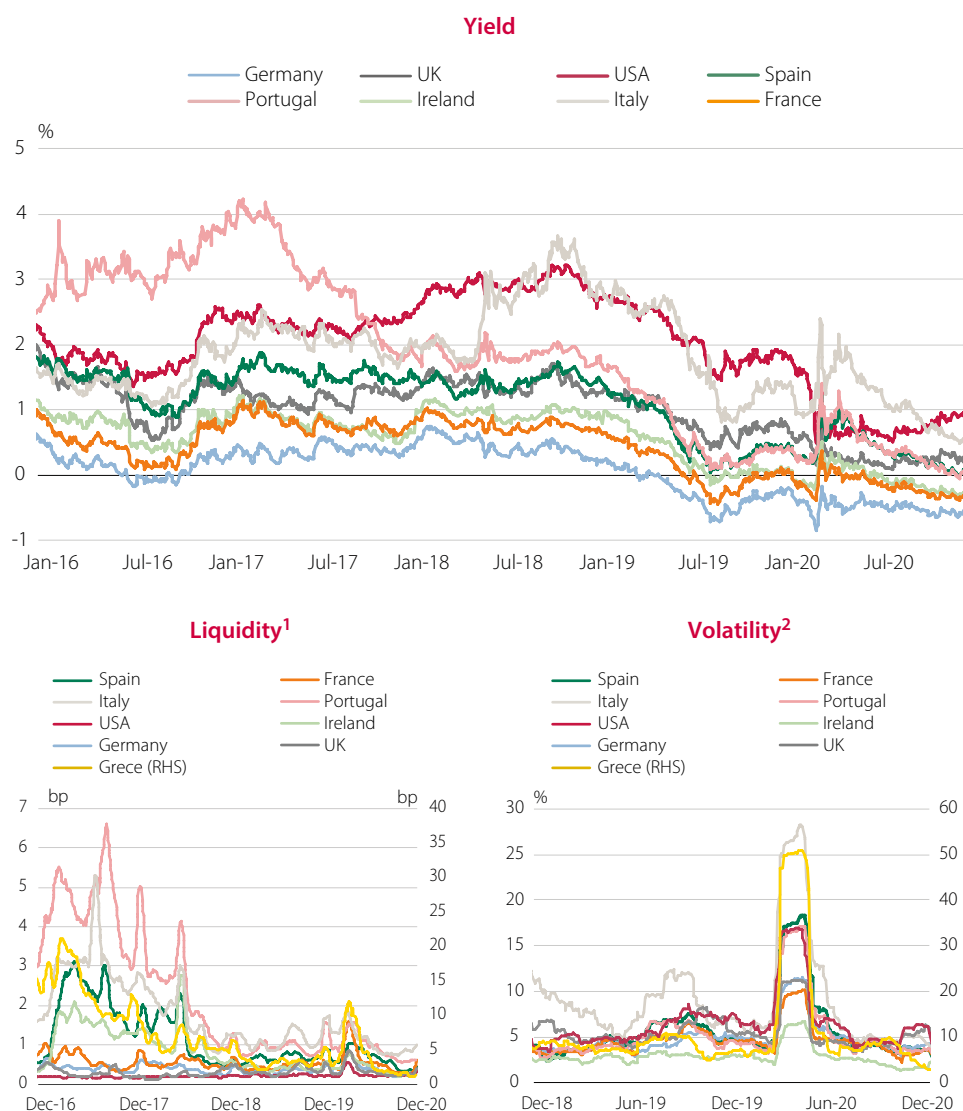


Source: Thomson Datastream. Data to 31 December.

2.3 Long-term interest rates

Long-term interest rates on sovereign bonds in most advanced economies marked a relatively similar performance during the year, with general declines compared with the values seen at the end of 2019, although some temporary spikes were registered in certain countries during the early months of the pandemic, as shown in the upper panel of Figure 3. In the second half of the year, while long-term yields continued to fall in Europe, they increased slightly in the US. At the end of the year, the decline in yields was associated with the start of the vaccination programme for COVID-19 and the reduction of some existing political and economic uncertainties. For instance, the agreement between the European Union and the United Kingdom avoiding a hard Brexit, the official declaration of Joe Biden as president of the United States, and the approval of the European Recovery Fund to address the economic and social damage caused by the coronavirus pandemic.

In Europe, the decrease in interest rates on 10-year public debt in the last quarter ranged from 39 bp in Greece to 5 bp in Germany. Spain, Portugal and Italy all saw significant falls in the last quarter (20 bp, 21 bp and 35 bp respectively), while in France, Belgium, Finland, Austria and the Netherlands the declines were less pronounced (around 10 bp). The lower yields seen since May were sufficient to offset the rises experienced in some countries in the months of March and April, and therefore the overall annual trend was downward. The decrease in yields on these benchmarks during the year ranged from 39 bp for the German and Portuguese bonds to 91 bp for Greek bonds (41 bp for Spanish bonds). The annual decrease was 46 bp for French bonds, compared with 86 bp for those of Greece. As a result, at year-end 2020 long-term public debt yields were in negative ground in most European countries. In Germany, they ended the year below -0.5% and in the Netherlands, France, Ireland, Belgium, Austria and Finland at between -0.3% and -0.5%. They were slightly above zero in Spain and Portugal (0.06% in both cases) and 0.52% and 0.63% in Italy and Greece, respectively.



Source: Bloomberg, Thomson Datastream and CNMV. Data to 31 December.

1 Monthly average of the daily bid-ask spread on 10-year sovereign bond yields.

2 Annualised standard deviation of daily changes in the prices of 40-day sovereign bonds.

In the United Kingdom, sovereign bond interest rates fluctuated during the fourth quarter of the year as the Brexit negotiations unfolded, but ended the year largely unchanged compared with the third quarter. In the year as a whole, the decrease was 63 bp. In the United States, rates increased in the final months of the year compared with the third quarter (24 bp), while in Japan they fell by just 1 bp. The US bond yield ended the year at 0.91%, 100 bp lower than at the end of 2019, while in Japan it was 0.02%, which is only 4 bp higher than at year-end 2019 and, most notably, returning to positive figures.⁵

5 Data to 31 December 2020.

Medium- and long-term government bond yields¹

TABLE 4

%

	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Germany								
3 year	-0.58	-0.53	-0.62	-0.78	-0.80	-0.67	-0.73	-0.78
5 year	-0.30	-0.27	-0.54	-0.75	-0.71	-0.64	-0.69	-0.75
10 year	0.36	0.25	-0.27	-0.57	-0.52	-0.40	-0.49	-0.57
United States								
3 year	1.95	2.68	1.64	0.19	0.50	0.22	0.16	0.19
5 year	2.18	2.68	1.68	0.38	0.58	0.34	0.27	0.38
10 year	2.41	2.83	1.86	0.93	0.86	0.72	0.68	0.93
United Kingdom								
3 year	0.51	0.74	0.53	-0.07	0.22	-0.01	-0.11	-0.07
5 year	0.74	0.90	0.58	-0.04	0.27	0.01	-0.08	-0.04
10 year	1.22	1.27	0.78	0.26	0.41	0.23	0.22	0.26
Japan								
3 year	-0.13	-0.14	-0.14	-0.14	-0.20	-0.15	-0.13	-0.14
5 year	-0.11	-0.13	-0.11	-0.11	-0.15	-0.11	-0.10	-0.11
10 year	0.05	0.04	-0.02	0.02	-0.02	0.02	0.02	0.02

Source: Thomson Datastream.

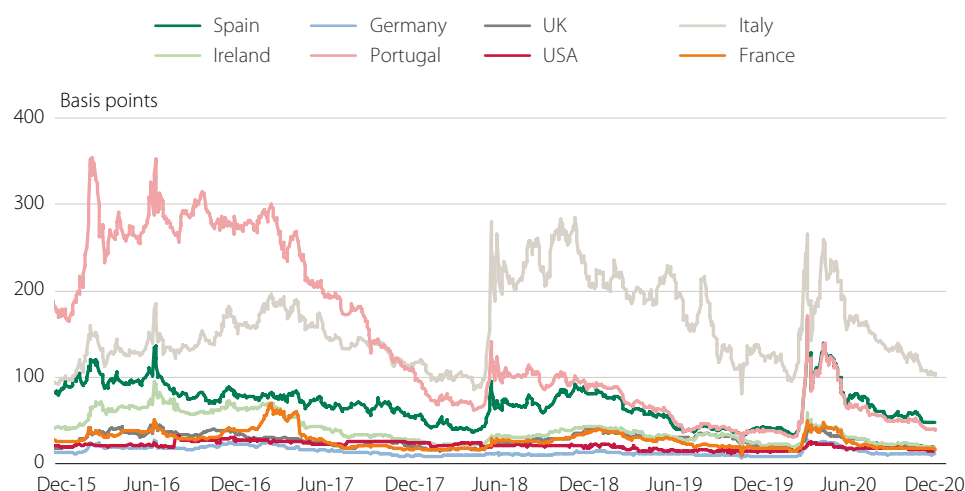
¹ Monthly average of daily data. Data to 31 December.

Sovereign credit risk premiums, measured through the 5-year CDS (Credit Default Swap) contracts of the advanced economies, marked an even performance throughout 2020, increasing substantially in March and subsequently decreasing as the year progressed. However, the year-on-year variation was insignificant in most countries. Thus Italy's risk premium, which grew significantly in the initial months of the pandemic (reaching 265 bp in mid-March), fell sharply when the situation improved and for the year as a whole the total fall was 23 bp, standing at 98 bp at the end of December. In Spain, the risk premium increased by around 126 bp from December 2019 to mid-March 2020 and subsequently fell once again to end the year at 43 bp (41 bp at the end of 2019). The Portuguese risk premium followed a similar pattern.

The risk premiums of other European economies experienced insignificant changes throughout 2020. For example, in France and the UK there were falls of approximately 2 bp and in Germany a rise of the same scale. The US sovereign risk premium stood at 14 bp at the end of December, 1 bp below the figure of 13 bp seen at year-end 2019 (see Figure 4).

Sovereign debt credit risk premiums (5-year CDS)

FIGURE 4

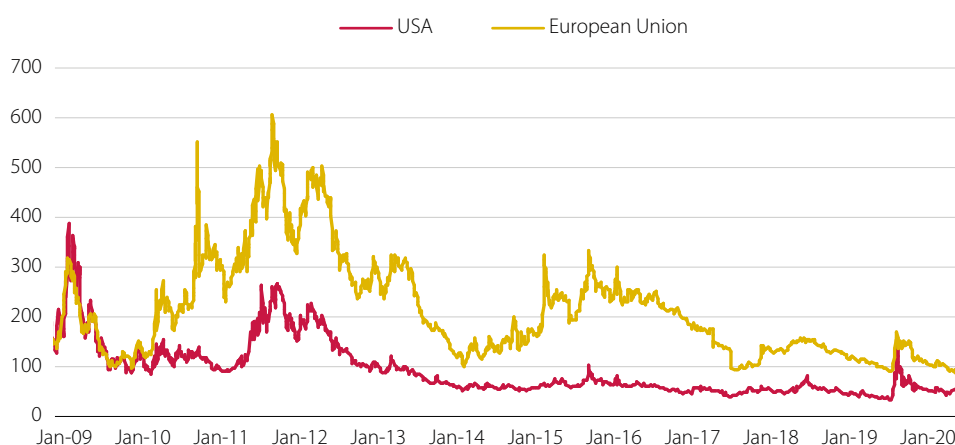


Source: Thomson Datastream. Data to 15 December.

The risk premium for euro area credit institutions, which also rose significantly in March, presented a downward trend for the year as a whole, since the same factors that contributed to lower sovereign risk premiums – the slight improvement in the economic outlook after the start of the vaccination programme for COVID-19 and the possibility of a Brexit deal – triggered positive changes in the outlook for the banking sector. Therefore, the risk premium for the euro area banking sector as a whole decreased slightly in 2020 (13 bp) to stand at 88 bp at the end of December. In the United States, the banking sector risk premium increased by 14 bp, to 51 bp, as the increase in March was sharper than in Europe and the subsequent downward path was unable to fully offset this movement.

Banking sector credit risk premiums (5-year CDS)

FIGURE 5



Source: Thomson Datastream, indices prepared by CMA. Data to 31 December.

Corporate debt risk premiums rose sharply in the early months of the year and subsequently declined across the board, in all segments, as the uncertainty generated by the health and economic crisis caused by the coronavirus eased slightly. The largest movements were in the high yield debt segment in both the United States and

Europe, with increases of 355 bp and 271 bp, respectively, in March, to reach very high levels at the end of that month (1,064 bp and 970 bp).⁶ The subsequent decrease in the risk premiums was significant and they ended December at 407 bp and 444 bp respectively, which represent decreases of 6 bp and 30 bp compared with the figures for year-end 2019. In general, the environment of very low interest rates, especially in the euro area, continues to favour the search for yield through investment in higher risk assets (see Table 5).

Private debt risk premiums¹

TABLE 5

Spread vs. 10-year government debt, basis points

	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Euro area²								
High yield	398	605	489	443	760	603	534	443
BBB	104	199	137	124	230	181	152	124
AAA	54	86	66	53	121	71	56	53
United States								
High yield	377	485	430	418	786	604	530	418
BBB	122	192	141	126	322	211	176	126
AAA	44	72	46	47	117	87	61	47

Source: Thomson Datastream.

1 Monthly average of daily data. Data to 31 December.

2 Spread vs. the German bond.

Gross debt issuance in international markets amounted to US\$14.3 trillion in 2020, 18.4% more than in 2019, with differing patterns observed among regions and issuers (see Figure 6). Thus, debt issues in the United States showed the highest growth with respect to the previous year (36.6%, to US\$7.30 trillion), while in Europe they were up by 14.6%, to US\$3.42 trillion. In Japan, in contrast, there were decreases of almost 40%, with issues standing at US\$801 billion. Sectors also performed unevenly, with strong increases seen in the non-financial sector (32.4%, to US\$2.7 trillion) and in sovereign issues, which grew by 21.2%, to US\$9.4 trillion. Financial sector issuance dropped by 3.7% to US\$2.2 trillion. These trends are compatible with the evidence observed in the financing of the different entities during the crisis, in which: i) public administrations tended to incur significant debt to mitigate the effects of the pandemic, ii) non-financial companies turned more to the capital markets to obtain financing on favourable terms and build a suitable liquidity buffer in a highly uncertain environment, and iii) financial institutions took advantage of the funding facilities launched by the various central banks.

The increase in sovereign debt issues was due to strong growth in all regions except Japan, where they experienced a substantial decline. Standouts include the rise in US sovereign issues in the United States, where they increased by almost 38.6% compared with 2019, to stand at US\$5 trillion, approximately 70% of all debt issues in that country. There were also notable increases in Europe (25.9% during the year).

⁶ Highs reached on 23 March.

The trend in debt issuance in the private sector was uneven across the different subsectors, with rises in the non-financial sector and slight decreases in the financial sector. In the former, the rise with respect to 2019 was 32.4%, driven by increases in all the economic areas analysed (56.7% in the United States, 23.5% in Japan and 19% in Europe). In the financial sector, there was a slight drop in debt issues compared with the previous year in the main regions, due to decreases in the second half of the year. As mentioned above, financial institutions have alternative sources of financing, such as central bank funding.

International gross fixed income issuance

FIGURE 6



Source: Dealogic. Half-yearly data up to 31 December.

2.4 International stock exchanges

The main international equity indices registered significant gains in the fourth quarter of the year, in contrast to the previous quarter, in which there was a much broader mix among the different regions, with increases in the US indices and decreases on most European bourses. The generalised rise in quoted prices was due to a variety of causes. Prominent among them were the progress on vaccines and the start of their roll-out to stop the spread of the coronavirus, with the consequent

improvement in economic expectations, the result of the US elections⁷ and, in the final stretch of the year, the agreement avoiding a hard Brexit. In this context, the European indices recorded the greatest gains, ranging from 7.5% for the Dax 30 to 20.2% for the Ibex 35, which in November registered its largest ever monthly gain. The French and Italian indices also showed significant gains (around 16%), and the UK FTSE rose by 10.1% in the last 3 months of the year. Among the US indices, the gains marked by the Nasdaq Composite (15.4%) stood out, followed by those of the S&P 500 and the Dow Jones (11.7% and 10.2%, respectively). The Japanese Nikkei and Topix indices also rose significantly, by 18.4% and 11%, respectively (see Table 6).

Performance of the main stock market indices¹

TABLE 6

%

	2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20
World								
MSCI World	20.1	-10.4	25.2	14.1	-21.4	18.8	7.5	13.6
Euro area								
Euro Stoxx 50	6.5	-14.3	24.8	-5.1	-25.6	16.0	-1.3	11.2
Euronext 100	10.6	-11.2	24.9	-3.6	-25.0	13.8	-1.8	15.1
Dax 30	12.5	-18.3	25.5	3.5	-25.0	23.9	3.7	7.5
Cac 40	9.3	-11.0	26.4	-7.1	-26.5	12.3	-2.7	15.6
Mib 30	13.6	-16.1	28.3	-5.4	-27.5	13.6	-1.9	16.9
Ibex 35	7.4	-15.0	11.8	-15.5	-28.9	6.6	-7.1	20.2
United Kingdom								
FTSE 100	7.6	-12.5	12.1	-14.3	-24.8	8.8	-4.9	10.1
United States								
Dow Jones	25.1	-5.6	22.3	7.2	-23.2	17.8	7.6	10.2
S&P 500	19.4	-6.2	28.9	16.3	-20.0	20.0	8.5	11.7
Nasdaq-Cpte	28.2	-3.9	35.2	43.6	-14.2	30.6	11.0	15.4
Japan								
Nikkei 225	19.1	-12.1	18.2	16.0	-20.0	17.8	4.0	18.4
Topix	19.7	-17.8	15.2	4.8	-18.5	11.1	4.3	11.0

Source: Thomson Datastream.

¹ In local currency. Data to 31 December.

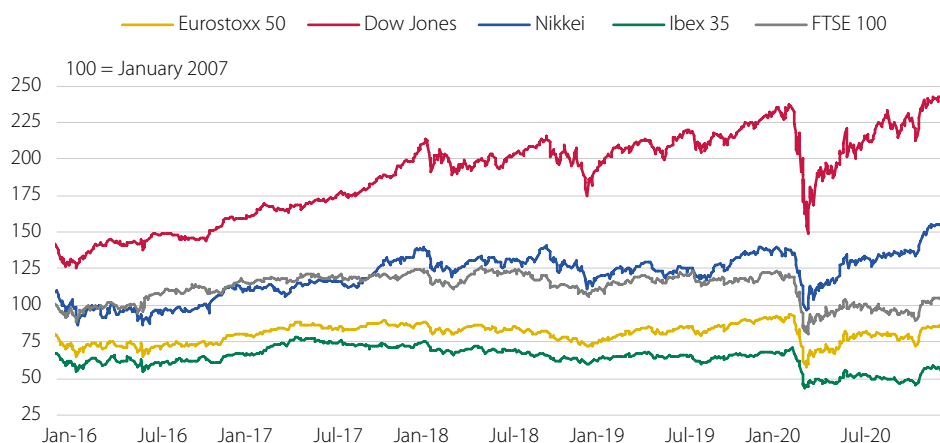
The performance of the main stock market indices throughout the year shows notable differences across the different regions. In the United States and Japan, the leading indices ended the year with gains, after coming back from the falls seen in the first quarter. The performance of the Nasdaq technology index stood out, gaining 43.6% in the year. However, the good performance of the European indices in

⁷ The markets are factoring in the approval of a large package of fiscal aid aimed at alleviating the effects of the pandemic, as well as future changes in trade policy and with regard to climate change, in a context of certain constraints to tackling far-reaching fiscal reforms due to the situation in Congress.

the last quarter (added to the rallies in the second quarter) was not sufficient to offset the losses incurred at other times during the year, except in the case of the German index, which made a small gain (3.5% relative to 2019). Overall, the European indices saw falls ranging from 5.4% on the Mib 30 to 15.5% on the Ibex 35.

Performance of the main stock market indices

FIGURE 7



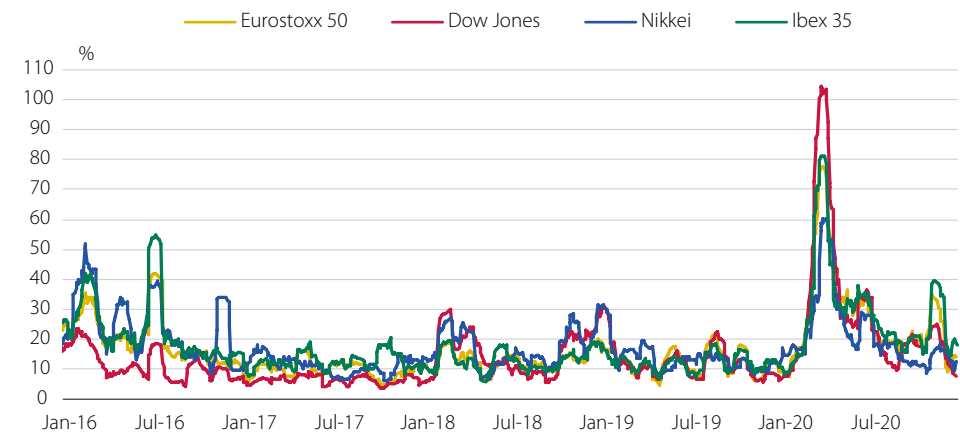
Source: Thomson Datastream. Data to 31 December.

The historical volatility measures of the main indices rose sharply during the second half of March and the first days of April as a result of the uncertainty caused by the coronavirus. Since then they have decreased, although in certain periods of the year there were new spikes caused by renewed outbreaks of the virus and the measures implemented to mitigate the effects. In this context, the annual average of the index volatilities far exceeded the historical averages, contrary to what happened in 2019. In Europe, the volatility indicators of the Ibex 35 and the Euro Stoxx registered an annual average of around 27%, whereas the historical average for both is approximately 18%. The volatilities of these indices, which started the year at levels close to 10%, reached highs of around 80% in April. These levels subsequently fell (although there were several minor rebounds in the last quarter) to end 2020 at 19% (Ibex 35) and 14% (Euro Stoxx).

Dow Jones and Nikkei volatilities followed a similar trend. The former reached 103% at the beginning of April, although it fell significantly for most of the remainder of the year, to close at around 8%. The volatility of the Japanese index was lower than that of the indices mentioned above, peaking at 60% to stand at around 13% at the end of the year (see Figure 8). The implied volatility measures of the main stock market indices followed the same line as historical measures, with annual averages of between 24% and 30% on the main indices, with the exception of the Nasdaq, which reported an annual average of 49%.

Historical volatility of main stock market indices

FIGURE 8



Source: Thomson Datastream. Data to 31 December.

Dividend yields performed evenly in the main indices, falling in most cases (with the exception of the Ibex 35, where they were stable) compared with the previous year, ranging from 0.3 percentage points (pp) for the Topix and the S&P 500 to 1.6 pp for the Mib 30. Dividend yields of most European indices declined by more than those of US or Japanese indices. However, dividend yields in Europe remained higher than those offered by US and Japanese indices (with the exception of the Euronext 100, which saw sharp falls during the year). Thus, at the end of December, the dividend yield of the S&P 500 and Topix indices stood at 2.0% in both cases (2.3% at the end of 2019), while the average for the European indices was 2.8% (3.6% in 2019). For the European indices as a whole, the most significant falls were observed on the Italian Mib 30 (-1.6 pp, to 2.6%), the Euronext 100 (-1.2 pp, to 1.8%) and the French Cac 40 (-1.1 pp, to 2.0%). The dividend yield of the Spanish index remained at 4.2%.

Dividend yield of the main stock market indices¹

TABLE 7

%

	2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20
S&P 500	2.2	2.8	2.3	2.0	3.0	2.4	2.3	2.0
Topix	1.8	2.6	2.3	2.0	3.0	2.4	2.3	2.0
Eurostoxx 50	3.9	4.1	3.3	2.4	4.5	2.8	2.7	2.4
Euronext 100	4.1	3.7	3.0	1.8	4.3	2.3	2.3	1.8
FTSE 100	4.0	4.8	4.4	3.7	6.3	4.5	4.5	3.7
Dax 30	2.6	3.4	3.0	2.6	3.9	3.0	2.9	2.6
Cac 40	4.4	3.8	3.0	2.0	4.3	2.2	2.3	2.0
Mib 30	3.5	4.7	4.2	2.6	6.1	3.6	3.5	2.6
Ibex 35	3.8	4.6	4.2	4.2	6.1	4.5	4.8	4.2

Source: Thomson Datastream.

¹ Data to 31 December.

The price-to-earnings ratios (PER) of the main equity indices showed increases at the end of 2020 compared with December 2019 (see Table 8). In the first quarter, all indices recorded declines in this ratio caused by the sharp drop in quoted prices, but in subsequent months the trend was clearly upward on the back of both the recovery of share prices and the decrease in expected earnings per share. At the end of the year, increases in the PER ratio ranged from 1.4 (Dax 30) to 5.8 times (Ibex 35). This indicator reached very high values in the US S&P 500 index (22.7, compared with 18.4 in December of the previous year) and the Japanese Topix index (18 vs 14.4 at year-end 2019). In Europe, the most significant increase was marked by the Ibex, which ended the year at 18.2, followed by the Euronext 100, which increased by 4.3 times (to 20.0) and the Cac 40, which in December stood at 17.9 (up 3.3). As shown in Figure 9, the PERs of most indices are higher than their historical averages, most notably on the US indices.

PER¹ of the main stock market indices

TABLE 8

	2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20 ²
S&P 500	18.5	14.3	18.4	22.7	14.9	21.5	20.9	22.7
Topix	15.0	10.7	14.4	18.0	11.2	17.0	17.8	18.0
Eurostoxx 50	14.0	11.4	14.4	17.9	11.3	16.9	16.7	17.9
Euronext 100	15.8	12.2	15.7	20.0	12.6	19.7	18.3	20.0
FTSE 100	14.4	11.2	13.3	14.9	10.3	16.2	14.3	14.9
Dax 30	13.3	11.0	14.2	15.6	10.9	16.4	15.2	15.6
Cac 40	14.5	11.2	14.6	17.9	11.6	17.8	16.7	17.9
Mib 30	13.8	9.9	12.2	14.3	9.5	16.1	13.7	14.3
Ibex 35	13.6	10.5	12.4	18.2	9.3	17.0	16.5	18.2

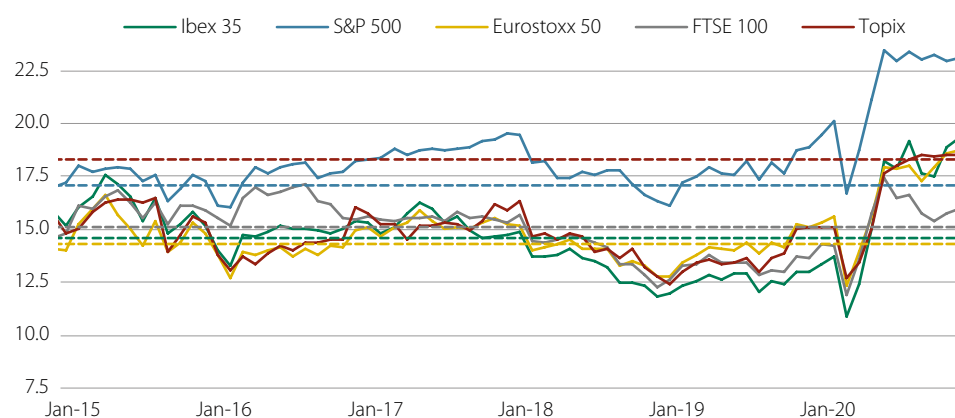
Source: Thomson Datastream.

1 Earnings per share in the denominator of this ratio are based on 12 month forecasts.

2 Data to 31 December.

PER¹ of the main stock market indices

FIGURE 9



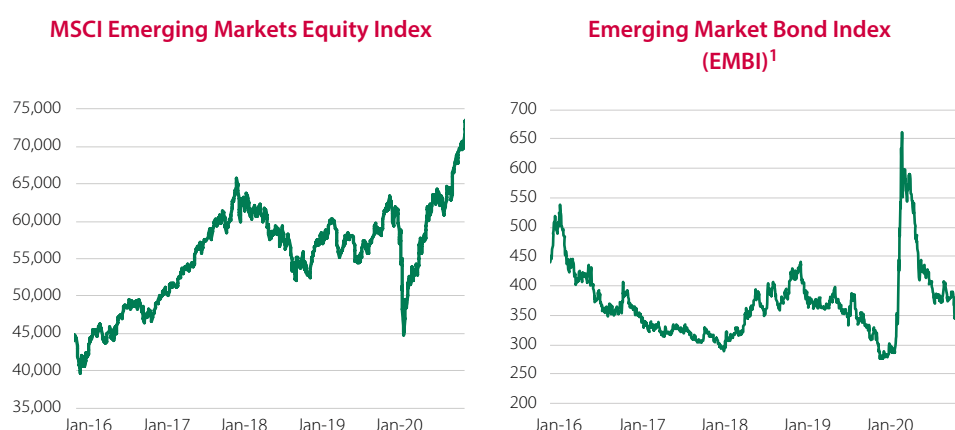
Source: Thomson Datastream. Data for the last session of each month. Data to 31 December.

1 Earnings per share in the denominator of this ratio are based on 12 month forecasts. The dotted lines represent historical averages for each index since 2000.

The performance of share prices in emerging economies was also uneven throughout 2020, with declines in the first and third quarters of the year and increases in the second and fourth. The year was marked by the spread of COVID-19 and its (economic and health) consequences, which varied in time and intensity in the different emerging regions. Nevertheless, the overall balance of several key financial indicators was positive. Thus, the MSCI emerging markets equity index gained 17% in 2020 (16% in the final quarter) and the emerging markets bond index (EMBI) ended the year at 323 bp, after falling by more than 300 bp from the highs reached in March. The levels of this risk premium are dissimilar to those seen at the beginning of the year (46 bp higher), but are very close to figures observed during non-turbulent periods (see Figure 10).

Risk valuation in emerging economies

FIGURE 10



Source: Thomson Datastream and Bloomberg. Data to 31 December.

1 This is a country risk indicator (Emerging Markets Bond Index) calculated on the basis of interest rate spreads for different maturities between dollar-denominated bonds issued by emerging economies and US debt bonds.

Emerging stock markets recorded gains in the fourth quarter of the year (see Table 9), in line with the developed markets, but in the year as a whole there were differences among the various emerging regions and within them. By region, the Latin American indices grew between 13.8% (Chile) and 25.8% (Brazil) compared with the third quarter. For the year as a whole, Brazilian, Mexican and Peruvian indices reported small gains, in contrast to the Argentine Merval index, which strengthened significantly (22.9%) and the Chilean index, which lost 10.2%. In Asia, the strongest gains were made by equity indices in the last quarter of the year in India, South Korea and Indonesia (around 23%). However, they performed unevenly in the year as a whole, with losses of up to 11.8% (Singapore) and rallies of 30.8% (South Korea). Chinese and Indian indices saw notable rises in the year (between 14% and 15%) as they experienced the worst moments of the spread of the virus earlier, and also started to recover earlier. In Eastern Europe, stock market indices also posted gains in the last months of the year (particularly the Russian RTS Index, +18%) but these were not enough to offset the losses of the first and third quarters. Thus, all these indices showed declines of differing magnitudes compared with December 2019 (see Table 9).

Performance of other international stock market indices¹

TABLE 9

Index		2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20
Latin America									
Argentina	Merval	77.7	0.8	37.6	22.9	-41.5	58.7	6.7	24.2
Brazil	Bovespa	26.9	15.0	31.6	2.9	-36.9	30.2	-0.5	25.8
Chile	IGPA	35.0	-7.3	-9.9	-10.2	-25.2	14.2	-7.5	13.8
Mexico	IPC	8.1	-15.6	4.6	1.2	-20.6	9.2	-0.7	17.6
Peru	IGRA	28.3	-3.1	6.1	1.4	-29.5	16.7	6.3	16.0
Asia									
China	Shanghai Comp.	6.6	-24.6	22.3	13.9	-9.8	8.5	7.8	7.9
India	BSE	31.5	1.2	9.6	15.2	-29.2	20.1	9.4	23.8
South Korea	Korea Comp. Ex	21.8	-17.3	7.7	30.8	-20.2	20.2	10.4	23.4
Philippines	Manila Comp.	25.1	-12.8	4.7	-8.6	-31.9	16.7	-5.5	21.8
Hong Kong	Hang Seng	36.0	-13.6	9.1	-3.4	-16.3	3.5	-4.0	16.1
Indonesia	Yakarta Comp.	20.0	-2.5	1.7	-5.1	-27.9	8.1	-0.7	22.8
Malaysia	Kuala Lumpur Comp.	9.4	-5.9	-6.0	2.4	-15.0	11.1	0.3	8.1
Singapore	SES All-S'Pore	18.1	-9.8	5.0	-11.8	-23.0	4.4	-4.8	15.3
Thailand	Bangkok SET	13.7	-10.8	1.0	-8.3	-28.7	18.9	-7.6	17.2
Taiwan	Taiwan Weighted Pr.	15.0	-8.6	23.3	22.8	-19.1	19.7	7.7	17.7
Eastern Europe									
Rusia	Russian RTS Index	0.2	-7.6	45.3	-10.4	-34.5	19.5	-2.8	17.7
Poland	Warsaw G. Index	23.2	-9.5	0.2	-1.4	-28.0	19.1	-0.3	15.4
Romania	Romania BET	9.4	-4.8	35.1	-1.7	-23.6	13.6	4.0	8.9
Bulgaria	Sofix	15.5	-12.3	-4.4	-21.2	-26.2	8.1	-5.7	4.7
Hungary	BUX	23.0	-0.6	17.7	-8.6	-28.1	8.1	-8.1	27.9
Croatia	CROBEX	-7.6	-5.1	15.4	-13.8	-26.6	9.5	-0.8	8.1

Source: Thomson Datastream.

¹ Data to 31 December.

According to data published by the World Federation of Exchanges and the Federation of European Securities Exchanges, the trading volumes of the main bourses and multilateral trading facilities (MTFs) showed a general upward trend throughout 2020, although there were differences among the main geographical regions. Thus, in the United States and Japan, trading increased significantly. In the United States, volumes rose by 62% in the year, to €59.6 trillion, with the NYSE, BATS Global Markets, and the Nasdaq OMX all seeing higher levels. In Japan, the increase in trading was lower, at 19%. In Europe, the largest growth was recorded by Deutsche Börse, up 35% to November, followed by Euronext with a rise of 29%. However, other European trading venues saw fairly sizeable declines in trading, such as Cboe Equities Europe (-14%) and BME (-9%). The London platform registered a slight increase of 4% (see Table 10), and SMN Turquoise saw an 11% fall in trading activity in 2020.

Trading volumes on the main international stock exchanges

TABLE 10

Billions of euros

	2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20 ¹
Market operator								
United States ²	33,882	44,222	34,901	59,621	17,059	15,708	14,245	12,609
Nasdaq OMX	10,047	14,250	13,123	21,842	5,573	5,458	5,539	5,273
NYSE	12,921	16,397	10,917	21,116	6,612	5,863	5,107	3,534
BATS Global Markets	10,914	13,575	10,860	16,663	4,875	4,387	3,599	3,802
Japan Exchange Group	5,143	5,327	4,180	5,400	1,447	1,377	1,217	1,359
London Stock Exchange Group ³	2,052	2,143	1,646	1,704	606	452	351	294
Euronext ⁴	1,708	1,865	1,582	2,036	702	536	437	361
Deutsche Börse	1,301	1,538	1,247	1,678	548	472	364	294
BME ⁵	650	591	469	427	130	110	81	89
Cboe Equities Europe ⁶	2,119	2,377	1,572	1,360	479	329	308	243
Multilateral trading facility (MTF)								
Turquoise	810	621	299	266	86	75	59	46

Source: World Federation of Exchanges, European Federation of Securities Exchanges and CNMV.

1 Data to 31 December for operators in the United States and Japan, and up to 30 November for the rest (except BME, where data are up to 31 December).

2 Since 2009, the sum of the Nasdaq OMX, New York Stock Exchange (NYSE) and BATS Global Markets is considered.

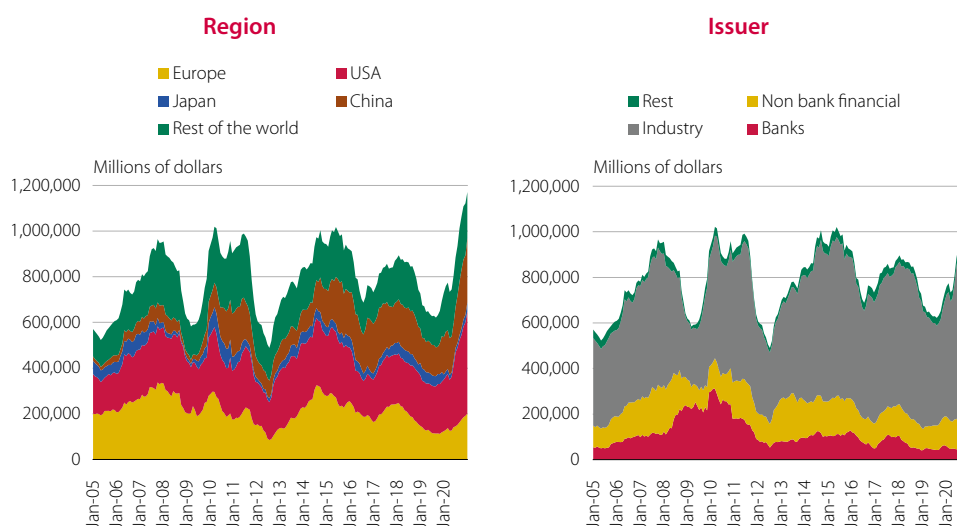
3 Includes the London Stock Exchange and Borsa Italiana.

4 Includes Belgium, Holland, France, Portugal, Ireland and Euronext London.

5 BME Bolsas y Mercados Españoles does not include Latibex.

6 BATS Europe until February 2017, the date on which it was acquired by the Cboe Global Markets group.

The volume of equity issuance in international financial markets grew by 60.4% compared with 2019 and stood at US\$1.16 trillion at year-end 2020. In the early months of the year, there was less issuing activity due to the economic paralysis caused by the spread of COVID-19, but from May onwards, equity issues exceeded US\$100 billion every month. Thus, all regions saw a rise in issues of over 60% compared with the previous year, particularly in the United States, where the figure practically doubled to US\$444 billion. In Japan and China, the increase in equity issues was almost 80% compared with December 2019 (at US\$39.6 billion and US\$279.7 billion, respectively) and in Europe it was 63%, at US\$200 billion. There were differences among sectors: industrial companies registered a strong increase in equity issues (80.2%), as did the non-banking financial sector (+47.9% compared with 2019). However, issues of shares of banks and utilities dropped 34.9% and 7.6%, respectively.



Source: Dealogic. Cumulative data for 12 months to 31 December.

3 Recent trends in Spanish financial markets

The Spanish financial markets stress index reached its third highest point ever (0.65) in 2020 as a result of the high degree of uncertainty caused by the coronavirus pandemic, which made the markets extremely unstable in March and April (see Figure 12). The indicator⁸ remained at values corresponding to a high stress level (above 0.49) for 20 consecutive weeks. Following this increase, which was triggered by the rise in stress in all segments considered, and by the strong increase in correlation among them, the stress level marked a (somewhat irregular) downward trend, stabilising in the last few weeks to reach 0.36 (medium stress level) at the end of the year.⁹ The ECB's prompt implementation of measures in this crisis has prevented some of the indicators that are part of this calculation, for example, different risk premiums, from rising as far as they did in previous crises. At the end of the year, the highest stress levels were recorded by financial intermediaries, non-financial equities and exchange rates segment, all of which were affected by notable levels of

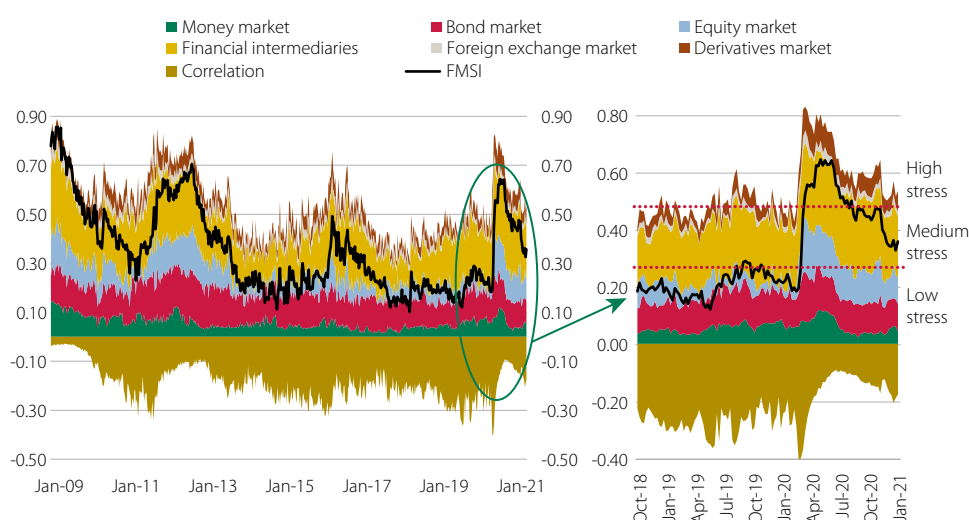
8 The stress indicator calculated by the CNMV provides a real-time measure of systemic risk in the Spanish financial system that ranges from zero to one. To do this, it evaluates stress in six segments of the financial system and makes an aggregate, obtaining a single figure that takes into account the correlation between these segments. Econometric estimates indicate that index values below 0.27 correspond to periods of low stress, while scores between 0.27 and 0.49 correspond to periods of medium stress, and values above 0.49 indicate periods of high stress. For further details on recent movements in this indicator and its components, see the quarterly publication of the *Financial Stability Note*, and the CNMV's statistical series (market stress indicators), available at <http://www.cnmv.es/portal/menu/Publicaciones-Estadisticas-Investigacion.aspx>. For more information on the methodology of this index, see Cambón, M.I. and Estévez, L. (2016). "A Spanish Financial Market Stress Index (FMSI)". Spanish Review of Financial Economics, Vol. 14, No. 1, pp. 23-41 or as CNMV Working Document No. 60 (http://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/Monografia_60_en.pdf).

9 This indicator has a weekly frequency. The data presented in this report correspond to 8 January.

volatility and, in the case of the first two, by the cumulative decline in prices (despite the recovery in the last few weeks of the year).

Stress indicator of the Spanish financial markets

FIGURE 12



Source: CNMV.

3.1 Fixed income markets

The Spanish debt markets continued to perform in line with those of neighbouring European economies, marked by the ultra-low interest rates and supported by the various ECB measures. The rise in yields on debt assets in March and April – the most turbulent period of the crisis – was almost entirely reversed in subsequent months for most instruments. Thus, on several days in December the return on public debt assets was in negative territory up to the 10-year segment, and the yield on corporate debt assets was negative up to the 5-year segment. The same occurred with the risk premiums of both public and private sector issuers. Thus, the sovereign risk premium closed the year at 63 bp, below the high reached in April (156 bp) and the level registered at the end of 2019 (66 bp). Trends in issuer credit risk, which will be linked to the recovery of activity, will remain a factor to be closely monitored in the coming months. Lastly, the liquidity needs of the different issuers in a context of uncertainty (but marked by favourable financing conditions), led to a substantial increase in debt issues registered with the CNMV in 2020 (up by 46.5%, to €132.1 billion) in contrast to issues carried out abroad, which decreased by 9.2% (to €82.7 billion), breaking the trend observed in recent years.

Interest rates on short-term debt continued to fall in the fourth quarter, reaching historic lows in both the primary and secondary markets. This marks the sixth consecutive year of negative values in public debt yield along the entire short section of the curve, due to the ECB policy of keeping its official rates at current levels.¹⁰ The average yield on

¹⁰ The governing council expects the ECB's official interest rates to remain at current levels, or lower, until it sees a solid convergence of inflation outlooks to a level close enough to, although below, 2% on its

the secondary market for 3-, 6- and 12-month treasury bills stood at -0.70%, -0.59% and -0.63% respectively in December, lower than the values seen in the third quarter and in line with the rate set by the ECB for its deposit facility (-0.5%). The annual decline in these interest rates ranged between 12 bp and 15 bp, depending on the term.

The performance of short-term private fixed income was different, as values increased in each quarter of the year, although they remained at very low levels. This upward trend can be partly explained by the higher costs that smaller companies have to incur to issue debt due to their size and credit quality,¹¹ as well as the small sample of issuers, which is largely concentrated in companies listed on the Alternative Fixed Income Market (MARF). Based on the latest available data, the average yield on commercial paper at the time of issue in December was 0.44% for the 3-month note, 0.55% for the 6-month note and 1.44% for the 12-month note. These values are between 3 and 73 bp higher than at the end of 2019 (see Table 11).

Short-term interest rates¹

TABLE 11

%

	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Treasury bills								
3 month	-0.62	-0.50	-0.58	-0.70	-0.38	-0.50	-0.49	-0.70
6 month	-0.45	-0.41	-0.47	-0.59	-0.40	-0.45	-0.46	-0.59
12 month	-0.42	-0.33	-0.48	-0.63	-0.36	-0.38	-0.46	-0.63
Corporate commercial paper²								
3 month	0.39	0.24	0.20	0.49	0.19	0.36	0.39	0.49
6 month	0.26	0.19	0.52	0.55	0.23	0.57	0.69	0.55
12 month	0.19	0.07	0.71	1.44	0.58	0.45	1.02	1.44

Source: Thomson Datastream and CNMV.

1 Monthly average of daily data.

2 Issue interest rate.

Interest rates on medium and long-term government debt continued to fall in the fourth quarter of the year and the yield on 10-year debt stabilised at just above zero in the last few weeks of the year (although it showed negative values at certain times). The continuity of the ECB's asset purchase programme¹² is keeping these yields at close to historic lows and they are likely to remain in this area for a long time. In this context, the yield on 3-, 5- and 10-year government bonds was -0.53%,

projection horizon, and this convergence has been systematically reflected in core inflation. In its latest macroeconomic projections for December 2020, the ECB stated that it expects inflation to rise from 0.2% in 2020 to 1.0% in 2021, 1.1% in 2022 and 1.4% in 2023.

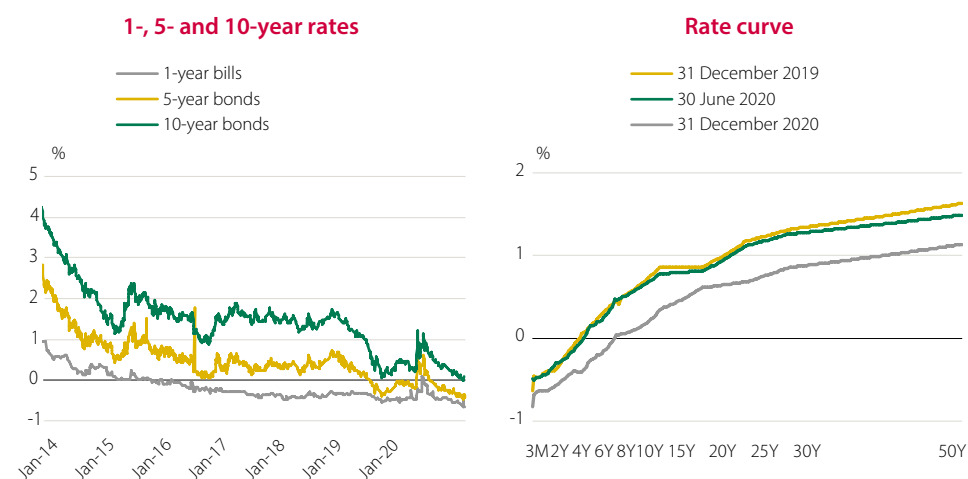
11 In fact, a large number of companies with ratings that are below investment grade or that are unrated have been observed.

12 At the end of December, the ECB had acquired public debt for a net amount of €2.46 trillion through its PSPP programme, of which €292.88 billion corresponded to Spanish securities. Furthermore, as part of the PEPP programme, it had acquired (at the end of November) public debt for an amount of €651.81 billion, of which €77.13 billion corresponded to Spanish securities. Therefore, the amount of Spanish public debt acquired by the ECB stood at €370 billion (36.7% of the outstanding balance of long-term government debt).

-0.42% and 0.05%, respectively, in December, which is between 24 and 40 bp lower than in December 2019 (see Table 12). The yield curve ended the year with a clear downward shift compared with the curve in June and December 2019, presenting positive values only beyond the 10-year segment (see right-hand panel of Figure 13).

Yields on Spanish public debt

FIGURE 13



Source: Thomson Datastream and Bloomberg. Data to 31 December.

Corporate debt yields also decreased in the fourth quarter, due to the effects of the continuation of the ECB's corporate debt purchase programme and the easing of several of the uncertainties of previous months. The yield on 3- and 5-year debt also entered negative territory at the end of the year with values of -0.19% and -0.13% respectively. The 10-year debt yield stood at 0.41%. These figures imply a risk premium of between 29 and 36 bp depending on the term. In the year as a whole, the decline in the yield on private debt was similar across the different segments, standing at between 36 and 39 bp (see Table 12).

Medium- and long-term private fixed income yields¹

TABLE 12

%	Dec-17	Dec-18	Dec-19	Dec-20	Mar-20	Jun-20	Sep-20	Dec-20
Public sector fixed income								
3 year	-0.09	-0.04	-0.29	-0.53	-0.11	-0.23	-0.40	-0.53
5 year	0.31	0.44	-0.06	-0.42	0.11	-0.06	-0.25	-0.42
10 year	1.46	1.43	0.45	0.05	0.58	0.55	0.29	0.05
Private sector fixed income								
3 year	0.44	0.67	0.20	-0.20	0.38	0.26	0.14	-0.19
5 year	0.41	0.55	0.23	-0.13	0.47	0.47	0.09	-0.13
10 year	1.16	1.52	0.79	0.41	1.10	0.86	0.68	0.41

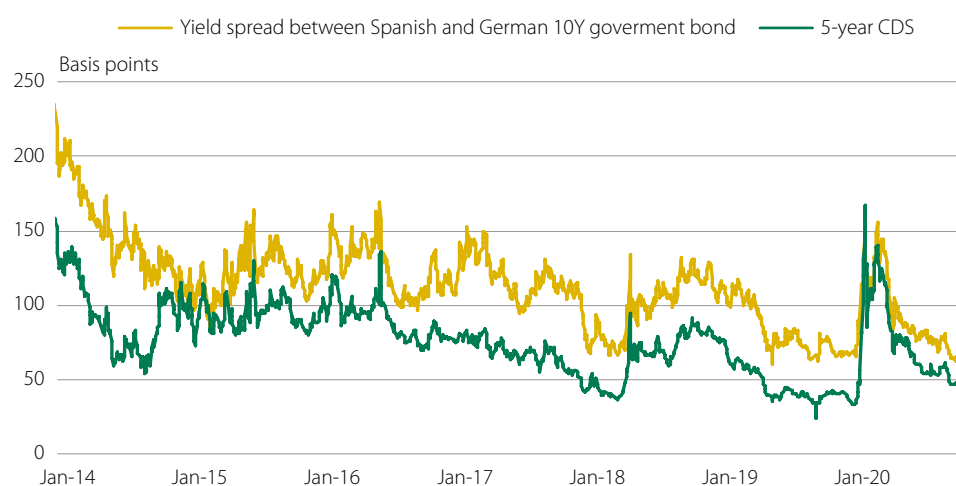
Source: Thomson Datastream, Reuters and CNMV.

¹ Monthly average of daily data.

The sovereign risk premium – measured as the difference between the yields on the Spanish and German 10-year sovereign bonds – remained relatively stable for most of the last quarter of the year, standing at 63 bp at the end of 2020. This figure is lower than both the high reached in April during the worst moments of the pandemic (156 bp) and the closing figure for 2019 (66 bp). The reduction was due to the various announcements and stimulus measures implemented by the ECB, as well as the imminent start of the COVID-19 vaccination programme in the European Union, following the successful start made in other countries such as the United Kingdom and the United States. Further, the sovereign risk premium estimated using the CDS of the Spanish sovereign bond – the market for which is less liquid than that of the underlying bond – fell progressively over the last quarter, to reach 43 bp at the end of 2020, well below the high seen in March (167 bp) and slightly above the figure of 41 bp at the end of the previous year (see Figure 14). In the short term, its performance – like that of the premiums of large Spanish issuers – will remain conditioned by the evolution of the pandemic and its impact on the pace of economic recovery.

Risk premium of Spanish issuers: public sector

FIGURE 14



Source: Thomson Datastream and CNMV. Data to 31 December.

The risk premiums of the private subsectors of the economy showed moderate declines in the last quarter of the year, which were more pronounced for financial institutions. Despite the uncertainties faced by the latter – decreasing net interest income due to low interest rates and the foreseeable increase in the delinquency rate –, the average premium of banks' CDS has been positively affected by the various measures taken by the ECB: debt purchases,¹³ extension of the third round of financing (TLTRO III)¹⁴ to 2022, and the offering of four longer-term pandemic emergency purchase operations (PELTRO) in 2021. All of these measures effectively

13 At 31 December, the asset backed securities purchasing programme (ABSPP) had accumulated purchases amounting to €29.5 billion, of which more than 57% had been acquired in the primary market. The covered bond purchase programme (CBPP3) had accumulated purchases of €287.55 billion at the same date, of which more than 36% had been acquired in the primary market. In addition, as part of the PEPP programme, the ECB held a balance of €3.12 billion in covered bonds.

14 See Section 2.1 for further details.

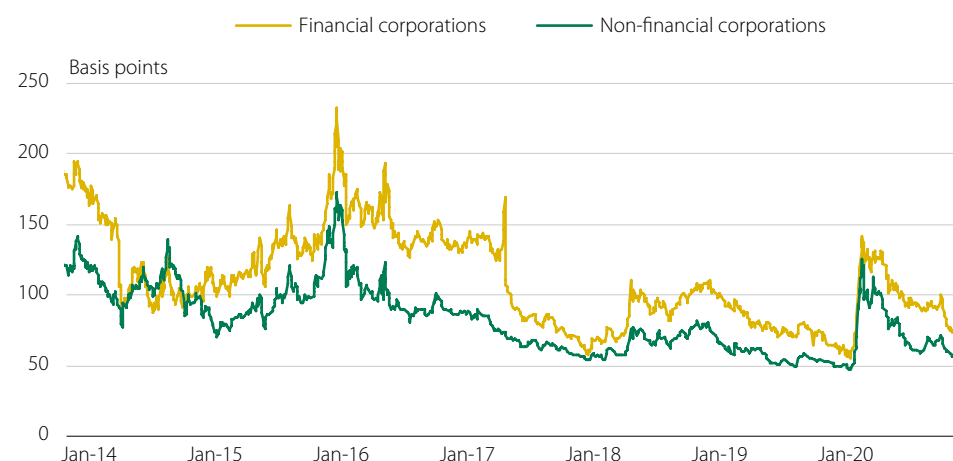
support liquidity in the financial sector and allow risk premiums to be kept low. In the case of non-financial companies, the decrease in the risk premiums was smaller, although they also reached lows from the end of February. These companies continue to benefit from the extension of the ECB asset purchase programme,¹⁵ which helps keep financing costs at low levels.

As shown in Figure 15, the average CDS of Spanish financial institutions stood at 76 bp at the end of December (65 bp at the end of 2019), below the figure of 93 bp at the end of the third quarter and well below the value of 142 bp seen in mid-March. In the case of non-financial companies, the average risk premium on the same date was 59 bp (52 bp at the end of 2019), compared with 68 bp in the previous quarter and 126 bp in March when the restrictions triggered by the pandemic were first enforced.

Following the trend marked in the first three quarters of the year, fixed income issues registered with the CNMV in the fourth quarter stood at €54.73 billion, €19.71 billion more than in the same period of the previous year. This performance responds to a large extent to the issues made by financial institutions, providing them with easily available liquidity – mainly securitisations – to deal with the situation caused by COVID-19, and which enjoy good financing conditions in the markets. Debt issues made abroad were also sizeable, although based on data to November, it appears that in 2020 these issues will be lower than in 2019, and also than those registered with the CNMV, which reverses the trend of the previous year.

Risk premium of Spanish issuers: private sector¹

FIGURE 15



Specifically, the volume of issues registered with the CNMV for the year as a whole stood at €132.11 billion, 47% more than in 2019. The increase in securitisation bonds stands out, with issues of these instruments practically doubling to reach €36.28 billion,¹⁶ as does the increase in issues of specific types of instruments such as regional covered bonds, which grew sixfold to €9.15 billion (€1.3 billion in 2019). Similarly, issues of commercial paper showed a significant increase of 48%, to €22.29 billion (€15.09 billion in 2019).¹⁷

Smaller increases were observed in non-convertible bonds, where issues exceeded €33.4 billion in 2020 (€29.61 billion in 2019). A large part of these issues corresponded to SAREB, the company that manages assets from the restructuring of banks, which carried out two bond issues at the end of the year for a combined amount of over €23 billion. Issues by SAREB in 2020 amounted to €27.87 billion (€20.51 billion in 2019). Meanwhile, issues of covered bonds remained at levels very similar to those of 2019, adding just over €22.9 billion (0.1%), and consistent with the outstanding balance of mortgage loans,¹⁸ which has not increased for several years.

It should be noted that debt issues in the MARF stood at €9.58 billion, representing a decrease of 7% compared with 2019 (€10.35 billion). Most of this amount corresponded to issues of commercial paper (90%) by 62 entities (2 more than in 2019), including companies such as El Corte Inglés, MásMóvil, Grupo Barceló and Sacyr. It is also noteworthy that in the fourth quarter there were considerable issues of other debt assets (non-convertible bonds, covered bonds and securitisation bonds) for a combined amount of €850.8 million (the total amount in the rest of the year was only €143.7 million).

By sector, issues made by financial institutions stood at €114.12 billion in 2020, which is 42% more than in 2019 and 86.4% of total issues. The relative size of these issues is very considerable, but they have been declining for several years (in 2017 they accounted for 96.2% of the total). Debt issues of non-financial companies totalled €16.14 billion, well above the €9.74 billion seen in 2019.

Fixed income issues made by Spanish issuers abroad (to 30 November) decreased by 9.2%, to €82.77 billion. Thus, with data for one month still missing, this figure, which in the previous year exceeded the amount of issues registered with the CNMV, is lower for the year as a whole and represents 38.5% of total issues (compared with 50.3% in 2019). In relation to the term of the assets, long-term debt issues made abroad decreased by 12% (to €42.98 billion), while short-term issues fell by 6% (to €39.8 billion). Lastly, issues of subsidiaries of Spanish companies abroad (to November) decreased by 26%, to €65.24 billion (30% in financial companies and 21% in non-financial companies).

16 It should be noted that in 2020 seven issues were made by Spanish issuers, three of them by banking institutions, which met the requirements for being recognised as STS (simple, transparent and standardised) in accordance with European regulatory criteria. They totalled €19.87 billion.

17 On 24 November, the Council of Ministers approved the release of a further section of the Line of Guarantees for investment and liquidity, for an amount of €250 million, to guarantee the commercial paper issued on the MARF by companies that were unable to access the tranche offered in the first Line as their commercial paper programmes were in the renewal phase.

18 To November, according to data from the Bank of Spain, the balance of mortgage loans to households fell by 1.3% year-on-year, to stand at €511.89 billion.

Gross fixed income issuance registered with the CNMV

TABLE 13

	2017	2018	2019	2020	2020			
					I	II	III	IV
NOMINAL AMOUNT (type of instrument, millions of euros)	109,487	101,296	90,165	132,111	20,763	35,880	20,743	54,725
Covered bonds	29,824	26,575	22,933	22,960	6,250	11,100	1,160	4,450
Regional covered bonds	350	2,800	1,300	9,150	0	4,750	4,400	0
Non-convertible bonds	30,006	35,836	29,606	33,412	6,159	925	373	25,956
Convertible/exchangeable bonds	0	0	0	0	0	0	0	0
Securitisation bonds	29,415	18,145	18,741	36,281	3,066	5,060	8,193	19,963
Corporate commercial paper ¹	17,911	15,089	15,085	22,292	5,288	7,780	5,617	3,607
Securitisation	1,800	240	0	0	0	0	0	0
Other commercial paper	16,111	14,849	15,085	22,292	5,288	7,780	5,617	3,607
Other fixed income issues	981	0	1,500	6,266	0	6,266	0	0
Preferred shares	1,000	2,850	1,000	1,750	0	0	1,000	750
<i>Pro memoria:</i>								
Subordinated issues	6,505	4,923	3,214	14,312	861	516	2,020	10,915
Underwritten issues	0	0	0	0	0	0	0	0
NOMINAL AMOUNT (issuer's sector, millions of euros)	109,487	101,296	90,165	132,111	20,763	35,880	20,743	54,725
Financial institutions	105,380	96,926	80,424	114,119	17,061	29,515	16,096	51,447
Long term	75,785	72,039	63,462	101,685	14,513	18,514	18,383	50,275
SAREB	20,040	29,751	20,505	27,867	4,064	0	0	23,803
Short term	0	0	0	0	0	0	0	0
Non-financial companies	4,108	4,370	9,741	16,142	3,002	6,365	4,647	2,129
Long term	4,108	4,370	9,741	16,142	3,002	6,365	4,647	2,129
Short term	0	0	0	0	0	0	0	0
Public administrations	400	0	0	0	0	0	0	0

Issues made abroad by Spanish issuers

	2017	2018	2019	2020	2020			
					I	II	III	IV ²
NOMINAL AMOUNT (millions of euros)	84,771	87,846	100,321	82,774	27,367	30,377	13,394	11,636
Long term	61,125	36,913	53,234	42,978	14,043	16,579	5,950	6,406
Preferred shares	5,844	2,000	3,070	1,850	1,500	0	350	0
Subordinated bonds	5,399	2,250	1,755	0	0	0	0	0
Bonds	49,882	32,663	48,409	41,128	12,543	16,579	5,600	6,406
Securitisation bonds	0	0	0	0	0	0	0	0
Short term	23,646	50,933	47,087	39,796	13,324	13,798	7,444	5,230
Corporate commercial paper	23,646	50,933	47,087	39,796	13,324	13,798	7,444	5,230
Securitisation	0	0	0	0	0	0	0	0

Pro memoria: Gross issuance of subsidiaries of Spanish companies in ROW

	2017	2018	2019	2020	2020			
					I	II	III	IV ²
NOMINAL AMOUNT (millions of euros)	68,976	92,600	92,284	65,235	24,587	20,153	9,654	10,841
Financial institutions	21,391	43,549	57,391	38,339	18,519	10,695	6,035	3,090
Non-financial companies	47,585	49,051	34,893	26,896	6,068	9,459	3,619	7,751

Source: CNMV and Bank of Spain.

1 The figures for issues of corporate commercial paper correspond to the amounts placed.

2 Data to 30 November.

3.2 Equity markets

3.2.1 Prices

Quoted prices in the Spanish equity markets, which had accumulated strong declines in the first part of the year and had barely recovered in mid-year, started the fourth quarter with further declines due to bad news relating to the second wave of infections. This situation forced governments and local authorities to implement additional restrictions on mobility and even partial lockdowns, which sparked fears of a sharper-than-expected economic downturn and dampened expectations of recovery. However, the situation changed radically at the beginning of November, when the good US economic data and the results of the elections combined with investor euphoria following the announcement by pharmaceutical company Pfizer, and later Moderna and AstraZeneca, on the effectiveness of their vaccines against the virus. All these factors fuelled expectations that the restrictions on mobility could be progressively lifted in the coming months and that the expected economic recovery would come sooner. Even so, the rally and optimism seen in November,¹⁹ marking the best ever performance in that month, was partially diluted in the European markets in December, as the threat of a no-deal Brexit persisted almost until the last days of the year and also because the second wave of the virus infection forced some European regions to establish stricter confinement measures,²⁰ which was a further setback for the short-term economic outlook in a key period for many companies.

The Ibex 35 closed the last quarter of 2020 with a gain of 20.2%, the highest among the international benchmark indices,²¹ although for the year as a whole it continued to record the highest losses (-15.5%), in a context of moderate volatility. Further, despite the pick-up in volumes traded in the fourth quarter, the trading of Spanish securities stood at €778 billion for the whole year, the lowest value since 2013 and representing three consecutive years of falls. In addition, trading continued to shift from the Spanish regulated market, which decreased by 9.6%, to other trading venues and competing markets, which saw slightly higher volumes.²²

The Ibex 35, which had suffered a sharp fall of 28.9% in the first quarter of the year, following the outbreak of the health crisis in March, recovering by a mere 6.6% in the second and losing 7.1% in the third, presented a significant gain in the fourth quarter (+20.2%). This reduced the loss for the year as a whole to 15.5%. The annual decline in the Spanish index, which contrasts with the gain of 11.8% made in the previous year, was significantly larger than that of most European benchmark

19 The Ibex 35 rose by 25.2% in November, the largest gain in its history in this month of the year, growing at a stronger pace than other large European indices: Eurostoxx (18.1%), Dax 30 (15%), Cac 40 (20.1%) and Mib 30 (22.9%).

20 Germany established another hard lockdown, while the United Kingdom and Italy imposed stricter restrictions.

21 Gains made by the rest of the main European indices in the fourth quarter ranged between 7.5% on the German Dax 30 and 16.9% on the Italian Mib 30.

22 Trading on venues and markets that compete with the BME increased by around €16.3 billion, up 4.7% year-on-year.

indices²³ and places the value of the index (around 8,100 points) at levels similar to those of 2016.

The significant stock market gains in November meant that most sectors marked a positive performance during the last quarter of the year, although the gains were uneven among sectors and sector companies depending on the repercussions of the foreseeable improvement in the health situation and the economic impact on the activity of each company. The quoted prices of small and mid-cap stocks, which in previous quarters had performed better than large caps due to their more flexible nature and because they represented more innovative sectors such as energy from renewable sources and pharmaceuticals, tracked the Ibex 35 in the final stretch of the year.

Meanwhile, Latin American securities listed in euros showed significant increases in the fourth quarter of the year, recovering part of their heavy cumulative losses, thanks to the good performance of quoted prices in Latin American markets. Thus, the FTSE Latibex All-Share and FTSE Latibex Top indices posted gains of 36.9% and 28.8% in the quarter, respectively, boosted by the recovery of their currencies against the euro,²⁴ although there were sizeable losses for the year as a whole (22% and 19.1%, respectively; see Table 14).

Once the advances in the vaccine programme became known in the latter part of the year, the biggest gains were concentrated in companies in the tourism and hospitality sector, as well as in banks and the main oil company (Repsol), which had been heavily penalised in previous quarters and whose activity and businesses could be greatly boosted by a return to some normality and the relaxation of social distancing measures. Thus, banks – where quoted prices had fallen sharply for most of the year, weighed down by fears of an upturn in non-performing loans, the expansion and extension over time of monetary easing measures and the fall in commercial activity – would clearly benefit from a recovery in activity, the prospect of new mergers and the ECB's relative relaxation of limitations on the distribution of dividends.²⁵ Similarly, the upward trend in the quoted prices of companies in more cyclical sectors, such as the production of raw materials and industrial goods, construction and engineering companies, which stand to benefit most from the recovery of industrial activity, also stood out.

The weakest performance corresponded to pharmaceutical and food companies, in addition to real estate firms and those in the energy sector. The former had shown

23 The main European indices outperformed the Spanish market, with the German Dax 30 standing out as it remained in positive ground (3.5%), while the others posted losses but considerably smaller ones, with the European Eurostoxx 50, the French Cac 40 and the Italian Mib 30 down by 5.1%, 7.1% and 5.4%, respectively.

24 In the last quarter of the year, the Brazilian real and the Mexican peso strengthened by 3.6% and 6.7% against the euro, respectively, although over the whole of 2020 they accumulated losses of 29% and 12.6%.

25 On 15 December, the ECB issued a new recommendation requesting credit institutions to refrain from distributing dividends or to limit them until 30 September 2021. If a company does decide to distribute dividends, the payout must remain below 15% of the accumulated profit for 2019 and 2020 and not exceed 20 bp of the CET1 ratio. In addition, the ECB reiterated the supervisory expectation that credit institutions be very moderate in terms of the variable remuneration they pay.

a more stable behaviour throughout the year due to their countercyclical nature, while real estate companies were adversely affected by falls in real estate and rental market prices, restrictions on commercial activity and lower demand for offices. Energy companies, which have more stable income and make up the only large sector – along with the food sector – to mark a gain in 2020 thanks to the increases seen in the electricity companies, must contribute to the financing of a new fund²⁶ to pay for subsidies for energy production from renewable resources.

Performance of Spanish stock market indices

TABLE 14

%

	2017	2018	2019	2020	Mar-20	Jun-20	Sep-20	Dec-20
Ibex 35	7.4	-15.0	11.8	-15.5	-28.9	6.6	-7.1	20.2
Madrid	7.6	-15.0	10.2	-15.4	-29.4	6.4	-7.4	21.7
Ibex Medium Cap	4.0	-13.7	8.4	-9.7	-31.0	7.8	0.5	20.8
Ibex Small Cap	31.4	-7.5	11.9	18.9	-24.6	17.5	7.8	24.7
FTSE Latibex All-Share	9.0	10.3	16.3	-22.0	-46.3	14.4	-7.3	36.9
FTSE Latibex Top	7.3	14.8	15.3	-19.1	-43.3	14.6	-3.2	28.8

Source: Thomson Datastream.

The Ibex 35 historical volatility indicator, which had normalised in the third quarter (22.2%) after reaching its highest level since the 2008 crisis in the first quarter, rose again in the fourth quarter to values of close to 40% after the rises seen in November when the news about the progress on the vaccine became known. The rebound was temporary, as the indicator closed the year below 20% and below its average for the fourth quarter (24.3%). The sharp increase in volatility during the first half and its subsequent normalisation throughout the second took the indicator away from the historical lows reached at the end of 2019, when it stood at values of close to 10%. This indicator averaged 28.4% in 2020, the highest value in the last decade and more than double the annual averages of the previous three years.²⁷ Volatility has moved in a very high range throughout the year (above 70 pp), as a consequence of the uncertainties caused by the coronavirus, which pushed it up to over 80% in March from values of below 10% at the start of the year.

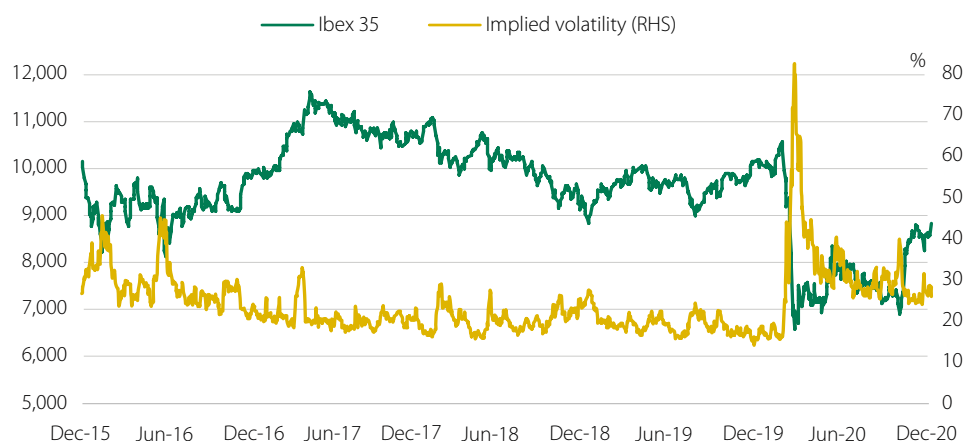
The volatility trend seen in the Spanish market was in line with that observed in other large European and US stock exchanges, which reached similar values and also suffered temporary spikes in reaction to news about the evolution of the pandemic. In some cases, such as the US Dow Jones index, volatility moved in an even wider range. At the end of the year, the European Euro Stoxx 50 and US Dow Jones index volatilities were slightly below that of the Spanish index, reaching values of close to 15% in the first case and less than 10% in the second.

26 In mid-December, the government approved the creation of the National Fund for the Sustainability of the Electricity System (FNSSE), with the aim of covering €7 billion of subsidies for investments made in sustainable energy production facilities made in the first part of the century which are currently passed on to the consumer but will now be funded by contributions from energy suppliers.

27 Ibex 35 historical volatility stood at 12.3%, 12.8% and 12.6% in 2019, 2018 and 2017, respectively.

Performance of the Ibex 35 and implied volatility¹

FIGURE 16



Source: Thomson Datastream and MEFF. Data to 31 December.

¹ At-the-money (ATM) implied volatility of the first maturity.

The performance of quoted prices in the sectors that make up the General Index of the Madrid Stock Exchange (IGBM) was strongly conditioned by the pandemic and, although most sectors presented a negative performance, the differences among the sectors and within them were especially significant according to the impact of the crisis on their businesses and outlook (see Table 15). With the exception of the energy sector, where the impact was more moderate, all sectors recorded sharp falls in the first quarter after the pandemic was declared, from which point they started to perform unevenly. These differences persisted until November, when the announcement of the vaccine gave a boost to all sectors in the last quarter, which was stronger for companies that had accumulated greater losses throughout the year, the more cyclical sectors and those less affected by social distancing measures, which are on track to recover faster.

Most sectors ended the year with significant losses. The consumer services sector – to which all leisure, hospitality, tourism and air transport companies belong – stands out, as the effects of the virus have been especially harsh, leading to a drastic drop in activity throughout the year. The annual drop in the quoted price of this sector was 36.7%. The banking sector also recorded significant setbacks (-27.5%), as the environment of very low interest rates intensified even further due to the new ultra-lax monetary policy measures established by the ECB to combat the crisis, and it was affected by fears of an increase in delinquencies, the fall in commercial activity and the restrictions established by the monetary authority on the distribution of dividends. The quoted prices of the two large banks, which in 2019 had shown a discreet performance after the significant setbacks in the previous year, once again fell significantly, placing their value at less than half that seen just three years ago. The losses of companies in the technology and telecommunications sector (-21.9%) are also worth noting, as the decline of the main telecommunications operator in recent years (Telefónica) was compounded by the negative performance of technology companies.

In contrast, the best performance corresponded to the energy sector, which, on the back of electricity and renewable energy companies, ended the year in positive territory (5%). The performance of the main electricity company (Iberdrola) stood out,

with a gain of more than 30% and four consecutive years of increases. In addition, the basic materials, industry and construction sector also showed a decrease (-2.5%), albeit small, since, as a more cyclical sector, it was able to benefit more from the recovery of the industrial activity.

As in previous years, small-cap companies also stood out, showing a better performance than large companies throughout the year, and recouping all the accumulated losses of the first quarter to end the year with a gain of 18.9%.

Performance of the Madrid stock exchange by sector and leading securities¹

TABLE 15

	Weighting ²	2019	2020	II 20	III 20	IV 20
Financial services	22.31	-2.6	-26.4	1.0	-19.8	53.4
Banking	21.05	-3.4	-27.5	1.0	-19.8	53.4
BBVA	6.20	7.5	-19.0	5.1	-22.6	70.0
Santander	10.97	-6.1	-29.0	-1.9	-26.4	65.5
Real estate and other	0.36	-11.0	-16.0	5.8	7.4	7.7
Oil and energy	29.23	14.4	5.0	10.6	-1.8	12.2
Iberdrola	18.26	36.8	32.8	14.9	4.2	11.3
Repsol	3.33	5.6	-35.3	-1.4	-26.5	49.1
Basic mats., industry and construction	10.63	24.9	-2.5	11.5	-1.5	27.8
Construction	6.54	29.1	-16.3	11.3	-11.0	19.4
Ferrovial	3.73	55.0	-14.6	9.3	-12.4	10.0
Technology and telecommunications	16.65	4.5	-21.9	11.0	-9.7	11.7
Cellnex	3.80	94.4	37.3	30.8	2.8	-5.5
Telefónica	6.02	-15.2	-42.7	6.0	-30.8	16.6
Amadeus IT	5.71	19.7	-18.2	7.4	2.6	25.2
Consumer goods	14.85	34.8	-15.3	-0.3	-0.8	5.8
Inditex	8.92	40.7	-17.2	-0.4	1.0	9.4
Consumer services	4.59	8.6	-36.7	8.8	-11.8	32.5

Source: Thomson Datastream, Madrid Stock Exchange and BME.

1 Securities with a weighting in the IGBM of over 3% in terms of market capitalisation adjusted by the percentage of free float.

2 Relative weight (%) in the IGBM at 1 July 2020.

In contrast to previous years, in which most of the securities belonging to the IGBM showed an upward trend, only one quarter of these posted gains in 2020. Most of the increases were greater than 10% – 13 stocks rose by more than 50% –, and they were particularly concentrated in the food, renewable energies and pharmaceutical sectors. Even so, capitalisation remained grouped into a small number of large securities, so that a very small set of companies (which also form part of the Ibex 35) had a significant impact on the annual variation of the index (absolute value of over 0.30 pp). Thus, four companies had a positive impact greater than this value²⁸ (see

28 In 2019, 10 companies in the index had a positive impact greater than 0.30 pp in absolute terms, while only two companies had a negative impact greater than this value.

Table 16), with only three remaining from the previous year: one large electricity company (Iberdrola), one industrial company linked to renewable energies (Siemens Gamesa) and one telecommunications company (Cellnex). The inclusion of a company in the renewable energies sector (Solaria) should also be noted. In contrast, only 14 companies had a negative impact of more than 0.30 pp. These were, for the second year running, the largest bank in terms of market capitalisation (Banco Santander) and the largest telecommunications company (Telefónica).

Securities with the greatest impact on IGBM variation¹

TABLE 16

		Dec-2020
Security	Sector	Impact on the variation of the IGBM (pp)
Positive impact		vs Dec-19
Iberdrola	Oil and energy	5.97
Siemens Gamesa	Basic mats., industry and construction	1.46
Cellnex	Technology and telecommunications	1.42
Solaria	Oil and energy	0.53
Negative impact		
Banco Santander	Financial and real estate services	-3.18
Telefónica	Technology and telecommunications	-2.57
Inditex	Consumer goods	-1.54
BBVA	Financial and real estate services	-1.18
Repsol	Oil and energy	-1.18
Amadeus IT	Technology and telecommunications	-1.04
IAG	Consumer services	-0.74
Ferrovial	Basic mats., industry and construction	-0.53
Caixabank	Financial and real estate services	-0.52
Grifols	Consumer goods	-0.50
AENA	Consumer services	-0.36
Enagás	Oil and energy	-0.33
Banco Sabadell	Financial and real estate services	-0.31
ACS	Basic mats., industry and construction	-0.31

Source: Thomson Datastream and Madrid Stock Exchange. Data to 31 December.

1 Includes the securities with the greatest impact (absolute value equal to or greater than 0.30 pp) on the annual variation of the IGBM. In addition, all securities that were not excluded or suspended from trading at the close of the period are considered.

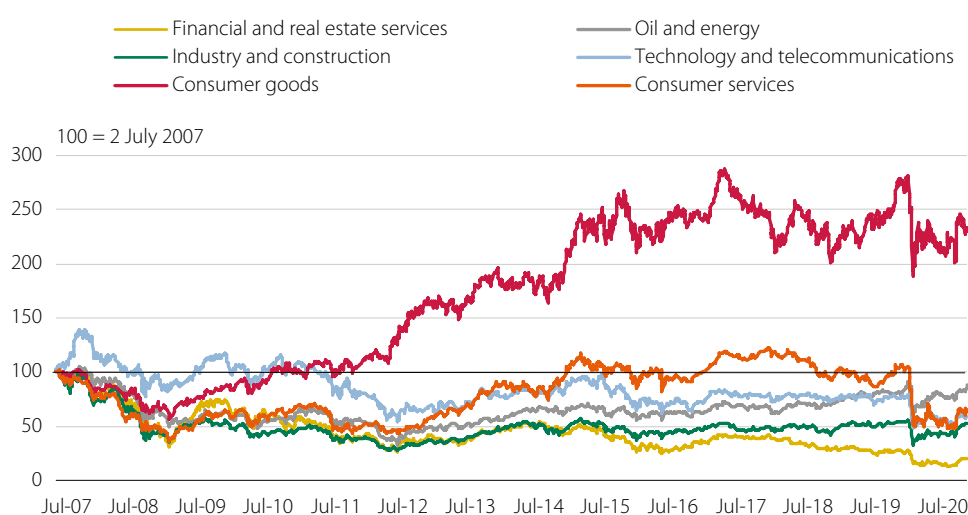
The performance of quoted prices in the different economic sectors may have a different longer term outlook. Even so, most of the IGBM sectors are still trading below the values seen before the start of the financial crisis in mid-2007. The most significant change in 2020 – as shown in Figure 17 – took place in the consumer services sector, which also fell below this level once again as a result of the effects of the pandemic. As shown in the same figure, the sharpest declines are still being seen in financial and real estate services companies, in line with previous years. In contrast, despite the losses registered this year, the consumer goods sector continues to post a positive longer term performance. The superior relative performance of this sector is due to the better performance of the quoted prices of its components. The fall in the quoted price of the main company in the textile sector was partially offset

by the good performance of the food sector and pharmaceutical companies. Quoted prices in the remaining sectors are still below the values registered before the start of the 2008 financial crisis, as already mentioned, but once again the positive performance of companies in the oil and energy sector stands out. These have been marking gains for four consecutive years and are drawing close to pre-crisis values.

The effects of the crisis caused by the pandemic, as occurred in the economic and financial crisis at the beginning of the decade, have significantly affected the capitalisation of Spanish companies and the value of the country's productive structure. Thus, the largest Spanish company by capitalisation is still the textile firm Inditex, but companies in the electricity sector, as well as renewable energy and technological firms such as Cellnex Telecom, have gained weight, to the detriment of banks, traditional telecommunications companies such as Telefónica, energy firms linked to oil, such as Repsol, and companies in the tourism sector such as IAG.

Sector performance on the Madrid Stock Exchange

FIGURE 17



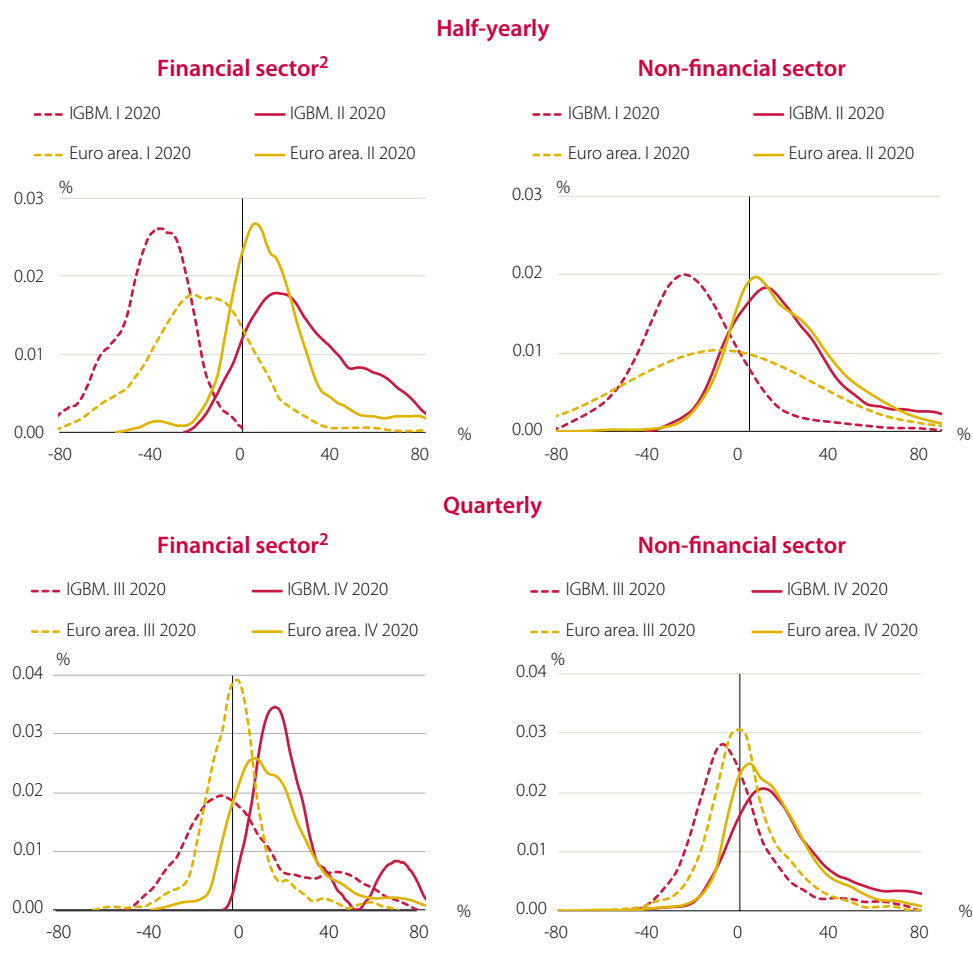
Source: Thomson Datastream. Data to 31 December.

The distribution of returns of listed Spanish and European companies reflects the trends described for these markets throughout 2020, with a more extreme performance by Spanish companies. Thus, performance for the first half of the year shows the very negative effects on quoted prices of the measures implemented to address the pandemic. However, some key differences can be observed: Spanish financial institutions obtained lower earnings than their European counterparts, with all of these companies in negative territory, compared with 79% in the euro area. The proportion of companies with a very negative performance (below -50%) was also notably higher for Spanish companies than for their European counterparts, at 23% and 9%, respectively. Further, the performance of non-financial Spanish companies belonging to the IGBM was more negative than the performance of companies in the euro area, although somewhat less so than in the case of financial institutions. Thus, despite the fact that in both economies the percentage of companies posting negative returns was similar (around 86%), those with losses of greater than 20% were much more numerous, in relative terms, in Spain, with 62% versus 11% for the euro area (see upper panels of Figure 18).

In regard to the distribution of accumulated returns in the second half of the year, a clear shift to the right can be observed in all curves as a consequence of the recovery of prices during the period. This was observed in companies in Spain and in the euro area as a whole, and in both sectors (financial and non-financial), and was especially high in companies in the Spanish financial sector. Thus, in the latter, around 57% of the companies belonging to the IGBM registered an increase of over 20% in their quoted price, compared with 28% in the euro area as a whole. In contrast, non-financial companies showed a similar performance in both regions: 24% of these companies showed negative returns in Spain, compared with 27% in the euro area. Further, companies with high returns (over 20%) represented 40% and 41% of the total, respectively.

Distribution of the variation of share prices¹

FIGURE 18



Source: Madrid Stock Exchange and Thomson Datastream.

- ¹ The analysis is performed on the companies that make up each of the indices at the end of 2020. At that date, the Spanish IGBM stock index comprised 120 companies admitted to trading and the euro area stock index included 1,342 companies.
- ² The financial sector includes credit institutions, insurers and holding companies and other investment service providers. In Spain, there are 13 companies (11% of the total number of companies in the index), and in the euro area there are 204 companies (similarly, 15% of the total).

Lastly, analysis of the last two quarters of 2020 reveals that the distribution of returns in both the financial and non-financial sectors was clearly higher in the fourth quarter of the year compared with the third, both in Spain and in the rest of the

euro area. Thus, only 2% of IGBM financial institutions presented a negative return in the last three months of the year, compared with 52% in the previous quarter, while this proportion was 19% and 60%, respectively, for euro area financial institutions. The distribution of returns for Spanish non-financial companies followed a similar pattern: 20% of the total saw a negative performance in the fourth quarter, compared with 62% in the third. On the other hand, companies with returns of over 20% represented 47% and 13% of the total in the same periods. In the euro area, the curve showed movements that were somewhat less marked than that of Spanish securities (see lower panels of Figure 18).

3.2.2 Activity: trading, issuance and liquidity

As is usual, trading in Spanish equities recovered in the last quarter, although the cumulative figure for the year (€778 billion) fell by 3.4% compared with 2019. The volume traded in the fourth quarter remained one of the lowest traded in one quarter in recent years despite the slight increase mentioned above, so the downward trend in trading volumes of Spanish equities seen in recent months was maintained. This trend, which does not occur in other international venues,²⁹ where trading remains high and volumes continue to grow, is especially significant because volatility has been relatively high for most of the year, which encourages some types of trading, such as algorithmic and high frequency trading. For the year as a whole, the volume of Spanish securities traded was at its lowest value since 2013, consolidating the downward trend observed in recent years from which other European markets seem to have recovered in 2020. Of the total amount traded, just over €416 billion corresponded to the Spanish regulated market³⁰ (down 9.6%) and almost €362 billion (up 4.7%) to competing trading venues and markets.

The fall in trading registered at BME compared with the increase in volumes on the other trading venues and competing markets³¹ brought the market share of the latter to 46.1% of total trading subject to market rules, slightly below the levels of 47.9% seen in the third quarter (its historical high) and a long way above the figure of 42.6% in 2019.³² As a consequence, the relative weight of trading on the regulated market decreased during the year, following the (somewhat irregular) downward trend marked in the past years, while the weight of other trading venues and competing markets increased, with values that are generally greater than 45%. Further, periods of high volatility – as in the previous year – tend to favour algorithmic and high-frequency trading, which is more likely to take place in competing trading venues.

Regarding the composition of the trading in Spanish shares abroad, the Cboe Global Markets (Cboe) regulated market, which operates through two different order books, BATS and Chi-X, once again stood out in the fourth quarter of the year, with an

29 See Table 10 in section 2.4 of this report.

30 Average daily trading in the continuous market stood at €1.61 billion in the fourth quarter, above the average for the whole year (€1.65 billion). This annual average was 9.4% lower than that registered in 2019 (€1.82 billion per day).

31 The decline in Spanish securities traded through BME was over €44 billion in 2020, compared with the increase of more than €16 billion in trades made through other trading venues and competing markets.

32 It is also above the 37.4% and 32.1% seen in 2018 and 2017 respectively.

increase in trading to over €67.5 billion, accounting for almost 65% of the volume traded through BME. It reported a total volume in the year of over €275 billion, 7.4% more than in 2019. This annual figure represents 76% of the total volume traded abroad, compared with 74% and 80% in 2019 and 2018, respectively. Furthermore, as in recent years, except for a brief hiatus observed in the third quarter, the distribution between the two books continued to shift towards BATS. The operator Turquoise saw a further reduction in market share for the fourth consecutive year in the group of competing venues, to around 6.4% (9%, 12% and 15% in 2019, 2018 and 2017, respectively), while the remaining operators as a whole, and for the second consecutive year, experienced a slight increase in both volumes traded and market share (17.4%) (see Table 17).

Trading in Spanish equities listed on Spanish stock exchanges¹

TABLE 17

Millions of euros

	2017	2018	2019	2020	II 20	III 20	IV 20
Total	932,771.9	930,616.1	805,215.2	778,043.4	186,968.4	152,027.8	194,617.5
Admitted to SIBE (electronic platform)	932,763.1	930,607.1	805,208.8	778,040.9	186,967.8	152,027.6	194,617.0
BME	633,385.7	579,810.4	459,649.6	416,212.5	106,928.9	78,626.0	103,959.5
Chi-X	117,899.2	106,869.7	80,678.9	65,006.5	13,130.9	13,529.9	15,390.8
Turquoise	44,720.1	42,883.4	30,550.6	23,242.2	5,019.6	4,607.6	5660.6
BATS	75,411.6	171,491.3	176,093.6	210,675.8	51,263.8	45,202.7	52,183.8
Other	61,346.5	29,552.2	58,236.1	62,903.8	10,624.5	10,061.4	17,422.3
Open outcry	8.1	8.2	6.2	2.5	0.6	0.2	0.5
Madrid	1.8	0.8	0.8	0.1	0.0	0.0	0.0
Bilbao	0.0	0.0	2.1	0.0	0.0	0.0	0.0
Barcelona	6.3	7.4	3.2	2.4	0.6	0.2	0.5
Valencia	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Secondary market	0.7	0.8	0.1	0.0	0.0	0.0	0.0
Pro memoria							
Trading of foreign equities through BME	6,908.0	3,517.1	3,480.5	4,236.0	1,265.4	1,041.4	941.4
MAB	4,987.9	4,216.3	4,007.7	3,907.3	809.5	629.9	1,322.6
Latibex	130.8	151.6	136.6	79.4	24.5	16.4	9.3
ETF	4,464.1	3,027.6	1,718.0	2,543.4	671.4	431.3	621.6
Total BME trading	649,885.3	590,732.0	468,998.7	426,981.1	109,700.3	80,745.2	106,854.9
% Spanish equities traded through BME/ total Spanish equities	67.9	62.6	57.4	53.9	57.5	52.1	53.9

Source: Bloomberg and CNMV.

- 1 This includes the trading of Spanish equities subject to market or MTF rules (lit plus dark). Spanish shares on Spanish stock exchanges are those with a Spanish ISIN that are admitted to trading on the regulated market of Bolsas y Mercados Españoles (BME), i.e., not including the Alternative Stock Market (MAB). Foreign equities are those admitted to trading on the regulated BME market with an ISIN that is not Spanish.

The shift of securities trading to venues other than their source markets has been a general trend throughout Europe during the last decade which, albeit somewhat later, has also spread to Spain. This trend has resulted in the market share held by competing venues coming close to 40% or even higher, as in the case in Spain. However, since 2018 there has been a reversal of this trend in some European markets, with the market share held by these competing venues falling to below 40%. This could be attributed, in principle, to the prevailing environment of low volatility in the markets in recent years, as this discourages high-frequency trades, which usually take place mostly in trading venues that compete with regulated markets. However, 2020 saw a considerable increase in volatility and, consequently, in high-frequency trading, although in most markets there was no increase in the market share of competing venues, but a certain stabilisation or even small decline in their share. This situation could be partially attributed to Brexit, which has discouraged trading in the United Kingdom, where a large part of these competing venues were located. If this were the most relevant explanation, this could be a transitory trend, insofar as all these competing trading venues are setting up subsidiaries in the European Union in order to trade without restrictions.

It should also be noted that while one of the objectives of MiFID II was to shift part of the trading not subject to market rules to trading venues and regulated environments in which it would be subject to these, there has been an increase in platforms such as systematic internalisers, whose trading format is not subject to market rules. The significance of these internalisers in terms of the trading of Spanish securities has remained stable in the range of 15 to 18% of total trading in the last two years, compared with values of less than 5% at the beginning of 2018.

Equity issuance in Spanish markets amounted to €3.56 billion in the fourth quarter, a drop of 14% year-on-year. Nevertheless, they account for around a third of all issues made in 2020 (see Table 18). The volume of issues for the year as a whole stood at €10.85 billion, 11% more than in the previous year, thanks to the more dynamic activity in the second half of the year. This increase was due to both capital increases with fund raising and, to a lesser extent, those made under the scrip dividend format, which became more attractive as a form of shareholder remuneration, as they allow companies to keep part of the funds earmarked for remuneration, strengthening their balance sheets at a time of economic uncertainty.

In the fourth quarter, the capital increase with fund raising and preemptive subscription rights carried out by IAG – Iberia's parent company – stood out, for an amount of €2.74 billion, which represents almost all of the funds raised under this format in the quarter. Further, after two years with no transactions of this type, there was a public offering for the Murcian renewable energy company Soltec, for the amount of €150 million. The market expects similar transactions from companies in the same sector in the coming months.

Capital increases and public offerings

TABLE 18

	2018	2019	2020	I 20	II 20	III 20	IV 20
NUMBER OF ISSUERS¹							
Total	46	33	38	8	8	8	14
Capital increases	45	33	38	8	8	8	14
Public offerings (for subscription of securities)	2	1	1	0	0	0	1
Initial public offerings (IPO)	1	0	0	0	0	0	0
NUMBER OF ISSUES¹							
Total	81	52	38	8	8	8	14
Capital increases	80	52	38	8	8	8	14
Public offerings (for subscription of securities)	2	1	1	0	0	0	1
Initial public offerings ² (IPO)	1	0	0	0	0	0	0
CASH AMOUNT¹ (millions of euros)							
Capital increases with fund raising	7,389.9	8,240.6	8,903.1	174.9	1,518.4	4,024.6	3,185.1
With preemptive rights	888.4	4,729.8	6,837.2	0.0	50.0	3,995.5	2,787.7
Without preemptive rights	200.1	10.0	150.1	0.0	0.0	0.0	150.1
Of which, increases	0.0	10.0	0.0	0.0	0.0	0.0	0.0
Accelerated book builds	1,999.1	500.0	750.0	0.0	750.0	0.0	0.0
Capital increases with non-monetary considerations ³	2,999.7	2,034.2	233.0	12.5	0.0	0.0	220.5
Capital increases via debt conversion	388.7	354.9	162.4	162.4	0.0	0.0	0.0
Other	913.9	611.8	770.3	0.0	718.4	25.1	26.8
Scrip issues⁴	3,939.7	1,565.4	1,949.0	396.4	93.5	1,083.9	375.2
Of which, scrip dividends	3,915.2	1,564.1	1,949.0	396.4	93.5	1,083.9	375.2
Total capital increases	11,329.6	9,806.0	10,852.1	571.3	1,611.9	5,108.5	3,560.3
Initial public offerings	733.7	0.0	0.0	0.0	0.0	0.0	0.0
Pro memoria: Transactions on the MAB⁵							
Number of issuers	8	12	13	5	3	2	3
Number of issues	12	17	14	5	3	2	3
Cash amount (millions of euros)	164.5	298.3	238	18.3	9.9	36.0	174.3
Capital increases	164.5	298.3	238	18.3	9.9	36.0	174.3
Of which, IPOs	0.0	229.4	173	0.1	0.0	0.0	173.4
Public share offerings	0.0	0.0	0	0.0	0.0	0.0	0.0

Source: BME and CNMV.

1 Transactions registered with the CNMV. Does not include data from MAB, ETF or Latibex.

2 Transactions linked to the exercise of green shoe options are separately accounted for.

3 Capital increases for non-monetary consideration have been stated at market value.

4 In scrip dividends, the issuer gives existing shareholders the option of receiving their dividend in cash or converting it into shares in a bonus issue.

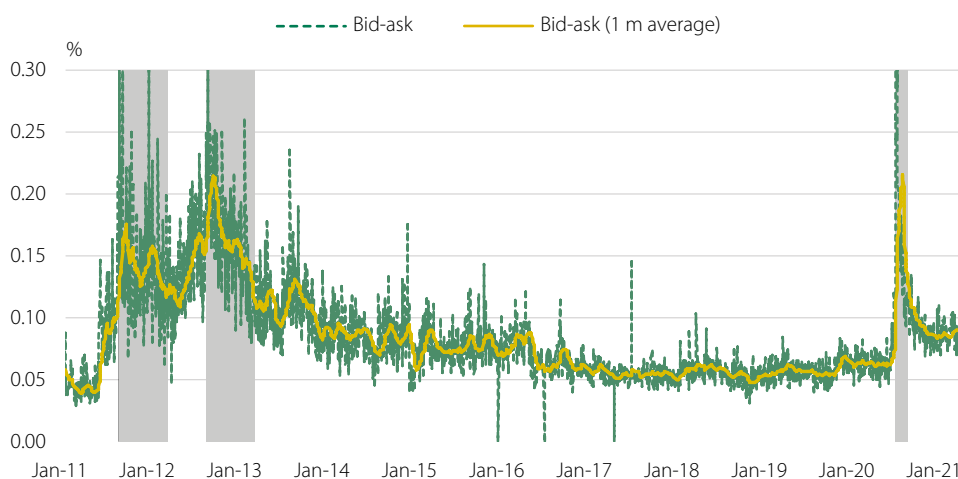
5 Transactions not registered with the CNMV.

Liquidity conditions of the Ibex 35, measured through the bid-ask spread, which had deteriorated significantly in the first part of the year, reflecting the high market volatility and to a lesser extent the CNMV's restrictions on short-selling on a large number of securities, progressively improved from the latter part of the second quarter, moving slightly above pre-crisis levels. This improvement was due, in part, to the decrease in price volatility and the increase in the volumes traded (see Figure 19). The spread improved in the final quarter of the year, reaching an average of

0.084%, below the average of 0.107%, 0.111% and 0.86% of the three previous quarters and the historical average of the indicator (0.091%), although notably higher than the values observed in recent years, which were around 0.06%.

Liquidity indicator (bid-ask spread) of the Ibex 35

FIGURE 19



Source: Thomson Datastream and CNMV. Information on the bid-ask spread of the Ibex 35 and the average of the last month is presented here. The vertical lines of the graph refer to the introduction of restrictions on short-selling dated 11 August 2011, their subsequent lifting on 16 February 2012 (for financial institutions), the new restrictions of 23 July 2012 and their lifting on 1 February 2013, as well as the two most recent bans: the first for one day (13 March 2020), which affected 69 entities, and the second, adopted a few days later and lifted on 18 May 2020, which affected all entities.

3.2.3 Results

The slowdown in economic activity in the first half of 2020 took a toll on the profit and loss accounts of listed non-financial companies, which, in aggregate terms, showed losses of more than €2 billion in the period, compared with profits of €14.3 billion in the same period of 2019. As shown in Table 19, all sectors saw a fall in earnings: in three sectors profits decreased substantially compared with the first half of 2019 and one (trading and services) went from profits in 2019 to substantial losses in 2020 (over €4 billion).

A more detailed analysis by sector and sector companies reveals certain trends. Firstly, the best relative performance (within the slowdown) was observed in the energy sector, with aggregate profit in the first half of over €1.73 billion. The decrease in profits from €5.2 billion in 2019 was mainly due to a single company (Repsol), which reported significant losses. The rest of the energy companies obtained profits, which were higher than in 2019 in half of the cases. Industrial companies posted a total profit of €32 million, well below the €2.8 billion seen in the first half of 2019. These firms, together with those in the trading and services sector have been most affected by the crisis and, consequently, show a notable proportion of companies in losses (in some cases very large). This is the case of Inditex among industrial companies

and of IAG, Amadeus and Aena among trading and services companies.³³ In these two sectors, the lower earnings of a few companies have set the aggregate performance, against a backdrop of general slowdown. That said, there are several companies whose profits have improved between the first half of 2019 and 2020. These are in the renewable energies or pharmaceutical sectors and generally have a higher technological component. Lastly, construction companies and real estate firms posted aggregate profits of €235 million in the first half of 2020 (€1.94 billion in 2019), with approximately half of the companies showing a loss. The losses recorded by Ferrovial and Inmobiliaria Colonial were both instrumental in this performance.

**Profit/(loss) by sector:
non-financial listed companies**

TABLE 19

Millions of euros

	Operating profit		Profit before tax		(Consolidated) profit for the year	
	1H 2019	1H 2020	1H 2019	1H 2020	1H 2019	1H 2020
Energy	8,054.2	4,498.2	6,991.0	2,976.3	5,201.8	1,729.6
Manufacturing	4,165.1	316.2	3,700.0	113.8	2,843.1	32.5
Trading and services	7,256.8	-2,009.8	5,759.7	-3,938.2	4,332.1	-4,061.9
Construction and real estate	2,729.2	1,743.9	2,180.5	564.6	1,937.2	234.8
Aggregate total	22,205.2	4,548.5	18,631.2	-283.4	14,314.2	-2,065.1

Source: CNMV.

The level of debt of listed non-financial companies increased in the first half of 2020, especially in companies in the trading and services sector and in construction and real estate firms. The increase in indebtedness (which has also occurred in neighbouring economies) responds to their greater liquidity needs in the context of the crisis, as well as the desire to have a sufficient buffer of funds to deal with unpredictable situations given the high levels of uncertainty. Aggregate debt stood at €274 billion in the middle of the year, 8.7% more than in mid-2019. Of the total increase (over €22 billion), almost half occurred in trading and service companies and more than €6.7 billion in construction companies. As a consequence, these sectors showed the greatest increases in their leverage ratio (defined as the ratio between the level of debt and equity), which went from 1.43 to 2.04 in trading and services companies and from 1.26 to 1.53 in construction firms. The total leverage ratio increased from 1.01 to 1.20 between 2019 and 2020. The debt coverage ratio, calculated as the ratio between debt and operating profit, deteriorated significantly. This was due to the rise in debt levels and, above all, to the fall in profits (in this case, operating profit).

³³ In this sector, it is also worth highlighting the drop in earnings of Telefónica, which showed significantly lower profits (from €2.01 billion in the first half of 2019 to €959 million in 2020), and of some hotel companies, such as NH Hoteles or Meliá.

**Gross financial debt by sector:
non-financial listed companies**

TABLE 20

Millions of euros

	Debt		Debt/equity		Debt/operating profit ¹	
	1H 2019	1H 2020	1H 2019	1H 2020	1H 2019	1H 2020
Energy	89,180.8	92,127.3	0.87	0.94	5.54	10.24
Manufacturing	22,617.0	24,128.2	0.49	0.56	2.72	38.16
Trading and services	90,882.6	101,710.2	1.43	2.04	6.26	–
Construction and real estate	49,432.2	56,193.2	1.26	1.53	9.06	16.11
Aggregate total	252,112.6	274,158.9	1.01	1.20	5.68	30.14

Source: CNMV.

1 Ratio calculated with annualised operating profit.

II Reports and analysis

Stress testing for non real-estate investment funds

Ramiro Losada

Albert Martínez Pastor (*)

(*) Ramiro Losada and Albert Martínez Pastor belong to the CNMV's Department of Research and Statistics.

Introduction

Investment funds can suffer liquidity problems during times of financial market stress. A clear example of this type of problem occurred in the US Reserve Primary Fund following the failure of Lehman Brothers. In this case, investors were seen to have engaged in strategic behaviour, as they had an incentive to be the first to redeem their units during a period of financial stress. Investors aim to redeem when the fund portfolio has a higher proportion of liquid assets in order to minimise risk and avoid the high transaction costs triggered by the potential sale of less liquid assets. This incentive is known in economic literature as *first mover advantage*, and it also exists when a fund invests in assets that may be illiquid in times of stress. In fact, international regulators and supervisors identify this liquidity risk as the main vulnerability of investment funds (FSB, 2017). This is because mass redemptions may affect the prices of the assets in which the fund invests and end up acting as a vector for the transmission of systemic risk (IOSCO, 2018a; IOSCO, 2018b; ESRB, 2018; IMF, 2015).

Thus, the European Securities and Markets Authority (ESMA) published a conceptual framework and methodology, STRESI (ESMA, 2019), to carry out stress simulations for investment funds. This methodology mainly consists of three steps: calibration of a redemption shock, measurement of the shock's impact on the fund (determined by the liquidity of its portfolio and the management decisions taken when liquidating assets to cover redemptions) and, lastly, its impact on the markets for financial instruments.

Based on the STRESI framework (ESMA, 2019) and the work of Ojea (2020), the CNMV has designed a stress test for the sector comprising money market investment funds, UCITS and quasi-UCITS.¹ The main purpose of this test is to verify that these collective investment vehicles have sufficient liquidity to respond to simulated redemption shocks under stress conditions. There are some key differences between this test and the exercise put forward by ESMA. In the first place, the CNMV test includes granular data on the assets in the investment fund portfolios. This is because it has access to these details from the information reported by management companies as part of its supervisory work. Secondly, it uses models for generating liquidity shocks based on *Conditional Expected Shortfall (CoES)* methodology (Rancoita and Ferreiro, 2019).²

1 Money market funds are governed by Regulation (EU) 2017/1131 of the European Parliament and of the Council, of 14 June 2017, on money market funds. UCITS are funds regulated by Directive 2009/65/EC of the European Parliament and of the Council, of 13 July 2009, on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS). In Spain, UCITS and quasi-UCITS are regulated by Law 35/2003, of 4 November, on Collective Investment Schemes and its implementing regulations, which transposes Directive 2009/65/EC into Spanish law. It is important to note that according to European regulations, most quasi-UCITS are considered alternative Collective Investment Schemes, which ESMA includes in the "Other" category. These alternative funds are regulated at European level by Directive 2011/61/EU of the European Parliament and of the Council, of 8 June 2011, on alternative investment fund managers, amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No. 1060/2009 and (EU) No. 1095/2010.

2 See the section of this document on the generation of redemption shocks for funds for a definition of *Conditional Expected Shortfall (CoES)* methodology and its interpretation in the context of stress testing for investment funds.

1 Methodology

1.1 Step 1: generating a redemption shock

To estimate the shock, the historical net flows of the funds are calculated on a weekly basis based on their returns and assets:

$$Return_{i,t} = \frac{NAV_{i,t} - NAV_{i,t-1}}{NAV_{i,t-1}}$$

$$Net\ flow_{i,t} = Assets_{i,t} - Assets_{i,t-1} * (1 + Return_{i,t})$$

$$Net\ flow\ \%_{i,t} = \frac{Net\ flow_{i,t}}{Assets_{i,t-1}} * 100$$

As in the ESMA STRESI framework, flows can be aggregated across fund categories (funds are all subject to the same shock) or disaggregated, i.e., at an individual fund level (different shocks). The aggregated simulation can be considered to be more suitable for a macroprudential approach as it takes into account the average effect of redemptions in each fund category, thus showing where the sector as a whole might be experiencing problems. Following on from this, the disaggregated method is more suitable for a microprudential approach, since it would identify the individual funds that could experience liquidity problems in situations of stress.

In any case, the objective of the stress test described in this document makes the application of a macroprudential approach more appropriate, although, as highlighted in ESMA (2019), aggregated simulation could create milder shocks because there is an offset between the net flows of the funds included in the same category.

Once the historical net flows of each fund category have been obtained, their distribution is modelled. ESMA (2019) suggests the use of the extreme value theory (Coles et al., 2001), in such a way that the central area of the distribution is modelled using a Gaussian kernel function, while for the tails (starting at the 10th and 90th percentiles) a generalised Pareto distribution is applied. On this point, this stress test follows ESMA guidelines.

As described in both ESMA (2019) and Ojea (2020), the simulation of investment fund flows can be carried out through copulas. Copulas model the joint distribution of several variables, in such a way that the entire dependency structure between the marginal distributions of these variables is captured. These multivariate functions are especially useful in this context, precisely because they take into account the correlation existing between the flows of different funds or categories of funds and thus capture non-linear effects.

Therefore, copulas can be used to estimate redemption shocks on a category of funds (given a certain level of confidence) conditional on the other categories of funds having received a redemption shock (given a certain level of confidence).

In other words, once the copula has been obtained, conditional risk measures can be calculated, such as *CoVaR* or *CoES*.

In this case, we use *CoES* as our risk measure. This is a more conservative measure (it is always higher than *CoVaR*) and it seeks to identify the average net redemption that a fund would experience in the worst case scenario (according to a percentile). The definition of *CoES* is as follows:

$$CoES_{ij}(\alpha, \beta) = \int_0^u F_i^{-1}(v) dv$$

Where $u = F_i^{-1}(CoVaR_{ij}(\alpha, \beta))$ and F_i^{-1} is the inverse distribution function of variable i .

CoVaR takes a value as follows:

$$Pr(Net\ flow\ \%_i < CoVaR_{ij}(\alpha, \beta) \mid Net\ flow\ \%_j < VaR_j(\alpha)) = \beta,$$

where $VaR_j(\alpha)$ is the percentile α of net flows j that determines the severity of the conditional redemptions, while β is the percentile that determines the severity of the redemptions conditional on the previous scenario.

Several scenarios with different levels of shock severity are considered:

- Expected shortfall (*ES*) with $\alpha = 3\%$. As this is the baseline scenario used in the test carried out by ESMA for European investment funds.
- Conditional expected shortfall (*CoES*) with $\alpha = \beta = \sqrt{5}\%$.
- Conditional expected shortfall (*CoES*) with $\alpha = \beta = \sqrt{3}\%$.
- Conditional expected shortfall (*CoES*) with $\alpha = \beta = \sqrt{2}\%$.
- Conditional expected shortfall (*CoES*) with $\alpha = \beta = 2\%$.

The methodology applied by the CNMV uses conditional measures, in contrast to that used by ESMA, which uses unconditional measures such as *Value at Risk* (*VaR*) and *Expected Shortfall* (*ES*), which do not require copulas. Therefore, the ESMA analysis, instead of explicitly conditioning the flows of each category of funds to situations of sector or macroeconomic stress, simulates the flows taking into account factors that affect only each category of funds. This means that unlike the methodology used by the CNMV, in the methodology used by ESMA the flows would include those that could be due to stressful situations in the financial markets, in addition to those caused by idiosyncratic issues in each fund category.

1.2 Step 2: impact on the fund

Once the redemption shock for each fund category has been simulated, it is important to assess whether each individual fund portfolio has sufficient liquid assets to easily address the circumstances.

Following the high-quality liquid assets (*HQLA*) approach set out by ESMA (2019) and Ojea (2020), the liquidity of the fund portfolio is measured using an index that gives a liquidity weight to each asset class (that can take values from 0 to 100) depending on its characteristics.

$$HQLA_i = \sum_{k=1}^n (w_{i,k} * s_{i,k}) * 100$$

Where $w_{i,k}$ is the weight (degree of liquidity) of asset k of fund i and $s_{i,k}$ represents the proportion of that asset in the fund's portfolio. In other words, the HQLA index is a weighted average of the liquidity of the assets making up the fund portfolio. The weights given, $w_{i,k}$, correspond to those applied under Basel III (see Table 1).

Liquidity weighting by asset class

TABLE 1

%				
Asset class	CQS1	CQS2	CQS3	< CQS3
Public sector debt	100	85	50	0
Corporate debt	85	50	50	0
Securitisations	65	0	0	0
Equity	50	50	50	50
Cash	100	100	100	100

Source: ESMA (2019).

Note: CQS (Credit Quality Step). CQS1 refers to ratings between AAA and AA, CQS2 to rating A, CQS3 to rating BBB and < CQS3 to all ratings below BBB. Liquidity weightings are shown in %.

The HQLA approach can be used due to the high level of granularity of the information on the fund portfolios contained in the reserved statements submitted to the CNMV. This information has been supplemented with data on the ratings of the bond instruments in the portfolios, obtained through financial data providers: Bloomberg and Refinitiv (Thomson Reuters).

Having estimated the redemption shock and liquidity weight of each fund portfolio, the redemption coverage ratio (RCR) is calculated. This ratio compares the size of the redemption with the liquidity of the portfolio assets and identifies those funds that could present direct liquidity problems.

$$RCR_i = \frac{HQLA_i}{Redemption\ shock_i}$$

If a fund has a ratio of less than 1, this means that if the simulated shock were to occur, it would not have sufficient liquid assets to cover the redemption.

1.3 Step 3: impact on securities market prices

When a redemption shock occurs, fund managers must decide which assets need to be liquidated in order to cover the redemptions. A natural approach would be to liquidate each asset class based on its initial weight in the portfolio, so that the investment policy is always followed (the pro rata, or slicing, approach). Managers could also opt to carry out the redemptions by liquidating assets based on their liquidity weight, selling the most liquid instruments to try to cover the redemptions and, failing that, divesting the less liquid assets and so on (waterfall approach). A mixed strategy could also be used whereby managers use cash first, as it does not create problems of liquidity, and then liquidate their assets under the slicing approach to cover the remaining redemptions.

In any case, the way in which managers liquidate their portfolio assets is important when estimating the impact on market prices, since it will determine the sales volumes of each asset class. For this reason, when calculating the impact of redemption shocks on market prices, the two most extreme liquidation approaches are considered: the waterfall approach and the slicing approach.

In addition, it can be assumed that the less liquid the assets that fund managers sell, the greater the impact on prices. ESMA (2019) mentions the complexity of estimating price impact measures due to the trade-off between obtaining measures that can be applied to a class or set of assets (instead of individual assets) and obtaining accurate measures. In this regard, when estimating the impact on market prices, the CNMV follows the methodology used by ESMA (2019) in the STRESI framework, which is based on Cont and Schaanning (2017) and Coen et al. (2019), and proposes a measure of the linear price impact:

$$\text{Market depth} = c \frac{\text{Daily trading volume}}{\sigma} \sqrt{\tau}$$

$$\text{Impact on prices} = \frac{\text{Sales}}{\text{Market depth}}$$

Where c is a parameter to be calibrated that acts as a multiplier and the impact on prices depends positively on the volatility of the asset class and negatively on the time horizon. Thus, Table 2 shows the impact on different asset prices deriving from their sale on the market for a value of €1 billion.

Measurement of price impact by asset class

TABLE 2

%	
Asset class	Impact on prices of sale of €1 billion (bp)
Public sector debt	2.1
Investment grade corporate debt	5.0
High yield corporate debt	12.5
Emerging market debt	33.0
Equity	7.1

Source: ESMA (2019) and CNMV.

2 Database

The database used for the test has been extracted from the information submitted by Spanish investment fund managers to the CNMV in its supervisory role (Ojea, 2020). The granularity of the information contained in this database with respect to the type of unitholder, the composition of the fund portfolio, its category and volume of assets allows the funds to be classified into detailed and representative categories.

In this case, the categories of investment funds are: i) wholesale public debt funds, ii) retail public debt funds, iii) investment grade corporate fixed income funds, iv) high yield corporate fixed income funds, v) mixed fixed income funds, vi) wholesale equity funds, vii) retail equity funds and viii) other investment funds (global and absolute return).

The funds are filtered, as described in Ojea (2020), so that those which could distort the simulation of the scenarios are eliminated from the sample. For instance, funds with portfolios containing unidentifiable assets that represent more than 40% of their total assets are eliminated (such as funds that mostly invest in other funds). Guaranteed funds are also eliminated from the sample because they penalise redemptions outside the pre-established liquidity windows.

3 Results of the stress test with data at 30 June 2020

Using the methodology described above, the stress test was carried out on investment funds with data from December 2008 to June 2020.

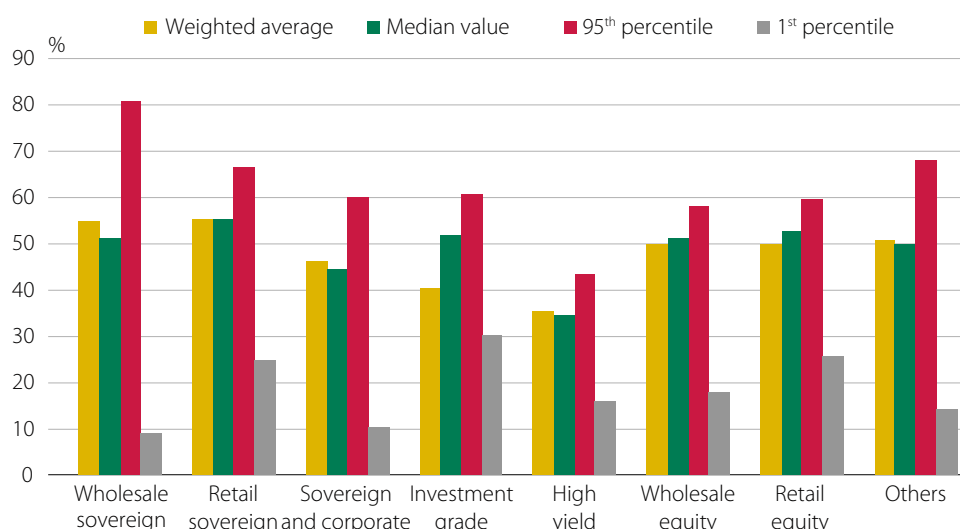
The following shows the main findings by fund category in relation to:

- Their initial liquidity.
- The percentage of funds that could not cover a shock of a specified scale.
- The impact on prices of fund managers' behaviour when liquidating positions in stressful conditions on the equity and fixed income markets.

Figure 1 shows the liquidity, measured using the HQLA approach, available to the funds, by category, to cover a negative shock occurring in the next six months. The weighted average for most categories is around 50% of the fund assets. Only those categories that include corporate bonds fall below this figure, especially the category that includes funds with a large percentage of high yield corporate bonds in their portfolios.

HQLA investment funds by category

FIGURE 1



Source: CNMV. For each category of investment funds, the weighted average of the liquid assets in the portfolio and the median value are represented. In addition, the proportion of liquid assets is given for two other percentiles of the distribution of funds, 1% and 95% (the median corresponds to the 50% percentile). In the case of wholesale sovereign funds, for example, this means that if the funds are ranked from the lowest to the highest proportion of liquid assets, the value of this proportion for 1% of the funds (those with the lowest data) is less than 10% of the portfolio and, similarly, the value of this proportion for 95% of the funds is less than 80% of the portfolio.

It is also important to note that in all categories there is a certain percentage of funds (ranging from very low to relatively high) with available liquidity that is well below the average. This is especially relevant for the wholesale sovereign, and sovereign and corporate categories.

In regard to the impact of redemption shocks on the different categories of funds, Table 3 shows how investment funds generally show resilience in face of the scenarios developed. Only in the most extreme scenario, *CoES* ($\alpha = \beta = 2\%$), 16.7% of the funds in the corporate bond category, 2.5% of the funds in the sovereign and corporate bond category, and 1.0% of the funds in the “Other” category could experience liquidity problems.³ These same funds account for 3.9%, 0.5% and 0.2% of total assets in each of the categories.

3 A *CoES* ($\alpha = \beta = 2\%$) means that to calculate the redemption shock applied to the funds in each of the categories, the largest 2% of redemptions in each category have been taken into account, selected at times when the largest 2% of redemptions occurred in the whole fund sector. The number of funds that could experience liquidity problems stands at eight: one corresponds to the sovereign and corporate category, six to the high yield corporate category and one to the “Other” category.

%

Number of funds with RCR < 1 in each style/Total number of funds in each style

Scenarios	Wholesale sovereign	Retail sovereign	Sovereign and corporate	Investment grade corporate	High yield corporate	Wholesale equity	Retail equity	Other
<i>ES</i> ($\alpha = 3\%$) ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{5\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{3\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{2\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = 2\%$) ²	0.0	0.0	2.5	0.0	16.7	0.0	0.0	1.0

Assets of funds with RCR1 < 1 in each style/Total funds in each style

Scenarios	Wholesale sovereign	Retail sovereign	Sovereign and corporate	Investment grade corporate	High yield corporate	Wholesale equity	Retail equity	Other
<i>ES</i> ($\alpha = 3\%$) ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{5\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{3\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = \sqrt{2\%}$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>CoES</i> ($\alpha = \beta = 2\%$) ²	0.0	0.0	0.5	0.0	3.9	0.0	0.0	0.2

Source: CNMV.

1 This is the baseline scenario used in the stress test carried out by ESMA (2019).

2 The number of funds that could experience liquidity problems stands at eight: one corresponds to the sovereign and corporate category, six to the high yield corporate category and one to the "Other" category.

Lastly, as shown in Table 4, the impact on debt and equity market prices when funds are subject to adverse redemption scenarios is limited. As expected, if managers were to sell their assets using the waterfall approach, the impact would be much milder than it would be if the slicing approach were used. In any case, even in the most adverse scenario, *CoES* ($\alpha = \beta = 2\%$) and applying a slicing liquidation method, equity asset prices would fall on average by 8.17 basis points (bp), investment grade private debt asset prices would fall by 7.95 bp, high yield private debt prices by 5.59 bp and public debt prices by 3.09 bp.⁴

4 See footnote 3.

%

Waterfall approach (bp)

Scenarios	Public sector debt	IG corporate debt	HY corporate debt	Equity
ES ($\alpha = 3\%$) ¹	0.36	0.05	0.00	0.17
CoES ($\alpha = \beta = \sqrt{5\%}$)	0.19	0.02	0.00	0.06
CoES ($\alpha = \beta = \sqrt{3\%}$)	0.31	0.04	0.00	0.15
CoES ($\alpha = \beta = \sqrt{2\%}$)	0.46	0.08	0.00	0.23
CoES ($\alpha = \beta = 2\%$)	0.59	0.06	0.00	0.63

Slicing approach (bp)

Scenarios	Public sector debt	IG corporate debt	HY corporate debt	Equity
ES ($\alpha = 3\%$) ¹	1.52	3.48	1.85	4.17
CoES ($\alpha = \beta = \sqrt{5\%}$)	1.21	2.70	1.29	3.27
CoES ($\alpha = \beta = \sqrt{3\%}$)	1.47	3.34	1.72	4.02
CoES ($\alpha = \beta = \sqrt{2\%}$)	1.71	3.99	2.22	4.70
CoES ($\alpha = \beta = 2\%$)	3.09	7.95	5.59	8.17

Source: CNMV.

¹ This is the baseline scenario used in the stress test carried out by ESMA (2019).

4 Conclusions

Given the concern of various public bodies (ESRB, IOSCO and FSB) over the role of investment vehicles in the transmission of systemic risk, the CNMV decided to implement a stress testing methodology for investment funds. This methodology is based on those described in ESMA (2019) and Ojea (2020). Its main purpose is to identify the funds and categories of funds that could present liquidity problems in adverse scenarios (both macroeconomic and in the financial markets). In addition, it assesses the potential impact of illiquid vehicles on the equity and fixed income markets.

The Spanish investment fund market is largely made up of undertakings for collective investment in transferable securities (UCITS) and funds whose characteristics are very close to those described in the UCITS Directive (quasi-UCITS). This means that they are generally investment vehicles that are broadly diversified and have little leverage. The findings of the stress tests applied to these funds state the following conclusions:

- Investment funds have high levels of liquidity. Only in very extreme scenarios could some categories of funds present problems, and these would always be limited in scope. Thus, only when a greater stress than in the Great Recession or the shock triggered by COVID-19 is considered do the sovereign and corporate, high yield corporate and “Other” fund categories present liquidity problems. Specifically, these funds with liquidity problems account for 2.5%, 16.7% and 1.0%, respectively, of the total number of funds in each category. If we

look at the percentage of the assets of these funds as a portion of the total assets of their category, the figures are: 0.5%, 3.9% and 0.2%.

- Even in the most adverse scenario, in which some funds may have liquidity problems, the impact on the fixed income and equity markets is very limited. Specifically, the average impact would be a maximum of 3.09 basis points in public debt assets, 7.95 basis points in investment grade private debt assets, 5.59 basis points in high yield private debt assets and 8.17 basis points in equity assets.

It is important to note that the results shown do not take into account the possible application of liquidity risk management and mitigation measures (with the exception of cash buffers, which are included). However, management companies may use additional ordinary measures (subscription or redemption fees and swing pricing), in addition to measures that can be activated in exceptional circumstances (side pockets and suspensions of redemptions). The application of these liquidity management tools should help to further reduce both the scale of the shocks and the consequent impact on market prices.

Bibliography

Coen, J., Lepore, C. and Schaanning, E. (2019). *Taking regulation seriously: fire sales under solvency and liquidity constraints*. Bank of England, Staff Working Paper No. 793.

Coles, S., Bawa, J., Trenner, L. and Dorazio, P. (2001). *An introduction to statistical modeling of extreme values*. Springer.

Cont, R. and Schaanning, E. (2017). *Fire sales, indirect contagion and systemic stress testing*. *Indirect Contagion and Systemic Stress Testing*. June.

ESMA (2019). *Stress Simulation for Investment funds*. ESMA, Economic Report.

ESRB (2018). "Recommendation on liquidity and leverage risks in investment funds". *Official Journal of the European Union*, 2018/C 151/1.

FSB (2017). *Transforming shadow banking into resilient market-based finance: Re-hypothecation and collateral re-use: Potential financial stability issues, market evolution and regulatory approaches*. Technical report. January.

IMF (2015). *The asset management industry and financial stability*. Technical report, Global Financial Stability Report. April.

IOSCO (2018a). *Open-ended fund liquidity and risk management — good practices and issues for consideration*.

— (2018b). *Recommendations for liquidity risk management for collective investment schemes*.

Ojea J. (2020). “Cuantificación de la incertidumbre sobre los escenarios adversos de liquidez para los fondos de inversión”. *CNMV Bulletin*, Quarter II, pp. 25-47.

Rancoita, E. and Ferreiro, J. O. (2019). *Technical Note on the Financial Shock Simulator (FSS)*. ECB, Technical report.

Innovation facilitators: innovation hub and sandbox (controlled testing environment)

CNMV Fintech Team

Table of contents

Summary	79
1 Introduction	80
2 Innovation hubs	81
2.1 CNMV Fintech Portal	82
2.2 Statistical information related to the Fintech Portal	83
3 Sandboxes (controlled testing environments)	84
3.1 General aspects and operation	84
3.2 The Spanish sandbox	86
3.3 International comparative analysis	90
4 Conclusions	97

Terms

Open banking	Practice of sharing financial information in digital format, on the terms approved by customers, through application programming interfaces that provide access to new sources and exchange information flows in a recurring and protected manner.
Robo advisors	Platforms from which advice is offered or customers' capital is managed using automated procedures that include complex algorithms or artificial intelligence, and that range from conducting the customer profile test to making investment decisions and automatically executing them.
Crypto-assets	Representation of assets, registered in digital format, which rely on cryptography and distributed ledger technologies, such as blockchain. These include cryptocurrencies, which are used as a means of payment in certain transactions.
Blockchain and distributed ledger technologies	Blockchain is a distributed database, constructed by means of the successive incorporation of linked blocks which are replicated in all computers or nodes that participate in the network. Since all participants have the same information, it cannot be altered without the consensus of the network, so it can be considered accurate. Cryptography is used to validate the transactions that are entered in a block, which allows for traceability.
Big data	Generation of added value through the analysis of a large volume of data, for which artificial intelligence techniques may be used.
Machine learning	Machine learning is a branch of artificial intelligence that allows machines to learn without being expressly programmed to do so.
Crowdfunding platforms	Platforms that connect developers with a multitude of investors who wish to finance their projects.

Summary

The use of new technologies in financial services has resulted in the creation of innovative business models, new distribution channels and the provision of more efficient and personalised financial services and products. However, due to the nature of these technologies, the application of traditional rules to the new financial services sometimes proves ambiguous and may require interpretation.

For this reason, financial authorities of different jurisdictions have launched a series of tools to encourage innovation in the financial system and take advantage of its benefits. These initiatives have been based on strengthening collaboration between financial system regulators and entities and have a dual purpose: on the one hand they are a useful way for supervisors to increase their knowledge of the potential of new technologies and on the other hand they help entities to understand the regulatory expectations for this new area and to become familiar with the supervisory procedures involved.

This article looks at the two main innovation facilitators used by the competent authorities of several countries. Firstly, innovation hubs, which act as the first point of contact between the financial authorities and entities interested in implementing some type of innovation in the financial system supply chain. The competent authorities have set up innovation hubs to seek rapprochement with the fintech ecosystem and analyse and share the regulatory implications for the implementation of new financial services.

The second instrument is the sandbox (or controlled testing environment), which involves the creation of special regimes for projects that meet certain criteria. In this environment and for a defined period, entities are permitted to test and experiment with their technological solutions in a controlled space which is safe for both users and developers.

In addition, the sandbox usually establishes more agile procedures so that if a project is successful, authorisation can be obtained to carry on a professional activity by means of continuing collaboration between developers and supervisors. In this way developers may be able to place their products or services more quickly and without having to go through all the usual processes. This, in turn, provides supervisors with key information so that they can propose amendments to existing legislation in order to encourage innovation.

This article describes how the CNMV's innovation hub (Fintech Portal) works and provides statistical data on the type of enquiries that have been received since its launch. The main characteristics of the recent legislation introducing the regulatory sandbox for the Spanish financial system are also explained. To supplement these explanations, a comparative study of the different types of sandboxes established in

different jurisdictions inside and outside the European Union (the United Kingdom, Lithuania, the Netherlands, Singapore and Australia) is also included. Lastly, the article sets out the main conclusions.

1 Introduction

The past decade has seen a significant rise in digital transformation across the board. This process is part of a new technological revolution that involves significant economic and financial change. From the point of view of demand, users have become more exacting about the products and services they wish to purchase and the way in which they wish to conduct their relations with firms. From the supply side, new technologies (distributed ledger technology (DLT), big data, artificial intelligence and machine learning, among others) have enabled firms to analyse and manage large volumes of data more quickly and to provide services that are better aligned with customers' needs. In addition, these technological solutions support decision-making and allow for the simplification and automation of processes. As a consequence of these factors, we have seen company productivity increase and business models shift towards a more data-driven approach.

In the financial sector, digital transformation has removed some of the barriers to entry, facilitating the emergence of new players. Some of these new players are fintech (finance + technology) firms, defined by the Financial Stability Board as firms that provide “technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services”.

Technology-based financial firms provide alternatives to traditional financial services and offer innovative products and services with benefits for consumers and investors in terms of cost and efficiency. Some examples are:

- More efficient cross-border payment services and instruments.
- Open banking services, which allow customers to grant third parties authorisation to access bank account information or make payments. This has led to new business models such as “personal finance”, which can perform efficient management services and offer financial products geared to the needs of each user.
- Non-traditional investment services and tools, such as robo advisors, which provide automated advice and portfolio management.
- Social trading platforms, through which investors or traders can contact each other, resulting in new business models that automatically facilitate the exchange of financial information or the emulation of third-party investment strategies.

Financial technology also contributes to the democratisation of access to finance for firms. This can happen for example through crowdfunding platforms, whereby a

digital space is created in which developers seeking funding are put in touch with private investors. In this way, funding can be extended in the form of loans (crowd lending) or through the issue of financial instruments (crowd equity). An alternative way of raising funds is through the issue of crypto-assets, commonly known as ICOs (Initial Coin Offerings). Issues of crypto-assets (or tokens – digital assets) can be classified into STOs (Security Token Offerings), UTOs (Utility Token Offerings) and issues of other types of tokens which can be considered as hybrids. In these issues, the tokens are registered in a blockchain and, normally, in exchange for an amount of money that will be used to develop the issuer's project, the assets are granted a series of rights or obligations, depending on their nature.

Fintech often encounter regulatory hurdles when developing and implementing these new products, services or business models due to the nature of these technologies, particularly those that employ blockchain technology, since when the current regulatory framework was drawn up, it did not take into account – as it could hardly have been expected to – the possible development of new technologies for financial services such as those that have emerged in recent years. For this reason, some of these business models are not covered by or are not an exact fit with the current regulations.

The lack of legal certainty slows down the development of innovation and lowers user confidence in new financial services. This, in turn, makes it difficult to take advantage of all the benefits that technology-based firms could bring to the financial sector supply chain and is detrimental to the optimal functioning of the financial markets.

Competent authorities around the world have rolled out initiatives with the aim of driving innovation without lowering the level of protection for financial service customers. These measures help financial market supervisors to understand the opportunities arising from the application of new technologies in the financial sector and to increase their knowledge of how they work, as well as to identify emerging risks. These new tools are based on close collaboration with firms that offer innovative solutions. They enable supervision to be carried out efficiently and firms to understand the regulators' expectations.

The following section analyses the main characteristics of the innovation facilitators implemented by the competent authorities for the digital transformation of the financial sector. In Spain, there are two tools: the CNMV's Innovation Portal (innovation hub) and the sandbox.

2 Innovation hubs

Innovation hubs allow regulated or non-regulated entities to interact with the competent authorities on fintech-related issues.

The main purpose of innovation hubs is to enable entities that offer innovative solutions applicable to the financial system to better understand the regulatory and supervisory expectations and limits involved. To this end, the competent authorities

provide a single point of contact to initiate dialogue with institutions on the legal and regulatory requirements for new financial services. These authorities establish communication channels that serve as a point of contact for enquiries through web portals, online or face-to-face meetings and telephone calls. In this way, these authorities offer informal advice and guidance on the regulatory implications of new products, services or business models.

Some jurisdictions provide standard application forms, or enable a web space in which general guidance is provided on the regulatory implications for each technology or type of project. For example, the innovation hub of the US Securities and Exchange Commission (SEC)¹ has four specific sections to guide entities depending on the type of project and the technology used: blockchain/distributed ledger, digital marketplace financing, automated investment advice and artificial intelligence/machine learning.

In addition, the competent authorities consider factors such as the nature of the query, its complexity, urgency and the need to collaborate with other authorities to provide a response. For example, in Portugal there is a platform, Portugal Finlab,² which serves as a means of communication for entities (through the Fintech Association) and the three supervisors: the Securities Market Commission (CMVM), the Bank of Portugal (BdP) and the Association for the Supervision of Insurance and Pension Funds (ASF). Through the platform, an application window is opened to allow the supervisors to assess the entities based on certain criteria. The selected entities receive a report in which possible regulatory obstacles and critical points for the implementation of the project are identified. This gives developers a better understanding of the limits and scope of national regulations.

2.1 CNMV Fintech Portal

In December 2016, the CNMV opened a point of contact with the financial and technological innovation sector, the Fintech Portal, with the aim of promoting and providing regulatory advice for fintech initiatives.

Through the Fintech Portal, the CNMV collaborates with both start-ups and financial entities, or any other developer of a fintech project requesting support, providing assistance on the interpretation and application of stock market regulatory aspects that could affect their projects. Additionally, the CNMV has built into its organisational structure a Fintech Sub-directorate, belonging to the Department of Strategy and Innovation, which carries out this task in collaboration with other departments.

This channel has given the CNMV first-hand knowledge of some of the demands and needs of the fintech sector in Spain and has led to criteria being established on certain issues that have been published in question and answer format.

1 www.sec.gov/finhub.

2 www.portugalfinlab.org/.

These criteria are divided into sections, known as “verticals” in the sector terminology, depending on the function of the activity carried out. The main verticals are: crowdfunding platforms, automated portfolio management and advice, and crypto-assets.

Additionally, due to the rise in enquiries related to crypto-assets, in September 2018 the CNMV published criteria to establish the circumstances in which a crypto-asset is considered a financial instrument, the requirements for trading crypto-assets through a trading venue and the creation of registered funds for investing in crypto-assets that are not considered financial instruments. The European Commission has also published a draft regulation to create a regulatory framework applicable to crypto-assets that are not financial instruments and to crypto-asset service providers in the mechanisms included in the Digital finance package.³

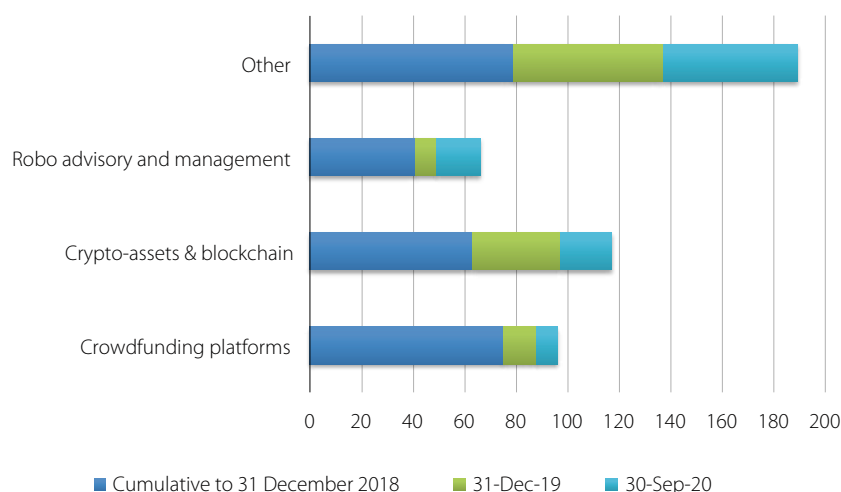
2.2 Statistical information related to the Fintech Portal

The CNMV keeps a record of all the enquiries made through the Fintech Portal, classified according to the vertical to which the projects belong. The statistics are published on the CNMV’s website.⁴ Figure 1 describes the trend in enquiries from the date the portal was opened until the third quarter of 2020.

It can be observed that initially the largest number of queries related to crowdfunding projects, with a total of 75 enquiries to 31 December 2018. In the past two years there has been a considerable decrease in this type of query, as these business models have become more consolidated.

Enquiry verticals in the Fintech Portal

FIGURE 1



Source: CNMV.

3 https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en.

4 Fintech Portal and statistical data: <http://cnmv.es/portal/Fintech/Innovacion.aspx?lang=en>.

The “Other” section includes a number of different business models such as customer identification, technology providers, customer relations and marketplaces. It also includes projects whose activity does not fall under the activities supervised by the CNMV. For instance, with queries about projects that offer loans and credits or payment services, which fall within the remit of the Bank of Spain.

Except for this block of “Other” activities, the crypto-assets and blockchain vertical stands out as the block for which the highest number of enquiries were made in 2019 and also the highest number of total enquiries over the entire period analysed. In this vertical, a total of 117 enquiries have been received, which include those related to ICOs/STOs, exchanges and others, accounting for 51%, 23% and 26% respectively.

In addition, enquiries related to the automated management and advice vertical saw a large increase in 2020. This item includes projects that offer financial services such as: robo advisors, social trading, personal finance, etc.

90% of the enquiries come from Spain. 5% correspond to projects from elsewhere in the European Union and another 5% from outside the European Union.

3 Sandboxes (controlled testing environments)

3.1 General aspects and operation

The sandbox forms part of a special regulatory regime that waives or relaxes certain regulatory requirements. Under this framework, regulated and non-regulated firms can test and experiment with innovative technology-based projects applicable to the financial system. This can give rise to new business models, applications, processes, products or other types of financial services. The tests are carried out in a controlled and safe environment, which is monitored by the supervisors. In addition, parameters are usually established between the competent authorities and the developers in advance, to set the limitations, scope and safeguards for users taking part in the tests. All these aspects are set down in an agreement or protocol.

At the international level, these regulatory schemes may differ according to whether some type of authorisation is required or whether the legal requirements or obligations are relaxed or waived. However, there are a number of basic general aspects that most sandboxes have in common. Prominent among these are the following:

- They may include novel products or services that pave the way for, among other things, the provision of regulated financial services, solutions that facilitate regulatory compliance (regtech), or products and services that support customer protection and financial stability.
- In no case is it possible to obtain authorisation for an indefinite period of time to carry out activities or provide financial services that require a licence.

- The competent authorities previously establish a number of eligibility criteria that are public and transparent for all entities wishing to access the sandbox. These criteria are requirements that must be met and serve to help the authorities to select the projects that will be admitted to the sandbox. In general, the eligibility criteria are usually the following:
 - i) Scope: The products or services to be tested must be related to the activities regulated by the financial authorities of the country in which the testing is to be carried out.
 - ii) Innovation: It must be demonstrated that the products or services are different from those currently on the market or that they are used in a different way.
 - iii) Benefit: The products and services must bring identifiable benefits to consumers, whether direct or indirect, such as offering cheaper services or products, improving the way financial services are provided in terms of efficiency and quality, or making the supervision of financial services more efficient by simplifying or automating processes.
 - iv) Need to use the sandbox:⁵ In general, it must be demonstrated that there is a genuine need to enter the sandbox. For instance, in the case of a project that encounters regulatory obstacles or that does not fit into current legislation and has consequently been halted, or in the case where there are difficulties in carrying out the project activities.
 - v) Project maturity (readiness) for testing: All sandboxes require that the products or services to be tested are sufficiently developed and ready to be tested on real users.
- The parameters for performing the tests are usually pre-established in an agreement or protocol between the financial services authorities and the developers wishing to enter the sandbox. Compliance with this protocol is mandatory and, in the event of non-compliance with the provisions established, participation in the sandbox may be suspended. The protocol normally includes the following points:
 - i) Duration: The time established to carry out the testing is usually six months and in some cases an extension of the testing period may be requested.
 - ii) Number of customers and transaction volumes: The number of users to be involved in the testing must be pre-established, in addition to a limit on the volume and amount of the transactions.
 - iii) Customer selection: Firms must indicate the methodology or criteria for selecting potential users to carry out the tests.

⁵ This particular requirement does not apply to the Spanish sandbox.

- iv) Guarantees and user safeguards: Assurance must be provided that the system for compensating and safeguarding users is specific and appropriate to the level of risk associated with the project.
 - v) Information to be provided to customers: The developers must provide users with an information document explaining that the products or services offered are in the testing phase and highlighting the risks associated with the pilot project. In some cases, it is necessary to obtain the users' written consent before they can take part in the tests.
 - vi) Test plan: A schedule must be established for the key activities of the project, the phases and duration of each one, the objectives expected to be met at the end of each stage, and the metrics for considering the project to be successful or unsuccessful.
- During the testing there must be continuous dialogue between supervisors and developers. In general, entities must submit reports to the financial authorities on a regular basis, reporting on the progress and the most important features of the testing.
 - In most sandboxes, entities are required to have a strategy for an orderly exit, specifying the way in which the experimentation period will be concluded and the steps to be followed depending on whether it is successful or unsuccessful.

It should be noted that the UK's Financial Conduct Authority (FCA) has been a pioneer in the implementation of this regulatory experimentation scheme, having started in 2016. Subsequently, financial authorities from around the world have joined this initiative, launching this type of special regime in order to promote innovation, eliminate regulatory obstacles and take advantage of the opportunities offered by developments of technological solutions.

3.2 The Spanish sandbox

On 14 November 2020, Law 7/2020 of 13 November for the digital transformation of the financial system⁶ (hereinafter, the Sandbox Law) was published in the Official State Gazette (*BOE*), opening the door to the regulatory sandbox in Spain. This law aims to promote innovation by eliminating regulatory obstacles, establishing collaboration channels between entities and authorities through a single point of contact, using transparent and agile processes. At the same time, it aims to ensure that the transition to a digital financial system does not negatively affect customer protection, financial stability or the integrity of the financial markets. On 15 December 2020, the call for applications for access to the sandbox was published. The period for developers to submit applications began on 13 January and will end on 23 February 2021.

⁶ <https://www.boe.es/eli/es/l/2020/11/13/7>.

The set of measures included in the Sandbox Law focuses on two main objectives. The first is to provide the financial authorities with appropriate tools with which to continue to carry out competent work in the new digital context. The second is to facilitate an innovation process that gives access to new financing alternatives in all sectors of the economy, as well as to create an internationally competitive technological environment in which talent can be recruited and retained.

It should be understood that the controlled testing environment has three key elements: it is a controlled environment, it serves as a regulatory instrument and it is governed by a legal-protocol scheme. In addition, it is important to note that the developers are not considered to be engaged in a regulated activity since the activity is not being performed habitually or professionally and therefore will not be subject to authorisation.

In regard to the first element, the controlled testing environment must be safe for participants. In this context, three key factors must be ensured: the protection of personal data, the protection of users of financial services and the prevention of money laundering and terrorist financing. Likewise, the integrity of the financial system must be guaranteed by mitigating or eliminating potential risks.

However, developers who are accepted into the sandbox will be able to experiment and test their technological solutions without being subject to the specific legislation on financial services, although they will have to comply with the provisions established in the Sandbox Law and in the corresponding protocol. For this reason, accessing the sandbox does not imply authorisation to start a reserved activity or to provide financial services on a professional basis.

In regard to the usefulness of the sandbox as a regulatory instrument, it should be noted that it makes it easier for supervisors to carry out their work through a regulatory framework that establishes cooperation processes between the competent authorities and developers. Further, regulators not only increase their knowledge of the developments and potential effects of digital transformation in financial services, but can also identify possible regulatory measures and improve control over compliance with current legislation.

Lastly, with regard to the application of the legal-protocol aspect, the general rules set down in the law establish the rights and obligations that must be adhered to if the regulatory sandbox is to be accessed. The testing protocol sets down the special regime by which tests will be governed.

The first phase of the operation of the sandbox establishes the legal regime applicable to the tests, as well as the access requirements or **eligibility criteria for a favourable assessment**, in order to enter the sandbox. These requirements are as follows:

- i) Projects must provide technology-based innovation applicable to the financial system.
- ii) The innovation must be sufficiently advanced to be tested, in other words, projects must have a prototype that offers minimal functionality to prove its usefulness and ensure its future viability.

- iii) Projects must offer added value or potential usefulness in at least one of the following areas:
 - Facilitate regulatory compliance by improving or standardising processes or other tools.
 - Provide some benefit for users of financial services in terms of cost reduction, improvement of quality or access conditions and availability of the provision of financial services, or increased consumer protection.
 - Increase the efficiency of entities or markets.
 - Provide mechanisms to improve regulation or financial supervision work.
- iv) The impact of the pilot project on the Spanish financial system will be taken into account.
- v) In no case will projects that are similar to others, in other words, projects of an analogous nature and aimed at the same recipients, be able to access the sandbox.

Applications must be submitted to the General Secretariat of the Treasury and International Financing, which will publish the (mandatory) standard model. Applications must also be accompanied by a memorandum explaining the project and setting out how the access requirements are met, how the safeguarding regime will be complied with and how participants will be protected if the project is accepted. Every six months, the Secretariat of the Treasury will set a deadline for the submission of applications through its electronic office. However, only those submitted in the 30 business days prior to the deadline will be considered. The first application period opened on 13 January and will close on 23 February 2021.

Once the applications for access to the sandbox have been submitted, a preliminary assessment will be carried out. The Treasury will forward the applications to the competent supervisory authorities for the subject matter of the project. The competent authorities involved in the Spanish sandbox are the Bank of Spain, the CNMV and the General Directorate of Insurance and Pension Funds (DGSFP). The authority concerned **will issue a reasoned report** within one month, extendible for a further month if the complexity or the number of projects presented so requires, which will include its rating of the project: favourable or unfavourable. Subsequently, the supervisory authorities will send the Treasury a list of the projects that meet the requirements. In addition, entities such as the Executive Service of the Commission for the Prevention of Money Laundering and Monetary Offences (SEPBLAC), the Spanish Data Protection Agency (AEPD) or other collaborating institutions are expected to participate as and when necessary.⁷

⁷ It should be noted that if the project presented falls within the competence of more than one supervisory authority, a single reasoned report must be obtained with the considerations of all the supervisors involved. Therefore, if the project tests involve more than one of these supervisors, if successful, all the respective supervisory authorities will work together, jointly sign the protocol and follow up on the tests.

Lastly, **the list of projects with a favourable preliminary assessment** and the supervisory authority or authorities in charge of monitoring them will **be published through the Treasury's electronic office**.

Once a project obtains a favourable preliminary assessment, there will be a period of three months from the publication of the list to the **signing of the protocol** between the developer and the supervisory authority or authorities. The protocol will establish the rules and conditions to which the projects and the testing will be subject, including the following:

- Limitations on user and transaction volumes, total amount of transactions and duration of the tests.
- The way in which the monitoring will be carried out. In particular, details will be given of the information that will be provided to supervisors and how to access said information.
- The phases of the pilot project, the objectives to be achieved in each phase, the scope of the tests and the duration of the phases.
- The resources that the developers will be required to have in order to carry out the tests.
- A system of guarantees and compensation (the Guarantee Regime).
- Confidentiality clauses, as well as provisions for industrial property rights or business secrets that may be affected during the testing period.

The protocol will include a specific system to safeguard the participants in proportion to the level of risk of the project and in accordance with the objectives established in the current legislation governing data protection, protection of users of financial services and prevention of money laundering and terrorist financing.

Once the protocol has been approved, the developers will then obtain the **informed consent of the participants** and activate the system of guarantees and compensation. After these processes have been completed, the pilot project testing may begin in accordance with the terms established in the protocol and the Sandbox Law.

Further, the supervisory authority that has been delegated to follow up on the testing corresponding to the subject matter of the project will **appoint one or more monitors**, who will be responsible for following up on the tests. In the event that the protocol has been signed with more than one supervisory authority, all authorities will designate one or more monitors. During the testing period, there will be continuous dialogue between the developer and the authority responsible for the monitoring. In addition, the authority may require the protocol to be amended if there is reasonable need, in order for the tests to be carried out properly, and must have the approval of the developer to do so.

However, the **tests will be suspended** or terminated if any of the following situations occur: i) failure to comply with the provisions of the law or the corresponding

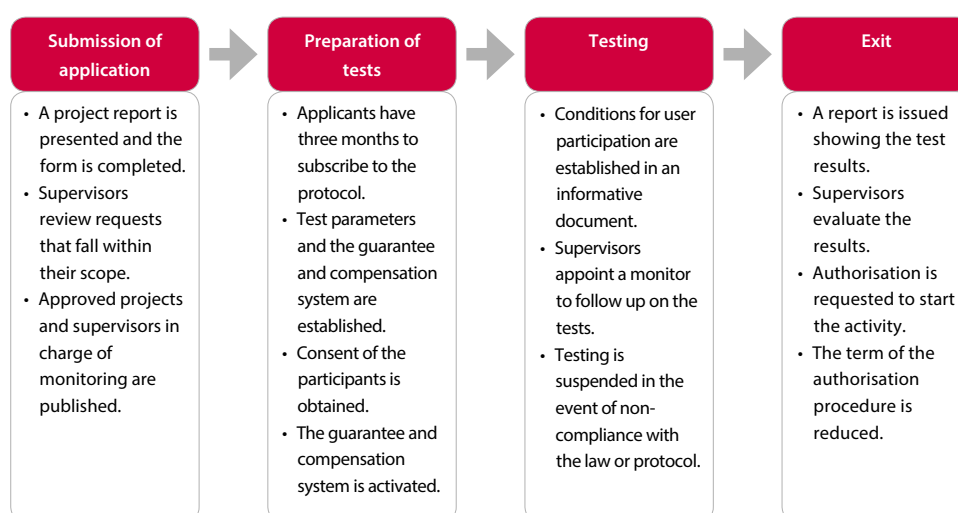
protocol; ii) the authority responsible for monitoring considers that there are repeated deficiencies or risks to financial stability, the integrity of financial markets or the protection of customers arise, and iii) the developers suspend or terminate the pilot project for technical or strategic reasons, or for any other reason.

Lastly, the **exit regime** establishes that once the tests have been concluded the developer must draw up a report (the minimum information it must contain is detailed in the protocol) in which the results obtained in the tests and in the pilot project as a whole will be assessed. In certain cases, after examining the results, if the developer considers it appropriate, it may request the authority responsible for the monitoring to extend the duration of the testing, which will require an amendment to the protocol. Once the pilot project has been completed, the developer may request authorisation to start the activity or extend the authorisation. The terms of the authorisation procedure may be reduced according to the particularities of each project, as long as the authorities with the power of approval consider that the information and knowledge acquired during the tests provide a sufficient basis for a simplified analysis of the compliance provided for in current legislation.

The figure below shows the various phases of the Spanish sandbox:

Diagram showing the phases of the sandbox

FIGURE 2



Source: CNMV.

3.3 International comparative analysis

An analysis of the different regulatory sandboxes implemented by financial authorities of the jurisdictions of the United Kingdom, Lithuania, the Netherlands, Singapore and Australia has been carried out. Although the sandboxes do not show

significant variations in relation to the objectives they address, their operation is described below and some of the differences between them are highlighted.⁸

3.3.1 United Kingdom

The first regulatory sandbox was created by the Financial Conduct Authority (FCA),⁹ and started operating in May 2016. The sandbox is open to authorised firms, unauthorised firms that require authorisation and technology businesses that are looking to deliver innovation in the UK financial services market. However, for unauthorised firms, the FCA applies a tailored authorisation process to allow them to test their innovation in a safe environment for a limited duration and under certain restrictions. The tools available to the FCA for these tests are the following:

- Restricted authorisation: To conduct a regulated activity, a firm must be authorised or registered by the FCA, unless certain exemptions apply. Successful firms must apply for the relevant authorisation or registration in order to test. There is a tailored authorisation process for this. Such authorisation or registration will be restricted to allow firms to test only their ideas as agreed with the regulator.
- Waivers or modifications to FCA regulations: It is possible to dispense with some rules if they are unduly burdensome rule for the purposes of the test.
- Informal steers: The FCA can provide informal “steers” on potential regulatory implications of a product or business model that is at an early stage of development.
- “No enforcement action” letters: For cases where the FCA cannot issue individual guidance or waivers but believes it is justified in light of the particular circumstances and characteristics of the sandbox test, “no enforcement action” letters can be issued.

As long as the firm complies with the agreed testing parameters and treats customers fairly, the authority accepts that unexpected issues may arise and will not take disciplinary action. The letter would apply only for the duration of the sandbox test and only to FCA disciplinary action, so it would not limit any liability to consumers.

- Individual guidance: Individual guidance can be given to a firm on the application of the standards and the interpretation of the requirements in the context of a specific test.

The eligibility criteria for accessing the regulatory sandbox are the same as those referred to in Section 2.1 of this article (scope, innovation, consumer benefit, need for a sandbox and readiness for testing).

8 The information collected for this analysis has been obtained from documents published by the authorities of the financial system of each country and from their websites.

9 <https://www.fca.org.uk/>.

The testing parameters establish that: i) the tests run for a maximum of six months; ii) the number of customers is not previously defined, but it must be sufficient to provide statistical data; iii) the type of customers must be appropriate for the type of innovation and the target market, as well as the type of associated risk, and iv) safeguards for users must be agreed on a case-by-case basis depending on whether the customers are retail or professional, as well as the size, scale and risks of the test. All these parameters, the restrictions and the test plans will be established in the agreement signed by the developer and supervisors. The deadlines for sending the follow-up reports on the tests to the innovation hub will also be agreed. Typically, reports are published weekly and include key progress achieved, results obtained and risk management.

To request this special regime, a form found on the FCA website must be filled in and submitted, in which the application must briefly describe the project and the aspects mentioned in the foregoing section. Subsequently, the FCA will assess the projects that meet the requirements and publish on its website the firms that have been admitted to the sandbox.

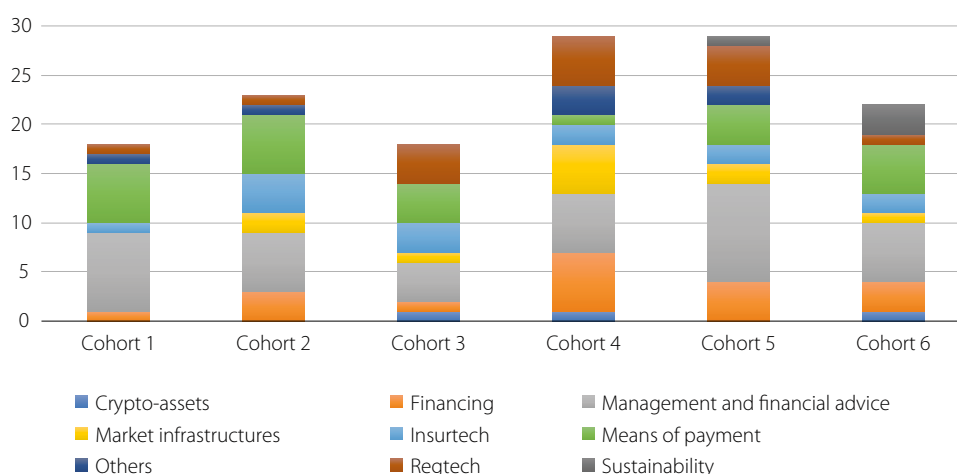
A group or cohort process is used for the submission of applications and application “windows” are announced. There are usually two application windows per year. To date, there have been six cohorts, in each of which between 18 and 29 projects have been admitted out of an average of 74 submitted.

Figure 3 shows the projects tested in the six cohorts and the verticals identified in the fintech ecosystem. In cohort 1, 24 projects were accepted, of which only 18 carried out tests (July 2016). In cohort 3, there was a notable increase in projects accepted in the regtech vertical (June 2017). It should be noted that the largest number of applications submitted was in cohort 5, with a total of 99 applications, of which 29 projects were tested (April 2019). Lastly, cohort 6 reflected a significant increase in projects aimed at supporting the UK in the move to a greener economy (July 2020). The application window for cohort 7 closed on 31 December 2020.

As shown in Figure 3, the projects that have been tested and that are included in the verticals are: payment and electronic money institutions; platforms for financial management and advice that include open banking, personal finance or robo advisor services; insurance products and services; financing alternatives and mortgage services; issue of crypto-assets; DLT-based market infrastructures; solutions that facilitate regulatory compliance, customer onboarding and identification using digital ID; projects with an environmental impact, and financial sustainability.

Projects tested in the FCA sandbox

FIGURE 3



Source: CNMV, with data extracted from: <https://www.fca.org.uk/>.

3.3.2 Lithuania

Following the implementation of the FCA regulatory sandbox in 2016, the central bank of Lithuania¹⁰ published *The Regulatory Sandbox Framework of Bank of Lithuania* on 19 September 2018, which became operational one month after its publication. In February 2019, the central bank presented a new technological sandbox, the LBChain project. This new project is a blockchain-based sandbox that combines technological and regulatory infrastructures to enable fintech firms to increase their knowledge and conduct blockchain-orientated research, as well as to test and adapt services based on this technology.

LBChain is a unique service platform focused on products that are in the early stages of development. Firms, bank or financial service providers wishing to test an idea that works on blockchain will be able to do so on the LBChain platform. The tests conducted on this technological platform will not be made public. In turn, the Bank of Lithuania will provide technological and regulatory consultancy for the development of the project until it achieves its minimum viable product (MVP). Subsequently, if the entity is ready and in a position to meet the requirements for obtaining a licence, it must submit an application or collaborate with a regulated entity to enter the regulatory sandbox.

Lithuania's regulatory sandbox is very similar to the FCA scheme in terms of eligibility criteria and how it operates. The eligibility criteria to establish which projects will be accepted are the same as those of the FCA, with the additional requirement to develop the project in Lithuania. The tools used in the sandbox are the following:

- Active consultation with project developers. The Bank of Lithuania will seek to cooperate with the market participant, and, on its own initiative or at the

¹⁰ <https://www.lb.lt/en/>.

request of the financial market participant, provide advice within its area of competence.

- Active application of the principle of proportionality when interpreting and applying legal acts regulating the financial market with regard to the essence, scope, and complexity of the specific activity to which the financial innovation relates as well as the risks involved.
- No enforcement measures will be taken while the financial market participants are operating in the regulatory sandbox, unless necessary. This means that firms testing their products will not be fined in the event of small incidents, but risks must be mitigated.

One of the differences between the FCA and Lithuanian sandboxes is that in Lithuania applications can be submitted at any time, whereas in the UK they must be submitted in the specific windows established by the FCA.

There are two stages for requesting entry to the sandbox. In the first stage, an application form must be filled in and submitted, providing information about the entity, a brief description of the project and substantiation that it meets the eligibility criteria. In the second stage, applicants are given a period of two months in which to present their testing plan, which must establish the parameters of the tests, the customer protection and selection system and the measures that will be taken when the test period ends, among other issues.

3.3.3 The Netherlands

In the Netherlands,¹¹ there are two regulators: the Authority for Financial Markets (AFM), which supervises the conduct and proper functioning of the markets, and De Nederlandsche Bank (DNB), the Dutch central bank, which is in charge of prudential regulation.

Since 2017, the following tools have been created to promote innovation:

- i) Regulatory sandbox: If a firm cannot reasonably meet specific rules when marketing an innovative product, service or business model, but does meet their underlying purpose, it can take advantage of the sandbox. For instance, a firm wishing to offer a new service that is not covered by the law, while it demonstrably meets the law's underlying purposes. In this case, the supervisor may consider it reasonable not to impose strict application of the law on the firm but to offer a tailored solution based on a flexible interpretation of the law within the applicable legal framework or exemptions from specific legal requirements.

The eligibility criteria for admittance to the sandbox are: i) the financial innovation contributes to one or more of the objectives of the financial supervision laws; ii) the innovation cannot reasonably overcome policy or legal barriers,

¹¹ <https://www.dnb.nl/en/>.

and iii) the firm must include procedures and measures that protect its customers, do not endanger the sound and ethical operation of the financial services firm if the innovation fails, the innovation is sufficiently developed to be fit for testing and clear timelines are in place.

- ii) Partial authorisation: A partial authorisation may be granted if a financial services firm does not immediately wish to engage in all operations governed by an authorisation. The firm need only comply with the rules that apply to the specific activities that it performs. When a firm with a partial authorisation needs to expand its activities, it can gradually develop toward a universal authorisation.
- iii) Authorisation with requirements: The AFM and DNB can offer customised arrangements by issuing authorisations with requirements and restrictions. These may differ on a case-by-case basis. For example, the AFM may restrict the type of customers to whom investment services may be offered.
- iv) Opt-in authorisation: This type of authorisation is an alternative to the sandbox and allows activities to be carried out that are otherwise reserved to banks. It is the best option for entities whose business is to: i) receive and hold repayable funds interacting with payment systems and to grant credits for their own account, and/or ii) receive repayable funds, not including credits, and to invest these for their own account.

3.3.4 Singapore

These special regimes have also been put into practice outside Europe. A notable example is the regulatory sandbox of the Monetary Authority of Singapore (MAS),¹² which published its FinTech Regulatory Sandbox Guidelines in November 2016. This document establishes the objectives and principles of the sandbox. In addition, applicants are given guidance on the admission process and the information that must be provided to MAS.

The MAS will decide, on a case-by-case basis, which regulatory requirements are to be relaxed, depending on the financial product to be tested, the type of applicant and the type of innovation. Examples of “possible to relax” requirements are: asset maintenance, board composition, cash balances, credit rating, financial soundness, licence fees, management experience, minimum liquid assets, reputation and minimum paid-up capital, among others. Examples of “to maintain” requirements are: confidentiality of client information, fit and proper criteria particularly on honesty and integrity, handling of customer’s monies and assets by intermediaries, and the regulations on money laundering and terrorist financing.

To apply for entry to the regulatory sandbox, specific information about the organisation must be provided, a detailed explanation of the product or service to be tested, the requirements that are expected to be relaxed, an explanation of the activities to be carried out, the indicators for measuring the progress of the tests, risk control

12 <https://www.mas.gov.sg/>.

measures and the exit and transition plan for customers, as well as a dispute resolution plan. The MAS will then evaluate the application and inform the applicant of the outcome. The time taken will depend on each case. Lastly, if a project is approved, it will move to the testing stage, in which the participant must inform customers that the product or service is undergoing testing. At the end of the trial period, the relaxation expires and the entity may proceed with the implementation of the product or service, as long as the expected results have been obtained and the regulatory requirements can be fully met.

In addition, on 7 August 2019, the MAS created a new Sandbox Express¹³ to complement the previous sandbox approach. The aim is to enable firms that intend to conduct certain activities regulated by MAS to quickly commence experimenting with their innovations within pre-determined boundaries, without having to go through the existing sandbox application process. The activities covered initially were: carrying on a business as an insurance broker; establishing or operating an organised market, and the remittance business. The risks of each project must be low and clearly identified. Sandbox Express is suitable for products or services which carry risks that can reasonably be contained by pre-determined, standardised sandbox constructs not tailored for each applicant.

The applicant must undertake to comply fully with the conditions of licence approval or exemption and must provide a clear disclosure of information prior to onboarding any person as a customer, stating that the entity is exempt from the requirements to be registered, approved, recognised or licensed by MAS during the approved period, and that customers will not have access to the dispute resolution scheme, among others.

3.3.5 Australia

Lastly, the Enhanced Regulatory Sandbox (ERS) scheme proposed by the Australian government replaces the previous regulatory sandbox managed by the Australian Securities and Investment Commission (ASIC) since 2017. The ERS entered into force on 1 September 2020 and allows testing of a broader range of products through exemption, as well as extending the trial period to 24 months.

In Australia, it is not necessary to submit an application to obtain a licence exemption if the firm meets the eligibility criteria and complies with legal conditions.¹⁴ It need only notify the ASIC and submit certain information. Subsequently, the ASIC will assess the notification to verify that it meets the innovation testing and the net public benefit criteria within 30 calendar days. If there is no response within this period, the exemption will begin on the 31st day after the date of presentation of the notification.

¹³ <https://www.mas.gov.sg/development/fintech/sandbox-express>.

¹⁴ Corporations (FinTech Sandbox Australian Financial Services License Exemption) Regulations 2020 and/or the National Consumer Credit Protection (FinTech Sandbox Australian Credit License Exemption) Regulations 2020.

The following table shows a summary of the main characteristics of the different types of sandbox by country.

Comparison of sandboxes

TABLE 1

Sandbox type by jurisdiction	Restricted authorisation	Relaxation of requirements	Licence exemption	No activity subject to licence
UK, FCA	✓	✗	✗	✗
Lithuania, Bank of Lithuania	✓	✗	✗	✗
Netherlands, AFM & DNB	✓	✓	✗	✗
Singapore, MAS (Regulatory Sandbox)	✗	✓	✗	✗
Singapore, MAS (Sandbox Express)	✓	✗	✓	✗
Australia, ASIC	✗	✗	✓	✗
Spain	✗	✗	✗	✓

Source: CNMV.

4 Conclusions

Innovation facilitators help the competent authorities to gain a better and faster understanding of the application of new technologies in the financial sector. The launch of these tools also provides supervisors with knowledge that allows them to adapt to the new digital revolution and work proactively. Consequently, the experience acquired through these mechanisms allows supervisors to better focus their resources on certain areas and identify possible deficiencies in regulation, as well as to anticipate possible emerging risks that could affect users of financial services, investors, and even financial stability.

As described in the article, these initiatives allow the competent authorities to provide new players with access to regulation and offer regulatory advice for projects that are in the early or advanced stages of development through the innovation hub or, for projects that are sufficiently mature to progress, the opportunity to test their technological solutions in the sandbox. In short, innovation facilitators allow supervisors and financial institutions to move forward together into the new digital era.

In view of the comparative analysis carried out with other countries, it can be concluded that the Spanish sandbox is one of the most comprehensive and far-reaching, as the three existing financial supervisors are involved (Bank of Spain, CNMV and DGSFP) in addition to authorities such as SEPBLAC or AEPD, which will participate in projects as needed. Therefore, the scope of the projects that may be admitted covers a wide range of financial products and services, and will need close cooperation and coordination by the authorities to provide a joint response to all the projects that require it. Likewise, the test results obtained will be taken into

consideration for future amendments and simplifications of the current legislation (for example, eliminating obstacles and unnecessary duplications, establishing more agile procedures and relaxing burdensome administrative procedures), in order to promote an efficient regulatory framework that encourages innovation.

Central counterparty resolution: How to assess and treat available financial resources

María José Gómez Yubero and Bárbara Gullón Ojesto (*)

(*) María José Gómez Yubero and Bárbara Gullón Ojesto belong to the General Directorate of Policy and International Affairs of the CNMV. The opinions contained in this article are the sole responsibility of its authors and do not necessarily reflect those of the CNMV. The authors wish to thank Álvaro Marín Lucas for his valuable contribution.

Table of contents

1	Introduction	107
2	Role and systemic importance of CCPs in the financial system	108
2.1	How a CCP works and how it interacts with banks	108
2.2	Simultaneous application of bank and CCP resolution regimes	110
2.3	Systemic importance of CCPs. Volumes, interconnections and concentration	112
3	Strengthening the resilience and resolvability of CCPs	117
3.1	Principles and regulation on resilience, recovery and resolution	117
3.2	CCP lines of defence. Use of the default waterfall	118
3.3	Importance of stress testing	126
4	FSB 2020 Guidance on financial resources to support CCP resolution	128
4.1	Assessing the adequacy of financial resources to support CCP resolution	129
4.2	Treatment of CCP equity in resolution	137
5	Factors to improve the resolvability of CCPs. Incentives and divergent interests	139
6	Next steps	142
7	Conclusions	144
	References	145
Annex 1	Example of the practical application of a CCP default waterfall and resources available in resolution in scenarios of default by its members	147
Annex 2	Example of the practical application of a CCP default waterfall and resources available in resolution in scenarios of non-default losses	151

Index of figures

Figure 1	Growth of central clearing	113
Figure 2	Relations between CCPs and service provider members	114
Figure 3	Concentration by CCP in the OTC derivatives market in euros	115
Figure 4	Concentration of prefunded resources of CCPs by clearing member	116

Index of tables

Table 1	Resolution tools envisaged in the CCP R&R Regulation	124
Table 2	List of CCPs that are systemically important in more than one jurisdiction	126
Table 3	Five-step process to assess the adequacy of financial resources and tools available	130
Table 4	Non-default loss (NDL) and default loss (DL) scenarios to consider in the resolution plan	131
Table 5	DL and NDL resolution tools and resources	133
Table 6	Effectiveness, limitations and potential systemic risk of resolution tools	141
Table 7	Basic data of the CCP	147
Table 8	Total cost and resources in a scenario of two defaulting members	148
Table 9	Total cost and resources in a scenario of three or more defaulting members	148
Table 10	Default loss scenarios	149
Table 11	Basic data of the CCP	151
Table 12	Non-default loss scenarios	152

Index of illustrations

Illustration 1	Bilateral clearing vs. central clearing	109
Illustration 2	CCP resources to address defaults	119

Index of exhibits

Exhibit 1	European Regulation on the recovery and resolution of central counterparties	121
Exhibit 2	Public consultation on FSB 2020 Guidance. Identifying scenarios	131
Exhibit 3	Public consultation on FSB 2020 Guidance. Evaluation of tools and resources	134
Exhibit 4	Public consultation on FSB 2020 Guidance. Cost assessment	135
Exhibit 5	Public consultation on FSB 2020 Guidance. Identifying any gaps	136
Exhibit 6	Public consultation on FSB 2020 Guidance. Treatment of equity	139

Abbreviations used

RA	Resolution authority
bankCBCM	FSB Cross-Border Crisis Management Working Group for Banks
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
CCP	Central counterparty
CDS	Credit Default Swap
CMG	Crisis Management Group
CNMV	Comisión Nacional del Mercado de Valores (National Securities Market Commission)
CPMI	Committee on Payments and Market Infrastructures
OTC derivatives	Over-the-Counter derivatives
DL	Default losses
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
FDIC	Federal Deposit Insurance Corporation
FMI	Financial Market Infrastructure
fmiCBCM	FSB Cross-Border Crisis Management Working Group for FMIs
FSB	Financial Stability Board
G-SIB	Global Systemically Important Banks
G-SIFI	Global Systemically Important Financial Institutions
iCBCM	FSB Cross-Border Crisis Management Working Group for Insurers
IOSCO	International Organization of Securities Commissions
IRD	Interest Rate Derivative
NCWO	No Creditor Worse Off
NDL	Non-default losses
NCWOL	No Creditor Worse Off than in Liquidation
PFMI	Principles for Financial Market Infrastructures
PTU	Partial Tear-Up
R&R	Recovery and Resolution
ReSG	FSB Resolution Steering Group
SITG	Skin-In-The-Game
EU	European Union
VMGH	Variation Margin Gains Haircutting

The recent periods of market turmoil have demonstrated the benefits that central clearing brings for global financial stability. Progress in implementing the G20 regulatory reforms agreed after the 2008 financial crisis has encouraged the use of CCPs, as well as enhanced CCP resilience, recovery planning and resolvability.

However, the shift to central clearing has also further increased the systemic importance of CCPs. The international policy framework for CCPs needs to reflect the evolving role of central clearing in order to address risks to financial stability in an effective manner.¹

1 Introduction

Central counterparties (CCPs), also known as clearing houses, are essential infrastructures for the overall safety and soundness of the financial system. Their increasing systemic importance and high level of interdependence with the rest of the financial system justify the authorities' taking measures to ensure that they do not become a source of systemic risk and that should a CCP fail, it can be resolved with no negative effect on financial stability and without exposing taxpayers to loss.

In response to the global financial crisis and in order to strengthen the soundness and resilience of the financial system, in October 2011, the Financial Stability Board (FSB) approved, among other measures, its Key Attributes of Effective Resolution Regimes for Financial Institutions, which establish the main elements of an effective resolution regime. These Key Attributes were updated in 2014 to extend their application to non-bank financial institutions such as systemically important market infrastructures, in particular CCPs.²

Although this document and subsequent reports are based on previous work carried out for the banking sector, they have been adapted to reflect the different risks and business profiles of CCPs. However, unlike the banking sector, the evaluation of the sufficiency and adequacy of the financial resources available to a CCP to address potential defaults, avoid bankruptcy and ensure the continuity of its critical functions is largely unexplored territory, since there have been very few cases in which losses incurred by a member have exceeded the resources held to cover them, and even fewer cases of bankruptcy of a CCP.

The latest development in this area is the FSB's recent publication of its *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution*³ (FSB 2020 Guidance).

The purpose of this Guidance is to help the resolution authorities apply the principles embodied in the Key Attributes from a practical standpoint, in order to

1 FSB (2020). *FSB releases guidance on CCP financial resources for resolution and announces further work*. 16 November.

2 FSB (2014). *Key Attributes of Effective Resolution Regimes for Financial Institutions*. October.

3 FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution*. 16 November.

establish the composition and amount of financial resources required to support the resolution of a CCP. However, as explained in Section 5 of this document, the Guidance itself envisages its being revised in the light of experience gained on application. Further, given the close link between resilience, recovery and resolution, the joint work programmes of the FSB, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) envisage the development of international policy on the use, composition and amount of financial resources in recovery and resolution to further strengthen the resilience and resolvability of CCPs.

This article presents and analyses the content of the FSB 2020 Guidance and puts its application into context with a review of the functions and the systemic importance of CCPs and their interaction with the banking sector, which justify strengthening the regulation of these infrastructures. Lastly, future challenges and work to be done in the field of policy and in the implementation and evaluation of the resilience and resolvability of CCPs are identified.

2 Role and systemic importance of CCPs in the financial system

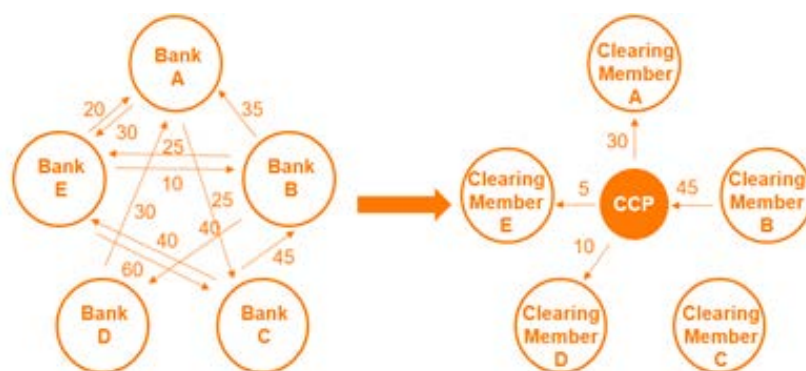
The key role of CCPs in the financial system and their growing systemic importance have made these infrastructures “too big to fail”. While unlikely, if the lines of defence of a CCP were to prove insufficient to deal with a crisis, a scheme would have to be available to ensure the continuity of its essential functions, preserving financial stability and without taxpayers to loss.

2.1 How a CCP works and how it interacts with banks

Registering a trade in a CCP gives rise to a purchase transaction and a sale transaction, for both of which the CCP is the counterparty. It is responsible for intermediating and ensuring compliance with the obligations of each party during the term of the contract or transaction. In the absence of default by either party, the CCP’s open position is zero, known as a “matched book” (long positions are matched with equal and opposite short positions). Thus, the clearing house is neutral as regards market risk. In the event of default by a member, the clearing house would act immediately to return to a zero net position.

Further, as described in the PFMI (Principles for Financial Market Infrastructures), CCPs often require participants to provide collateral (through initial margins and other financial resources) to cover their current and potential future exposures. CCPs can also mutualise certain risks through mechanisms such as default funds.

In this way, through the multilateral netting of positions, collateralisation and the mutualisation of losses, CCPs reduce aggregate counterparty risk and help to lower risks and interconnections throughout the financial system, as shown in Illustration 1.



This example shows how the involvement of the CCP reduces the number of transactions from 11 to 4. The total counterparty risk goes from 360 to 90. The net position of the CCP is zero, although it maintains an exposure of 45 and a further 3 of the opposite sign that adds up to the same amount.

Source: CNMV, based on data from the European Association of CCP Clearing Houses (EACH). *How does clearing work?*

This centralising function of counterparty risk management in financial markets means that CCPs present a high degree of interdependence with banks since the main banks are precisely the most important clearing members of CCPs. Banks are also critical service providers for CCPs, providing custody and settlement, liquidity and collateral services. In addition, banks can be shareholders.

This interaction acquires systemic importance as a consequence of obligatory central clearing, the principle of mutualising losses among the clearing members in the event of default and the high degree of interdependence with the rest of the financial system, which makes it a potential source of financial contagion. However, the nature of their systemic importance differs from that of the banks due to their different roles and how these roles give rise to different risk profiles.

While CCPs are risk managers, banks are primarily risk takers. In general, a bank can be said to be dedicated to the transformation of liquidity and maturities and, therefore, is exposed to the credit risk of its borrowers, as well as the liquidity risk that arises from the mismatch between its sources of financing and its assets.

While the systemic importance of CCPs stems largely from their central and essential role in the market in which they operate, whereas that of the banks generally stems from the size and complexity of their activities, the two are interdependent, which also means that CCPs are affected by bank risks and vice versa.⁴

Unlike banks, CCPs do not generally operate with leverage and do not issue debt. The equity of a CCP is rather small relative to its clearing volume. The banks' lines of defence are based on their own funds and on the issue of debt to absorb losses, while the lines of defence of a CCP are supported mainly by the resources of its

4 See Hughes, D. and Manning, M. (2015). "CCPs and Banks: Different Risks, Different Regulations". *RBA Bulletin*. December.

members (prefunded or committed), especially banks. As explained in Section 3.2 of this document, these prefunded resources may include: i) the initial margin⁵ of the defaulting participant; ii) the contribution of said participant to the collective guarantee or the default guarantee fund;⁶ iii) a portion of the CCP's equity, known as "skin in the game" (SITG) and iv) contributions from other participants to the collective guarantee or default guarantee fund. In addition, the operating rules of CCPs usually envisage the possibility that, if necessary, the central counterparty will require its members to contribute fresh funds to absorb losses and additional resources to replace the prefunded resources, so that it can continue its activity.

Given its function and structure, a CCP cannot generally be the initial trigger of stress, as a CCP will only transmit stress after the default of one or more of its participants or of an investment counterparty.

If in this situation the initial margin and default funds were to be eroded, the ability of the CCP to regain its financial strength would depend on the ability of its clearing members to absorb large and unexpected losses. This could be challenging in situations of severe market stress, when banks may be under credit and liquidity pressures from multiple sources, may lack the resources to contribute to the CCP's recovery, or may even be in resolution themselves, or end up in resolution as a result of a CCP crisis. Consequently, CCPs could become a channel of contagion for systemic risk, to the detriment of financial stability. Therefore, due consideration of the macroprudential implications is essential when assessing the recoverability and resolvability of a CCP.

2.2 Simultaneous application of bank and CCP resolution regimes

In principle, a CCP should be able to withstand the simultaneous failure of the two clearing members to which it has the largest exposure.⁷ Consequently, it can be assumed that if a CCP were to enter into resolution due to default-related losses, this would mean that several of its biggest clearing members are in serious trouble. Likewise, it is reasonable to assume that these large clearing members – often Global

5 The Initial Margin is defined in the PFMI as collateral that is collected to cover potential changes in the value of each participant's position, i.e. potential future exposure, over the appropriate close-out period in the event that the participant defaults.

6 The guarantee or default guarantee fund is a prefunded default mechanism.

7 Principle 4 of the PFMI (Credit Risk) states the following: "(...). An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions". In line with the above, Article 42, paragraph 3, of the EMIR Regulation establishes the following: "The default fund shall at least enable the CCP to withstand, under extreme but plausible market conditions, the default of the clearing member to which it has the largest exposures or of the second and third largest clearing members, if the sum of their exposures is larger".

Systemically Important Financial Institutions (G-SIFIs) – will not fail either, but will instead enter into resolution.⁸

Hence, in the unlikely event of the resolution of a CCP, the bank and CCP resolution regimes will be applied simultaneously. This situation makes it advisable for the resolution authorities for the two processes to be different for reasons of effectiveness (due to the difficulty of simultaneously managing two highly complex resolution processes), efficiency (to optimise the available capacity of each of the authorities) and to prevent any potential conflict of interests in reaching the resolution objectives and in the exercise of their different functions concerning the CCP and its members.

In the resolution of a bank, the objectives are to maintain the key functions of the bank, normally related to its intermediation activity between depositors and borrowers, and to the protection of depositors, and the funds and assets of its customers. In the resolution of a CCP, the primary objectives are to ensure the continuity of its key functions, as a guarantor of the fulfilment of the obligations under the contracts in which it is involved. In both cases, the aim is to prevent any negative effect on financial stability and protect public funds.

The regulation and supervision of CCPs correspond to the securities markets, although, since there is a strong connection with both the banking sector and central banks, the rules ensure close coordination and cooperation, which also occurs at the level of the standard setters.

In the European Union, CCP resolution is not addressed under the Banking Union and the Single Resolution Mechanism, the competence to decide on and manage such resolution resting with the authorities of the Member States. The main reason is that the cost of the resolution, in the event that public aid is required, falls to the Member State, and no single system has yet been set up at the level of the European Union.

The probable simultaneous application of CCP and bank resolution regimes, however, reinforces the need for close coordination and cooperation among the authorities. In the European Union, this collaboration is ensured by the CCP R&R Regulation,⁹ since it stipulates that both resolution authorities and the supervisors of the banks that are members of the CCP will participate in the resolution college¹⁰ as voting members.

8 The agreements adopted by the G20 in the wake of the 2008 global financial crisis to address risks to the global financial system from systemically important financial institutions, deemed “too big to fail” include the adoption of effective resolution regimes that allow the bankruptcy of these entities to be managed in an orderly manner that limits the general impact on economic activity and without exposing taxpayers to loss. These bank resolution regimes have been implemented in FSB jurisdictions for the last ten years.

9 Regulation (EU) 2021/23 of the European Parliament and of the Council of 16 December 2020, on a framework for the recovery and resolution of central counterparties and amending Regulations (EU) No. 1095/2010, (EU) No. 648/2012, (EU) No. 600/2014, (EU) No. 806/2014 and (EU) 2015/2365 and Directives 2002/47/EC, 2004/25/EC, 2007/36/EC, 2014/59/EU and (EU) 2017/1132 (for further information, see Exhibit 1).

10 The CCP R&R Regulation provides a framework for close coordination between the authorities involved in any resolution of a CCP, through the Resolution Colleges. This ensures that resolution measures are

Participation in the resolution college is aimed, *inter alia*, at ensuring that information is shared and that the CCP plan measures do not disrupt the plans of the member banks, at considering the banks' loss-absorbing capacity and the resulting risk of contagion and, in short, at contributing to assessing the implications on financial stability of the resolution measures envisaged for the CCP.

The CCP R&R Regulation also recognises ESMA as the European authority of reference for CCP resolution. ESMA will create a permanent resolution committee (ESMA ResCo) with coordination and regulatory development functions similar to those currently performed by the EBA. The CCP resolution authorities will form part of ESMA ResCo as voting members, while the banking resolution and supervision authorities, including the EBA itself, will take part as observers.

In short, given that both bank and CCP resolution regimes can be activated simultaneously, and taking into account the complex interactions between banks and CCPs, the resolution regulations for both aim to factor in the consequences of the resolution of credit institutions on CCPs, and vice versa.

On the one hand, ensuring close cooperation between the authorities involved, providing tools and principles to ensure the effectiveness, proportionality and due consideration of the interested parties, in addition to financial stability and fiscal resources. And on the other, ensuring that resolution measures are applied in a balanced and proportionate manner, avoiding, as far as possible, the destruction of value and procyclical and disruptive effects.

2.3 Systemic importance of CCPs. Volumes, interconnections and concentration

Recent periods of turbulence in the financial markets due to the crisis caused by the COVID-19 pandemic have corroborated the benefits of central clearing for global financial stability.¹¹ Progress in implementing the reforms agreed by the G20 in response to the global financial crisis that began in 2008 has encouraged the use of CCPs and improved their resilience, recoverability and resolvability.

However, CCPs have also gained systemic importance with the shift to the obligation to centrally clear standardised OTC derivatives contracts.¹² This function has turned CCPs into risk nodes and interconnections in their own right, while their importance in Europe and globally has increased considerably, especially in the field of interest rate derivatives (IRD) and credit default swaps (CDS).

According to the OTC derivatives statistics published by the Bank for International Settlements (BIS), a large proportion of the US\$607 trillion worth of outstanding

applied consistently, taking into account the impact on the affected stakeholders and financial stability.

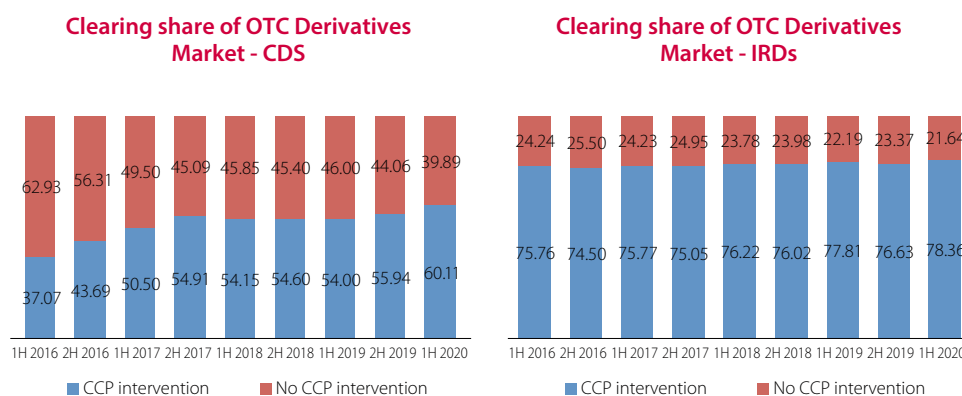
11 See FSB report (2020). *Holistic Review of the March Market Turmoil*. 17 November.

12 At the Pittsburgh summit on 26 September 2009, the G20 leaders agreed, among other measures to strengthen the international financial regulatory system, that by the end of 2012 all standardised OTC derivatives contracts should be cleared through a CCP and that OTC derivatives contracts should be reported to trade repositories.

derivatives contracts worldwide are cleared through CCPs, 16 of which are located in the European Union. As shown in Figure 1, at the end of the first half of 2020, more than 60% of CDS and almost 80% of IRDs were centrally cleared.

Growth of central clearing

FIGURE 1



Source: CNMV, and BIS (2020). *OTC derivatives outstanding* (Table D5.1 - D5.2).

The role of banks in the central clearing process takes on particular relevance in the case of Global Systemically Important Banks (G-SIBs). In fact, the more systemic the bank, the greater the number of CCPs of which it is a member. Therefore, central clearing can be considered a highly interconnected and concentrated process, as shown in Figure 2.

To more clearly understand and illustrate these relationships, the FSB, together with the CPMI, IOSCO and BCBS have analysed the interdependencies¹³ among clearing houses, clearing members and other financial service providers, confirming that a failure in one of the core elements of a network would probably have significant consequences for the rest of its components. The results of this analysis, published in 2018, corroborate the following:

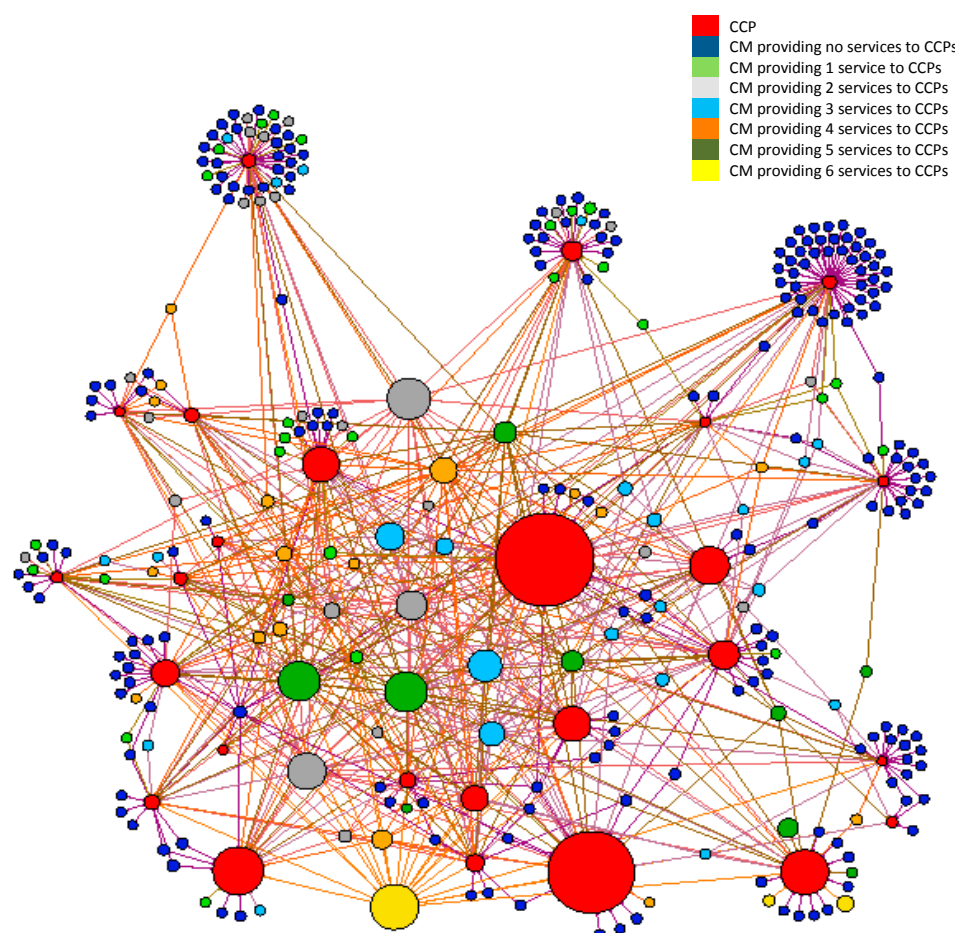
- Prefunded financial resources (initial margins and default fund) are concentrated in a small number of CCPs.
- Exposures to CCPs are concentrated in a small number of institutions.
- A small number of institutions tend to dominate the provision of all the critical services required by CCPs.
- Clearing members and their group entities are also major providers of other critical services required by CCPs and may maintain different kinds of relationships with multiple CCPs simultaneously.

13 FSB, CPMI, IOSCO and BCBS (2018). *Analysis of Central Clearing Interdependencies*.

Figure 2 provides a global overview of the network of relationships among clearing members and CCPs¹⁴ and illustrates the high degree of interconnectedness among the largest and most important clearing members, and between these entities and the CCPs in which they participate or to which they provide critical services. Most of these institutions are global systemic banks.

Relationships between CCPs and service provider members

FIGURE 2



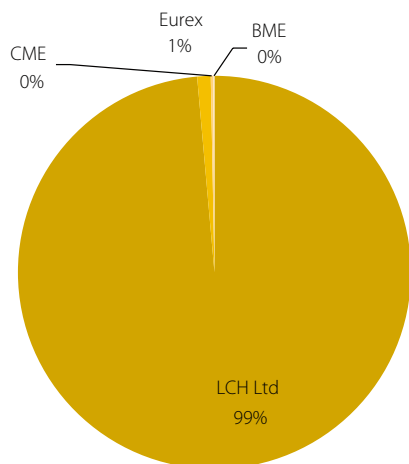
Source: Image taken from FSB, CPMI, IOSCO and BCBS (2018). *Analysis of Central Clearing Interdependencies*, p. 12.

A study published by the BIS¹⁵ corroborates the observation that as OTC derivatives clearing has grown, it has become increasingly concentrated in a smaller number of CCPs. This trend is clear in the case of CDS and even more so for interest rate derivatives (IRDs). For example, for transactions in euros, ICE Clear Europe has a clearing share of 48% of CDS and LCH SwapClear has a share of over 98% in IRD transactions in euros (Figure 3).

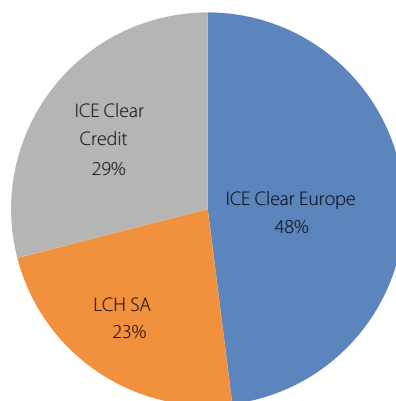
14 In the figure, the CCPs are represented in red and the differently-coloured nodes are the members that also provide various services. The size of the CCP nodes represents an approximation of the clearing house's credit risk exposure to all its clearing members. The size of the clearing member node is a measure of the total prefunded financial resources that the member has deposited or contributed among all CCPs to which it belongs, so that these nodes represent its exposures to CCPs.

15 Faruqi, U., Huang, W. and Takáts, E. (2018). "Clearing risks in OTC derivatives markets: the CCP-bank nexus". *BIS Quarterly Review*. December.

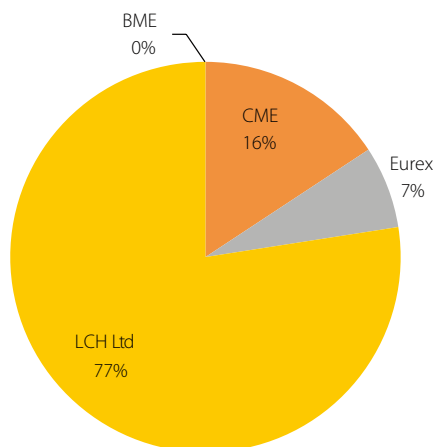
Concentration in IRDs (notional amount)



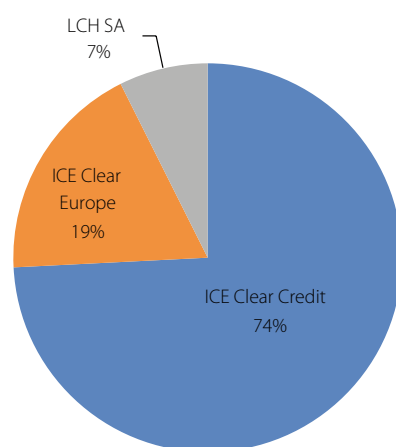
Concentration in CDS (notional amount)



Concentration in IRDs (initial margins)



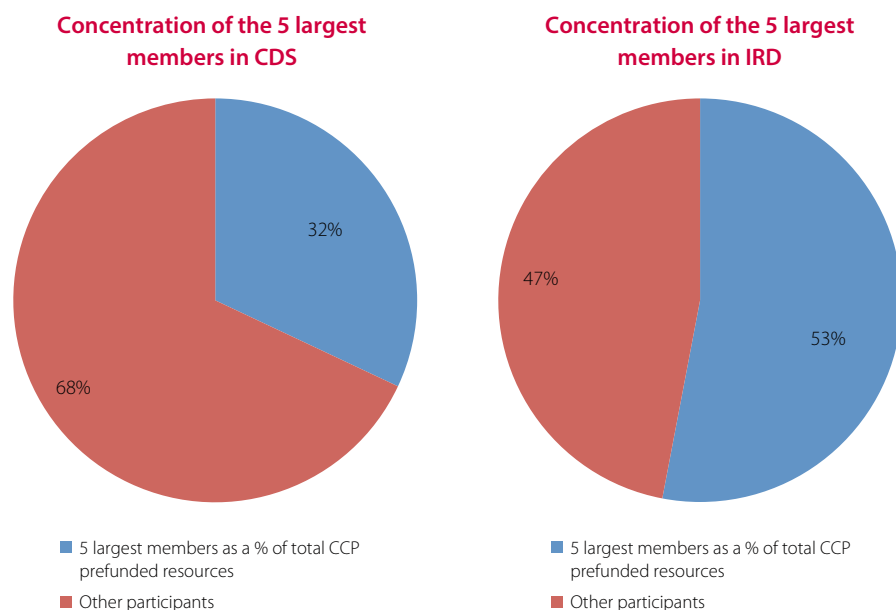
Concentration in CDS (initial margins)



Source: Khwaja, A. (2019). "2018 CCP Market Share Statistics". Clarus Financial Technology. EACH - Public Quantitative Disclosure of CCPs. Available at: <https://www.eachccp.eu/cpmi-iosco-public-quantitative-disclosure/> and <https://www.cmegroup.com/clearing/cpmi-iosco-reporting.html>.

In terms of the initial margin (although this is not a commonly used parameter to measure market share), LCH would have a 77% share in IRDs and ICE Clear Credit a share of 74% in CDS. Measured in terms of notional amount, however, LCH Swap Clear would have a share of close to 100%.

This work also shows that a small group of systemically important institutions (all banks) contribute half of the prefunded resources in CDS and a third in IRDs to CCPs on a global level (Figure 4). This is because it is cheaper for banks to participate in a limited number of CCPs and because of the efficiency of multilateral clearing between different counterparties, which reduces the total margin amount. Thus, the lower the number of CCPs through which a bank operates, the lower the associated collateral and capital requirements.



Source: CNMV, and Faruqi, Huang and Takáts (2018). (*Op. cit.*).

At the European level, ESMA has analysed the concentration of clearing member margins in CCPs¹⁶ and concludes that although the level of concentration in the five largest members is low on average, there is great disparity among CCPs in the European Union, and some of these have a large concentration in a small number of members, which may have significant implications for financial stability.

The ESRB for its part has established a series of indicators to monitor the evolution and trends in central clearing in the European Union from a macroprudential standpoint.¹⁷

In summary, the growth in the global clearing of OTC derivatives has made this activity highly systemic and characterised by a high level of interconnectedness and concentration in banks and CCPs alike. This occurs, among other reasons, because the main clearing members operate simultaneously through several CCPs (while the CCP is unaware of the resources committed in other CCPs) and normally provide custody, settlement or financing services that are important to the continuity of the basic functions of the CCP. Therefore, the behaviour and risks of banks and CCPs are closely related.¹⁸

¹⁶ ESMA (2020). *EU Derivatives Markets. Annual Statistical Report 2020*, p. 43.

¹⁷ In addition to the indicators that the ESRB includes in its risk panel, the working document Alfranseder, E., Fiedor, P., Lapschies, S., Orszaghova, L., Sobolewski, P. (2018). *Indicators for the monitoring of central counterparties in the EU*. ESRB Occasional Paper Series, No. 14, March, offers a complete overview of the appropriate indicators for monitoring the systemic risk inherent in CCPs and makes some proposals to improve the quality of the information available for compiling these indicators.

¹⁸ Domanski, D., Gambacorta, L. and Picillo, C. (2015) "Central clearing: trends and current issues". *BIS Quarterly Review*. December, discusses the multiple links between banks and central clearing that can help

3 Strengthening the resilience and resolvability of CCPs

As the systemic importance of CCPs and their pivotal role in the financial system have increased, the authorities have made significant efforts to make them more resilient. In particular, a strict risk management policy has been implemented, along with rigorous stress tests, and measures have been introduced to reduce the procyclicality of margins.

In parallel, capital requirements have been imposed on members to ensure that banks' capital and liquidity cover the risks associated with their exposure to CCPs.¹⁹ Transparency has been improved and supervision and cooperation between the authorities involved have been strengthened, both at national and cross-border level. More recently, the foundations of an effective resolution system have been laid.

3.1 Principles and regulation on resilience, recovery and resolution

The CPMI-IOSCO Principles for Financial Market Infrastructures (PFMI)²⁰ published in 2012 represent a milestone in the regulation of CCPs, together with the revision of the FSB Key Attributes²¹ in 2014 to adapt them to market infrastructures. In 2017, as a result of the joint work of the FSB, CPMI, IOSCO and BCBS:

- CPMI and IOSCO established additional guidance on PFMI in relation to the resilience of CCPs,²² in particular on governance, credit and liquidity stress tests and CCP contributions to losses with their own financial resources.
- CPMI and IOSCO also updated their 2014 guidance on the recovery of financial market infrastructures²³ to provide clarification on the operability of recovery plans, losses unrelated to member default, and transparency in regard to recovery tools and their application.
- The FSB published its guidance on CCP resolution planning, which provides direction on the implementation of the Key Attributes, discusses the use of loss allocation tools, the development of resolution plans and the formation of crisis management groups (CMGs) for CCPs considered systemically important in more than one jurisdiction.²⁴

amplify systemic risks and concludes on the need to improve the understanding of the implications of these for the financial system under normal and stressed conditions.

19 Capital requirements for bank exposures to CCPs can be found in BCBS (2019). *Capital requirements for bank exposures to CCP*.

20 CPMI-IOSCO (2012). *Principles for financial market infrastructures*. April.

21 FSB (2014). (*Op. cit.*)

22 CPMI-IOSCO (2017). *Resilience of central counterparties (CCPs): further guidance on the PFMI*. July.

23 CPMI-IOSCO (2017). *Recovery of financial market infrastructures*. July (revision of the same document of October 2014).

24 FSB (2017). *Guidance on central counterparty resolution and resolution planning*. July.

More recently, and as a continuation of the work to improve the capacity of a CCP to effectively manage the default of its members and, consequently, improve its resilience, the CPMI-IOSCO has published a document on aspects to consider in auctions²⁵ of positions of defaulting members, in order to help improve these processes.²⁶

In the European Union, the regulation of CCPs and the obligation to centrally clear OTC derivatives are included in Regulation (EU) 648/2012 (EMIR),²⁷ based on the PFMI. In 2019, this Regulation was amended to strengthen the supervision of CCPs from third countries with systemic importance in the European Union.²⁸

To date, not all jurisdictions with systemic CCPs have a recovery and resolution regime for these institutions. According to the latest resolution report published by the FSB, only six of the ten jurisdictions that have systemic CCPs have approved a specific regulation.²⁹

In the European Union, this Regulation was recently approved under the CCP R&R Regulation, a synthesis of which is presented in Exhibit 1.

3.2 CCP lines of defence. Use of the default waterfall

Under the PFMI, systemically important CCPs must have a sound, comprehensive and appropriate risk management system for the continuous operation of their critical services, while offering incentives to participants, shareholders, clients and other stakeholders to take part in this system and carry out their functions properly. To guard against circumstances in which the resources and tools available to a normal CCP are not sufficient, there must be recovery and resolution plans containing additional measures at the disposal of the CCP and its resolution authorities.

Illustration 2 shows the financial resources for addressing defaults in each of the phases.³⁰

25 These auctions can be used by CCPs to transfer positions from a defaulting participant to a non-defaulting participant, allowing the CCP to restore its matched book.

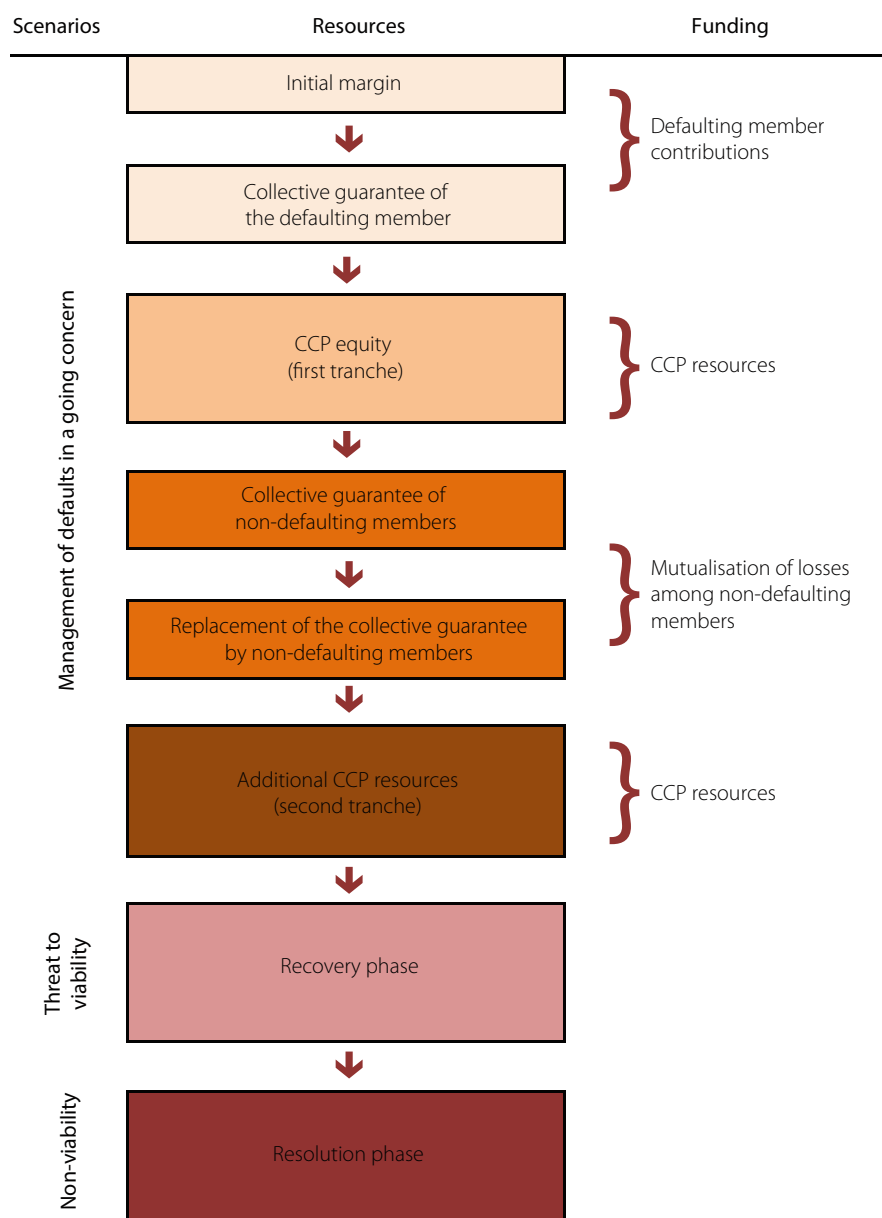
26 CPMI-IOSCO (2020). *Central counterparty default management auctions – Issues for consideration*. June.

27 Regulation (EU) No. 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

28 Regulation (EU) 2019/2099 of the European Parliament and of the Council of 23 October 2019 amending Regulation (EU) No. 648/2012 as regards the procedures and authorities involved for the authorisation of CCPs and requirements for the recognition of third-country CCPs.

29 FSB (2020) *2020 Resolution Report*. November.

30 According to the PFMI, the management of defaults by a CCP must include, among other things, mechanisms that allow the positions of defaulting members to be managed and closed, and any collateral realised in a prudent and orderly manner. This process may involve hedging open positions, funding collateral so that positions can be closed over time, auctioning defaulting members' positions, or assigning the open positions to other non-defaulting members.



Source: CNMV.

3.2.1 Risk management as a going concern

Central clearing is based on the principle that CCPs always have a matched book and on the mutualisation of losses in the event of default that cannot be covered by the collateral posted by their members to cover the potential risk of their positions. Thus, the main lines of defence to offset losses due to counterparty risk are the resources contributed by the clearing members, the initial margin, the contributions to the default fund, and possible further contributions from the members, in addition to the part of the CCP's equity or "skin in the game" (SITG). These resources make up what is known as a "default waterfall".

Thus, if a member defaults, the CCP will unwind its positions, normally auctioning these off among the other members, and cover the remaining loss with the initial margins of the defaulting member and its contribution to the default fund. If necessary, the CCP will use part of its capital and, ultimately, resort to the contributions made to the default fund by the remaining members.³¹

While clearing members provide significant prefunded resources to CCPs to reduce the risks arising from potential default, this line of defence may be insufficient to deal with extreme situations.

3.2.2 Recovery

For this reason, and as part of the risk management process, CCPs must draw up an effective recovery plan for extreme circumstances that could threaten their viability and financial soundness, which would allow them to continue providing critical services if these circumstances were to arise.

The recovery plan must address extreme conditions that may lead to uncovered losses, liquidity shortfalls or insufficient capital, as well as any structural weaknesses. The recovery plan should also deal with the need to replenish prefunded financial resources and liquidity arrangements so that the CCP can remain viable as a going concern and continue to provide critical services.

To do this, the CCP must consider a series of available recovery tools that allow it, in the different identified scenarios, to allocate losses for which there are no prefunded resources and cover liquidity shortfalls, restore the matched book and replenish the financial resources used, including the CCP's equity, in order to continue to provide critical services.

The tools must be transparent, included in the CCP's internal rules and designed to allow its participants to control and manage their potential risk exposure, while creating the right incentives for all parties involved to control the amount of risk that affects the system, and participate in the management of risks and defaults. The tools should also be designed to minimise the negative impact on direct and indirect participants and the financial system in general.³²

3.2.3 Resolution

Although the possibility is remote, if the waterfall is not sufficient to cover the losses and the recovery plan is unable to restore the viability of the FMI or has not been implemented in a timely and appropriate manner, the authorities would, as indicated in the Key Attributes, have the power to require the CCP to enter into resolution.

31 A full description of how the CCP's lines of defence work and are calculated can be found in Núñez, S. and Valdeolivas, E. (2019). "Central counterparties: benefits, costs and risks". Bank of Spain, *Financial Stability Review*, No. 36.

32 CPMI-IOSCO report (2017). *Recovery of financial market infrastructures*. July, provides a complete overview of the recovery planning process, the content of recovery plans and the possible tools that can be considered, as well as the scenarios that can trigger their use and the characteristics of the most suitable tools in the context of those scenarios.

This decision could also be taken when, even if the recovery plan has not been fully implemented, the authority considers that the recovery measures will not be sufficient to restore the viability of the CCP or financial stability is likely to be compromised.

Unlike the recovery phase, which the CCP itself is responsible for activating and implementing, a resolution can only be triggered by the decision of a resolution authority.

In the European Union, the recently approved and published CCP R&R Regulation provides the appropriate legal framework to manage situations that imply the non-viability of a CCP (see Exhibit 1). The European Regulation is based on the FSB's Key Attributes and on the same principles as the recovery and resolution framework that applies to banks. However, given that the business carried out by CCPs is very different from that of banks, the tools contained in the Regulation are better aligned with the risk and business profile of these entities. Exhibit 1 contains a summary of its main elements.

European Regulation on the recovery and resolution of central counterparties

EXHIBIT 1

The main objectives of the CCP R&R Regulation are: to ensure the continuity of critical CCP functions, maintain financial stability and ensure taxpayers are not exposed to costs associated with restructuring and resolution of bankrupt clearing houses.

The new Regulation is based on the following pillars:

- **Prevention and preparation.** CCPs and resolution authorities are required to develop recovery and resolution plans setting out how to manage any form of financial difficulty that depletes the CCP's existing resources. If the resolution authorities identify any obstacles during the course of the planning process, they may require the CCP to take appropriate action to remove them.
- **Early intervention.** The supervisory authorities have early intervention powers that allow them to act before a problem becomes critical and the financial situation deteriorates irreparably. For example, they may require the CCP to take specific actions in its recovery plan or to make changes to its business strategy or legal or operational structure.
- In the unlikely event of the failure of a CCP, the national authorities may use **resolution tools** to restore the matched book and absorb losses. Such tools include the cancellation of contracts, the write-down of own instruments, cash calls on clearing members, variation margin gains haircutting, sale of the CCP or parts of its business, or the creation of a bridge CCP. Although the purpose of the resolution measures is to prevent the costs associated with the failure of a CCP being passed on to the taxpayer, in

exceptional circumstances the regulation envisages, as a measure of last resort, the possibility of providing extraordinary public support on a temporary basis, providing there is a solid and credible recovery plan in place.

The CCP R&R Regulation does not specify which tools and competencies should be used in each of the possible resolution scenarios. It leaves the choice of the most appropriate tool for each situation to the discretion of the resolution authority. Whenever possible, the resolution authority should act in accordance with the agreed resolution plan.

- **Safeguards and compensation.** The use of resolution tools is governed by certain safeguards to ensure that all affected parties are treated fairly. Thus, the Regulation endorses the ‘no creditor worse off’ (NCWO) principle, according to which no creditor should be worse off in the event of resolution than it would be if the CCP went into liquidation. The Regulation also provides for a compensation mechanism that allows the resolution authorities to require the CCP to compensate non-defaulting members entitled to a NCWO claim with shares of the CCP, debt instruments or rights to future earnings.
- **Institutional framework and coordination between authorities and jurisdictions.** Each State must designate at least one resolution authority, there being no resolution authority for CCPs at the European level, in contrast with the situation for banks, where there is the Single Resolution Mechanism. The resolution authority must have operational and functional independence to prevent any conflict of interest with the supervisor, but they must act in a coordinated manner.

Taking into account the global and systemic nature of CCPs, the Regulation establishes close coordination between national authorities and those of other jurisdictions in which the CCP is relevant within the framework of resolution colleges, in order to ensure that the resolution measures are applied consistently, taking into account the impact on the affected stakeholders and financial stability.

ESMA plays a key role as the European reference authority for CCPs. A permanent committee has been created, the ESMA Resolution Committee, with coordination and regulatory development functions similar to those of the European Banking Authority (EBA), on which the CCP resolution authorities will sit, with the bank resolution and supervisory authorities (including the EBA) as observers.

- The CCP R&R Regulation also provides for the possibility of **temporarily suspending the central clearing obligation** for CCPs in resolution, when this serves the overall purpose of preserving financial stability. The decision will be made by the European Commission, at the request of the resolution authority for the CCP in resolution or its competent authority, following a non-binding opinion from ESMA. This decision should only be taken when it serves the overall purpose of preserving financial stability and market

confidence, in particular, to prevent contagion and avoid counterparties and investors having large and uncertain exposures to a CCP.

The Regulation **comes into force immediately, with staggered application** over a period of up to two years, so that during that period the second-level regulation can be developed and approved for practical implementation, the corresponding resolution authorities can be appointed and the resources necessary for the exercise of their functions can be provided.

It was published on 22 January 2021. The provisions for recovery plans are applicable from February 2022. The provisions regarding the CCP's second tranche of equity and rights to future profits in recovery are applicable from February 2023 and the remaining provisions will apply from August 2022.

Although in Spain no CCP resolution authority has been officially designated to date, the CNMV, in its capacity as the competent authority for supervision, has been exercising this function in the preparation and analysis of CCP resolvability. In accordance with FSB guidelines, the CNMV has created and chairs the crisis management group at BME Clearing, the forerunner of its resolution college. In terms of organisation and resources, since 2015, the CNMV has had a unit in place to which resolution functions have been assigned, which is hierarchically and functionally separate from the units that carry out the supervisory functions of the CCP, as required by the European Regulation.

The new European Regulation provides a set of instruments and powers that the resolution authority may apply in different circumstances to deal with the non-viability of a CCP, requiring compliance with all pending contractual obligations whenever possible. In the case of member default losses, the resolution authority must rematch the CCP's portfolio and allocate outstanding losses through position and loss allocation instruments. Non-default losses must be absorbed by shareholders' equity instruments. If these instruments are not sufficient, the resolution authorities can write off the debt and the unsecured liabilities, in accordance with their priority under applicable Spanish insolvency regulations and apply loss allocation instruments to the necessary extent and without jeopardising overall financial stability. Table 1 lists the resolution tools envisaged in the new European CCP R&R Regulation.

Loss allocation tools

Cash calls on non-defaulting members	➔	To cover default and non-default losses, restore its ability to meet its payment obligations, replenish prefunded resources, and recapitalise the CCP. Cap: twice the contribution to the default fund. They must be included in the CCP regulations.
Variation margin gains haircutting	➔	To cover default and non-default losses, restore its ability to meet its payment obligations, replenish prefunded resources, and recapitalise the CCP. Cap: one x the contribution to the default fund to cover non-default losses. They must be included in the CCP regulations.

Position allocation tools

Total or partial termination of contracts	➔	Termination of contracts affected by the default, or if necessary, of all contracts, to restore a matched book.
---	---	---

CCP loss absorption tools

Write-down and conversion of equity and debt instruments	➔	To absorb losses, recapitalise the CCP or the bridge CCP, or support the sale of the business instrument. Shareholders' instruments should be written-down prior to the use of loss allocation tools in favour of non-defaulting members or in conjunction with this measure unless a different sequence can minimise deviations from the NCWO principle and better achieves the resolution objectives.
--	---	---

Asset transfer tools

Sale of business	➔	Sale of all or part of the CCP to another entity.
Bridge CCP	➔	The authority creates a bridge CCP to which the essential functions would be transferred. This could be sold at a later date. Non-essential functions would be wound down.

Government stabilisation tools

Public equity support	➔	Public financial support for the recapitalisation of a CCP in exchange for instruments of ownership. Last resort. At the same time, the write-down and conversion of equity and debt must be implemented. Credible State recovery plan.
Temporary public ownership	➔	The CCP would move into temporary public ownership through the transfer of instruments to the State. At the same time, the write-down and conversion of equity and debt must be implemented. Credible State recovery plan.

Source: CNMV, based on the CCP R&R Regulation.

Annexes 1 and 2 present practical examples of the application of resolution tools based on the allocation of losses caused by default of CCP members, in various scenarios, and by other events beyond their control.

In addition, the resolution authority must, once the losses have been absorbed and the portfolio has been rematched, ensure that the prefunded resources are restored to the levels required for the CCP to continue operating, following the applicable regulation. Lastly, the resolution authority should be able to compensate non-defaulting clearing members who are entitled to such compensation, in accordance with the NCWO principle, if the application of loss allocation instruments would result in larger losses than those that they would have suffered as a result of their obligations under the CCP's operating rules.

For a CCP to be resolved successfully, adequate financial resources and tools must be in place to support an orderly resolution and minimise any adverse effect on financial stability. As seen in previous sections, given the capital structure of a CCP and the absence of loss-absorbing debt, its loss-absorbing capacity when in distress depends largely on its members, through prefunded resources, such as the default fund, or committed resources, such as cash calls. The use of these resources may compromise the solvency of the members, create lines of contagion through their customers or other financial institutions, and could also be procyclical, exacerbating liquidity problems in times of stress. Similarly, the lack of suitable resources or tools would prevent the resolution authority from achieving its resolution objectives and could lead to greater financial instability.

As part of their resolution planning, the resolution authorities should periodically assess the adequacy of existing tools and resolution scenarios, and attempt to estimate their impact on the financial resources available for use in resolution, as well as the possible implications for financial stability deriving from their use.

To help authorities determine whether there are any gaps in the resources and tools available for resolution that need to be addressed, the FSB has published Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution, discussed in Section 4.

3.2.4 Advances in resolution planning

As the resolution of CCPs is a priority on the G20 agenda, one of the FSB's objectives is to achieve progress in resolution planning and analysis of the resolvability of CCPs considered to be of systemic importance in more than one jurisdiction, regardless of whether the corresponding jurisdictions have a specific legal resolution framework. For this purpose, the FSB has asked the authorities to set up Crisis Management Groups (CMGs) for these CCPs, made up of the relevant resolution and supervisory authorities of the jurisdictions involved in order to improve resolution preparation and facilitate its management and coordination at cross-border level.

There are currently 13 CCPs that are systemically important in more than one jurisdiction.³³ All the entities on the list, except one that has been recently included, have a CMG.³⁴

33 The CPMI-IOSCO has identified these entities since 2017 and they are reviewed every two years using the FSB Guidance on CCP resolution and planning as a reference (SI > 1).

34 FSB (2020). *2020 Resolution Report*. 18 November.

List of CCPs that are systemically important in more than one jurisdiction

TABLE 2

CCP	Home jurisdiction
BME Clearing	Spain
CC&G	Italy
CME Inc.	USA
Eurex Clearing	Germany
EuroCCP	Netherlands
HKFE Clearing Corporation	Hong Kong
ICE Clear Credit	USA
ICE Clear Europe	United Kingdom
LCH Ltd	United Kingdom
LCH SA	France
Nasdaq Clearing	Sweden
Options Clearing Corporation	USA
SIX x-clear	Switzerland

Source: FSB (2020). *2020 Resolution Report*. 18 November.

Throughout 2021, the corresponding authorities, in coordination with the CMGs of the systemically important CCPs are expected to make significant progress in planning and assessing the resolvability of these infrastructures.³⁵

Specifically, resolvability will be assessed focusing on the adequacy of the financial resources available. To facilitate this assessment, work is under way to define scenarios that could lead to the resolution of CCPs. This definition is key to quantifying funding needs, so the stress events used must go beyond any extreme but plausible circumstances. However, it is not easy to accurately develop these types of scenarios to make them credible.

For this purpose, reverse stress tests could also be carried out, where the starting point is the non-viability of the CCP, with losses exceeding the available resources, and from there the scenarios that could lead to this situation are identified.

3.3 Importance of stress testing

The large number of interconnections and interdependencies of central clearing at cross-sector and cross-border level is undoubtedly the greatest indicator of its concentration of systemic risk (see Section 2.3 of this article). Therefore, further work must be done to better identify, measure and control this risk at a global level. We would highlight the work undertaken by the FSB in this area³⁶ in 2017 (based on data at 30 September 2016) to identify, quantify and assess the interdependencies among CCPs, their clearing members and service providers (custodians, settlement

35 The work plan is laid out in the FSB (2020). *2020 Resolution Report*. 18 November 2020.

36 FSB, CPMI, IOSCO and BCBS (2017). (*Op. cit.*).

banks, credit and liquidity providers, and investment counterparties), as well as their systemic implications. This study was last updated and expanded in 2018.³⁷

The study, which is unique in the global central clearing field, provides a good starting point for understanding the possible sources of systemic risk in this activity, although, as the report itself recognises, it is not an exercise or stress test aimed at assessing the resilience of the framework that supports central clearing on a world-wide scale, but is limited to analysing its level of interconnection.

At the European Union level, ESMA, in coordination with the ESRB and national supervisory authorities, has been conducting stress tests since 2016 to assess the resilience of the European CCP sector to defaults by its members and market shocks. These assessments are carried out annually, in accordance with EMIR. The last test carried out, the results of which were published in July 2020, confirms the overall resilience of European Union CCPs to shocks defined by the ESRB and multiple defaults by their members, to liquidity and concentration risk (no systemic risks were identified, although the test did prompt several recommendations aimed at improving CCP risk management systems).³⁸

Although these tests are important for assessing the level of resilience to severe but plausible shocks, they are not designed to assess the risk that would affect the financial system as a result of the failure of one or more of the main central clearing nodes.

The direct interdependence of central clearing with the banking sector – and indirectly with the non-banking financial sector – mainly with the buy side, as their client, suggests that it is advisable to carry out further joint and coordinated testing, both at sector and cross-border level, to identify how sector imbalances are transmitted and spread and ways of improving the global resilience of the financial system.

One measure that can be envisaged is to improve transparency and access to information on levels of risk exposure of interconnected entities, both for the entities that must manage their risks and for the authorities, as an essential factor for strengthening the resilience of the global financial system.

In conclusion, we would stress the importance of increasing global cooperation in the identification, measurement and control of systemic risk inherent to central clearing in order to obtain conclusions about the impact that the default of an entity could have on the financial system or the real economy, and to better understand the risk transmission channels through CCPs.

37 ESMA (2020). *3rd EU-wide CCP Stress Test Report*. 13 July.

38 FSB, CPMI, IOSCO and BCBS (2018). (*Op. cit.*).

4 FSB 2020 Guidance on financial resources to support CCP resolution

The FSB 2020 Guidance was drawn up by the FSB Cross-border Crisis Management Group for Financial Market Infrastructures (fmiCBCM), in close collaboration with CPMI and IOSCO.

This group, which reports to the FSB Resolution Steering Group (ReSG), a permanent high-level group that reports directly to the FSB plenary, has the primary role of developing standards and guidance on resolution of systemically important financial institutions and preparing, coordinating and assisting in crisis management. The ReSG has three working groups with sector mandates: the cross-border crisis management group for banks (bankCBCM), the cross-border crisis management group for insurance (iCBCM) and the cross-border crisis management group for market infrastructures (fmiCBCM).

Currently, the fmiCBCM group is co-chaired by a representative of the US resolution authority, Ricardo Delfin, of the Federal Deposit Insurance Corporation (FDIC) and by María José Gómez Yubero, of the CNMV.

When planning the resolution of a CCP, it is necessary to ensure that the proper resources and tools are available, and to understand the potential adverse effect that the use of certain resources and tools could have on financial stability in a resolution scenario.

This guidance aims to identify and assess the sufficiency and suitability of the financial resources and the treatment of capital to support an orderly resolution and minimise any adverse effect on financial stability.

It provides operational guidance on the issues to be taken into account when carrying out the assessment, but does not provide international regulatory responses beyond those already defined in the Key Attributes and other documents aimed at facilitating their practical application.³⁹

The guidance is divided into two parts. The first contains guidelines for assessing the adequacy of financial resources to absorb losses and cover other costs in resolution. The second sets out possible approaches for the treatment of CCP equity in resolution.

39 The *Key Attributes of Effective Resolution Regimes for Financial Institutions* establish a framework for the resolution of market infrastructures, including CCPs. The Annex to the Key Attributes specifies how these are implemented for the resolution of market infrastructures, including CCPs. *Appendix II-Annex 1 to the Key Attributes* (FMI Annex). *Guidance on Central Counterparty Resolution and Resolution Planning* (FSB Guide 2017) provides guidance on the application of the Key Attributes.

4.1 Assessing the adequacy of financial resources to support CCP resolution

The resolution authority (RA) of a systemically important CCP, in cooperation with the CCP's supervisory authorities, should develop and regularly update a resolution plan that addresses the different scenarios that could lead a CCP to resolution, as well as carrying out periodic evaluations of resolvability to confirm the feasibility and credibility of the plan. Both the resolution plan and the resolvability assessment should be discussed within the crisis management group.

Resolution scenarios may arise for two reasons, separately or jointly:

- **Default Losses (DL):** Situation that occurs when the CCP has declared a default by one or more clearing members.
- **Non-Default Losses (NDL),** where the CCP suffers losses for any reason other than a default of a member, such as lack of commercial viability or fraud, legal risks, operational failures, matters relating to deposits or investments, including the loss of viability caused by cyberattacks.

As part of planning, the RA should identify the financial resources and tools that it can reasonably expect to be available at the time of entry into resolution and assess whether they would be sufficient to achieve the resolution objectives in each of the scenarios, as well as the resources that it expects will remain available, following the rules of the CCP, at the time of entry into resolution to:

- Address uncovered losses.
- Replenish resources in accordance with applicable requirements within an appropriate time frame.
- Cover the costs associated with maintaining the critical functions of the CCP until resolution.
- Satisfy temporary liquidity needs.

To do this, the guide proposes a five-step process (Table 3) which is analysed below.

Five-step process to assess the adequacy of financial resources and tools available

TABLE 3

Step 1	➔	Identifying hypothetical default and non-default loss scenarios (and a combination of these) that may lead to resolution.
Step 2	➔	Conducting a qualitative and quantitative evaluation of existing resources and tools available in resolution.
Step 3	➔	Assessing potential resolution costs.
Step 4	➔	Comparing existing resources and tools with resolution costs and identifying any gaps.
Step 5	➔	Evaluating the availability, costs and benefits of potential means of addressing any identified gaps.

Source: FSB 2020 Guidance and CNMV.

4.1.1 Step 1: Identifying scenarios

The RA must first consider a range of default loss scenarios, non-default loss scenarios and a combination of both in its resolution planning. When doing so, the resolution authority should recognise that the circumstances leading to a CCP resolution are likely to be beyond the extreme but plausible market conditions for which a CCP should hold sufficient prefunded financial resources.

Non-default loss scenarios (NDL)

In accordance with the PFMI, CCPs should include comprehensive loss allocation procedures in their recovery planning. However, in extreme situations, a CCP's resources and tools might not be sufficient to fully cover potential non-default losses and a wind-down of the CCP could pose financial stability risks because of a failure to maintain the CCP's critical functions. Therefore, the RA should consider in its resolution plans at least the following risks when defining the scenarios for NDL:

- **Investment risk.** The risk that losses on investments of initial margin or default fund assets could arise for various reasons, such as the failure of a counterparty or due to investment losses.
- **Failure of a custodian, depository, a payment or settlement bank, a securities settlement system or other entity providing similar services.** As a result of such failure, the CCP could lose access to its assets or have difficulty converting collateral in the form of financial instruments into cash. This could cause liquidity and/or solvency challenges to a CCP, depending on the nature of the failure and the time it takes to regain access to the assets.
- **Operational risk.** Losses or liquidity challenges could result from a range of operational failures, such as human error, information technology failure, fraud, cyber incident, or non-performance of service providers.
- **Legal risk.** Crystallisation of legal risks, including legal, regulatory or contractual penalties could lead to significant losses or uncertainty for the CCP.

The RA must design scenarios in which the CCP’s recovery plan is not sufficient to fully cover possible losses and the CCP has to be brought to resolution.

Default loss scenarios

As we have already seen, this is the risk of default of several clearing members. To identify the scenarios for the treatment of default losses, the RA must take into account the loss allocation arrangements developed in accordance with the PFMI. The RA must design scenarios in which the arrangements fail and an orderly wind down is not appropriate, which would lead to the resolution of the CCP.

The FSB 2020 Guidance proposes that the RA should consider in its resolution planning at least the following hypothetical default loss scenarios.

Non-default loss (NDL) and default loss (DL) scenarios to consider in the resolution plan

TABLE 4

Default Losses (DL)	Non-Default Losses (NDL)
<ul style="list-style-type: none"> • The CCP does not have sufficient resources and tools for recovery, as established by PFMI. • The CCP’s loss allocation arrangements set out in the recovery plan do not work as intended. • Multiple clearing members fail to meet their obligations under the CCP’s recovery plan. • The relevant authorities establish that resolution must be initiated before any of the agreements or tools in the CCP’s recovery plan are implemented. 	<ul style="list-style-type: none"> • The CCP does not have sufficient financial resources or tools to cover NDL. • Specific CCP arrangements to cover NDL in the recovery plan cannot be used or do not work as intended. • The clearing members of the CCP do not meet their obligations in the event of recovery. • The shareholders of the CCP do not support the actions agreed in the event of recovery of the CCP. • The relevant authorities establish that the resolution must be initiated before some of the recovery agreements or tools are applied or before the CCP goes into liquidation.

Source: CNMV, based on FSB 2020 Guidance.

Public consultation on FSB 2020 Guidance.¹
Identifying scenarios

EXHIBIT 2

The identification of these scenarios was a disputed issue in the consultation on FSB 2020 Guidance. On the one hand, the CCPs considered the proposed scenarios to be severe and implausible, not compatible with current international standards and contrary to the incentive system that supports central clearing. However, clearing members supported the idea that the circumstances leading to the resolution of a CCP are likely to go beyond the severe but plausible conditions for which a CCP should have sufficient prefunded resources. In the end, FSB 2020 Guidance recommended that RAs consider resolution scenarios that go beyond those used in recovery planning.

1 FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

4.1.2 Step 2: Qualitative and quantitative evaluation of existing resources and tools available

The RA should conduct a qualitative and quantitative evaluation of the existing financial resources and tools in the various scenarios identified above to assess whether the CCP has sufficient resources to facilitate an orderly resolution. To do this, the RA must take into account:

- i) Possible adverse effects on **financial stability** that may render the resource or tool unusable or unavailable in resolution.
- ii) The feasibility and credibility of achieving the resolution objective of maintaining the **continuity of critical functions**.
- iii) The need to **avoid exposing taxpayers to loss**.
- iv) The potential impact on **stakeholders' incentives** to support recovery or resolution.

It is also necessary to identify the legal and operational limitations to the competences of the RA at national or cross-border level, as well as the implications of the “no creditor worse off than in liquidation” (NCWOL)⁴⁰ safeguard and the potential for related compensation claims. In each scenario, the RA must take into account the implications arising from the specific types of products cleared, the likely speed of crystallisation of a particular scenario and the risks of implementing the plan, including the risk that a resource is not available, or a tool cannot be used as intended or in a timely manner.

The FSB 2020 Guidance indicates that the RA may also consider developing resolution playbooks, and conducting crisis simulation exercises in coordination with other authorities, to understand the practicality and feasibility of the resolution plan.

To assess each specific resource or tool (Table 5 shows the tools included in the FSB 2020 Guidance that can be used in DL/NDL scenarios), the RA must take into account specific factors as described below.

40 “No creditor worse off than in liquidation” principle (NCWOL), according to which no creditor should be worse in the event of a resolution than it would have been if the CCP had gone into liquidation.

Default Losses (DL)	Non-Default Losses (NDL)
<ul style="list-style-type: none"> • Cash calls. • Variation Margin Gains Haircutting (VMGH). • Full tear-up or partial tear-up of contracts. • Replacement of minimum resources. • CCP equity and other resources available from the parent or subsidiaries. • Powers of the RA. 	<ul style="list-style-type: none"> • Insurance coverage and other third-party resources to support operational continuity. • CCP equity and other resources available from the parent or subsidiaries. • Allocation of losses to clearing members. • Allocation of losses to creditors in resolution. • Powers of the RA.

Source: CNMV, based on FSB Guidance.

Tools for default loss (DL) scenarios

- i) The RA must have a clear understanding of the tools for allocating losses to clearing members, cash calls, variation margin gains haircutting (VMGH) and the cancellation (“tear-up”) of contracts. The RA needs to know how they work, when and with what limitations they can be used, how they can affect participants, the governance process for their application and their possible implications for financial stability.
- ii) The RA must analyse the arrangements by which the default fund and minimum prefunded capital (i.e., the minimum resources to ensure the functioning and viability of the CCP and for maintaining its authorisation) would be replenished, including the viability, reliability and timeliness of such arrangements, as well as any possible implications for financial stability.
- iii) In regard to the CCP’s own resources, the RA must identify the capital available to cover the losses as part of the default waterfall and when it can be used. It is also important to know whether any additional financial resources from the CCP or its parent or group entities exist.
- iv) Lastly, RAs must know of any legal powers available to them to assign losses, recapitalise the CCP or seek restitution from its management or control bodies. Among other matters, RAs should understand conditions governing the use of such powers, the potential financial stability implications of the use of such powers, and the interaction of the statutory powers with the CCP’s rules, and the NCWOL implications.

Tools for non-default loss (NDL) scenarios

- i) In studying the tools applicable in non-default loss scenarios, RAs must analyse the availability and scope of coverage of any insurance policies to cover various types of non-default risk, and/or any other third-party resources, such as committed liquidity and credit lines or economically similar arrangements, that could support the operational continuity of the CCP in the event of non-default losses.

- ii) The next aspect to be analysed is the availability of CCP equity to cover different types of non-default losses or any additional financial resources from the CCP or its parent or affiliates, the amount of such additional resources, and how and when they can be used to cover losses or replenish CCP equity. As we can see, this tool is listed before the tools for allocating losses to clearing members or creditors.
- iii) RAs must also be aware of the scope and terms of any contractual arrangements for allocating non-default losses to clearing members. Consideration should be given to the effect of any financial caps or legal or operational constraints for allocating losses and the risk of clearing members failing to meet calls for funds, as well as the impact on clearing members and their clients, and on financial stability.
- iv) The RA should consider the extent of its legal powers to allocate losses to CCP creditors and to convert their claims into equity, and understand the insolvency hierarchy of the CCP's creditors, the application of the NCWOL safeguard and the extent to which there are any concerns if losses are not allocated equally to creditors ranking *pari passu* with others.
- v) In these scenarios, it is also necessary to analyse the legal powers of the RA in the same terms as in the scenario for default losses.

Public consultation on FSB 2020 Guidance.¹
Evaluation of tools and resources

EXHIBIT 3

One of the issues in the public consultation process that attracted most of the comments was the possible use of variation margin gains haircutting (VMGH), mainly by the clients of clearing members, who considered that this could lead to significant liquidity problems as it encourages the early unwinding of their positions. Others however underlined the need to have all the financial resources available.

Many respondents also expressed the view that a clearer policy on the use, composition and amount of resources and tools is required. The FSB emphasises that the guidance is not intended to offer an opinion on the resources and tools that must be available for the resolution of CCPs in each jurisdiction or on how their use should be regulated, or which resources and tools would be the most appropriate in the case of the resolution of a specific CCP. The objective is to provide RAs with guidance on the issues to consider when evaluating each available resource or tool and thus ensure that they are able to determine whether the resolution strategy is reasonable and consistent with the Key Attributes.

¹ FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

4.1.3 Step 3: Assessing potential resolution costs

In this step, the RA should conduct a qualitative and quantitative assessment of the different types of costs that could arise in the resolution of a CCP in the various scenarios identified in Step 1. Such costs include both losses and costs that must be covered by available resources, which will be conditioned both by the organisational structure of the CCP and by the types of products cleared.

They would include the potential amount of the CCP's losses and the costs of replenishing its financial resources, the operational costs of the CCP for maintaining the continuity of its critical functions, the administrative costs of the RA relating to the resolution of the CCP and any other extraordinary costs, such as management, legal or accounting costs, as well as additional costs that may arise after the resolution, including potential NCWOL compensation.

In the assessment, the amount of resolution costs associated with the potential resolution strategy or strategies should be evaluated, the period of time in which the costs can be generated and in which they have to be covered, both short and long term, who will bear the different types of costs and how the costs not covered by the resolution tools may be recoverable, and from what source.

Public consultation on FSB 2020 Guidance.¹ Cost assessment

EXHIBIT 4

The public consultation raised the consideration of costs in insolvency proceedings and how they should be estimated and calculated, although this point was ultimately excluded from the guidance due to the lack of international harmonisation of insolvency regulations.

¹ FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

4.1.4 Step 4: Identifying any gaps between resources and costs

Taking into account the resolution scenarios identified in Step 1, the RA should compare the resolution costs assessed in Step 3 with the resources and tools analysed in Step 2 and identify any potential shortfalls or gaps that could cause resources to be inadequate to achieve the resolution objective.

This analysis should take into account the availability and sufficiency of resources to cover the different costs, the types and amount of costs that are not covered and the underlying reasons for any gaps in resources. In addition, it is important to consider the time horizon for executing the resolution strategy and how the resolution costs will be paid.

In any case, the RA should bear in mind that the lack of an identified gap does not preclude the potential for such a gap to exist.

The public consultation highlighted the difficulty of carrying out this step, given that quantifiable resources had to be compared with potential future costs. Even though analysis is indeed difficult to implement, it is still beneficial for an RA to carry out such structured analysis.

¹ FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

4.1.5 Step 5: Possible means for addressing any identified gaps

If any shortfalls or gaps between existing resources and tools and resolution costs are identified in Step 4, the RA should consider at least the following points:

- Whether any additional tools or resources may be needed to support resolution.
- How the authorities can contribute to closing the gap.
- The financial stability implications of each option.
- Whether the resolution strategy could be adjusted to optimise the use of available financial resources, either as a standalone option to address any identified gap or in addition to requiring additional financial resources.

In this analysis, the RA must consider the potential implications of requiring any additional resources or tools, according to the nature of the resources, whether the RA has the power to issue additional cash calls that are not envisaged in the CCP's rules, and whether write-down or bail-in powers are available to provide additional loss absorbing and recapitalisation capacity.

In addition, consideration should be given to the potential impact of the additional resource requirements on the CCP's ongoing business model and its incentives structure, and whether the resolution strategy and cost of implementation can be changed.

Lastly, bearing in mind that any unaddressed gaps could prevent the RA from achieving the resolution objectives and thereby propagate financial instability, or alternatively risk exposing taxpayers to losses, the resolution authority, in cooperation with other relevant authorities, should consider the steps to be taken to address such gaps, including changes to the CCP's operating rules or the applicable legal regime.

4.2 Treatment of CCP equity in resolution

This was one of the most complex topics addressed when preparing the guidance. The complexity stems from the apparent misalignment between the general risk management and loss allocation principles contained in the PFMI and those contained in the Key Attributes for loss absorption and determining the NCWOL safeguard.

The former recognises the principle of mutualisation of losses, according to which the clearing members, including their clients, absorb the losses of a CCP in the event of default by any of its members. In this case, only a small portion of the CCP's own resources (SITG) would be used to absorb losses, thereby protecting the rest of its equity and resources, ensuring the continuity of its business activity and maintaining its authorisation.

Only in non-default loss (NDL) scenarios would the CCP's own resources, including its equity, be at risk. However, some CCPs have arrangements that allocate portions of non-default losses – particularly those arising from investment or custody risks – to clearing members.

This commonplace situation contrasts with the general purpose of resolution, according to which shareholders and creditors must absorb losses in a manner that respects the creditor hierarchy in liquidation. As a consequence, the resolution Key Attributes recognise that the capital of the CCP must absorb losses first and in full, and that the resolution authorities should have the power to write down (in full or in part) the CCP's equity.⁴¹

However, the NCWOL safeguard, which grants creditors a right to compensation where they do not receive at a minimum what they would have received in a liquidation of the firm under the applicable insolvency regime, also extends to the shareholders of the CCP according to the Key Attributes.⁴² In order to determine the NCWOL for participants, the assessment of losses must also include the application of all the CCP's rules and procedures for loss allocation.

Therefore, depending on the creditor hierarchy established by the local insolvency law, and how that law interacts with the rules of the CCP and the legal framework provided for the resolution authority, shareholders may have a NCWOL compensation claim for any losses imposed on equity in resolution.

This would also be inconsistent with the Key Attributes principle that equity should be fully loss absorbing in resolution and could introduce moral hazard.

As a consequence, difficulties arise in establishing a general principle for the treatment of CCP equity that is consistent with the PFMI and the Key Attributes, which is compounded by the lack of international harmonisation of insolvency regimes

41 "Consistent with the Key Attributes, this includes the principles that in resolution CCP equity should absorb losses first, that CCP equity should be fully loss-absorbing, and that resolution authorities should have powers to write-down (fully or partially) CCP equity". FSB Key Attribute 1.2. FSB (2017). (*Op. cit.*). Sections 4.1 and 4.2.

42 FSB (2017). (*Op. cit.*). Section 5.

and the options envisaged in the rules of the different CCPs according to the regulations that apply to them.

The guidance provides resolution authorities with regulatory policy options and guidelines (described below) to assess and treat the CCP's equity when drawing up resolution plans in a manner that is consistent with the principles outlined and legal regimes in force in each jurisdiction.

4.2.1 Analysis of the treatment of CCP equity in resolution and possible adjustment mechanisms

The RA must consider the impact that any limitation of the CCP's equity to the absorption of losses could have on its ability to take the appropriate measures to achieve the treatment of CCP equity set out in the Key Attributes. Based on this assessment, the RA may decide to adjust the exposure of CCP equity to losses or consider additional options to address the identified limitations.

Mechanisms to adjust the CCP's equity exposure to losses in resolution that are consistent with the Key Attributes include:

- Modification of the contractual loss allocation arrangements to expose the entire CCP equity (or a larger portion of it than is currently available) to losses in resolution, in one or more tranches. The RA would have to take into account the need to recapitalise the CCP so that it can continue to provide its critical clearing services.
- The full or partial write-down of CCP equity to allocate remaining losses after default management and recovery measures have taken place. As in the previous case, the need to recapitalise the CCP would have to be taken into account.
- Transfer of the CCP's remaining open positions and related collateral to a bridge CCP and then winding down the residual CCP.
- Dilution of existing ownership by raising new capital through the conversion of any debt instruments or other eligible liabilities into equity, issuing new shares or compensation of clearing members through the issue of new shares in exchange for their bearing more losses than required under the CCP's rules and arrangements.

4.2.2 Implementing policy for the treatment of CCP equity in resolution

As a result of the analysis undertaken, the guidance proposes some (policy) options that could be considered to address the challenges relating to CCP equity fully bearing losses in resolution.

- Provide the authorities with sufficient powers to require that CCPs modify their capital structures, rules or other governance documents in a manner that subordinates shareholders to other creditors or establishes the point at which equity absorbs losses.

- Propose potential changes to laws, regulations or powers of the relevant supervisory, oversight or resolution authorities that would enable achieving the resolution objectives or limit the potential for NCWOL claims.
- As a last option, if the jurisdiction's framework does not incorporate such changes, the relevant home authorities may need to accept any limitations on CCP equity fully bearing losses and include a statement in the resolvability assessment process that justifies their acceptance of such limitations.

In any case, when evaluating the benefits and drawbacks of changes to the treatment of CCP equity, the relevant home authorities should evaluate and justify whether said change would be appropriate, taking into account its impact on CCP management incentives and participation in recovery and support resolution, the impact on clients given the availability of alternative CCPs, how a change of ownership would affect the continuity of critical services, the impact on business models and structures of CCPs and the effect on other group entities that could also be market infrastructures (such as trading platforms or central depositories).

Public consultation on FSB 2020 Guidance.¹ Treatment of equity

EXHIBIT 6

The different public consultation processes have given rise to divergent views on the extent to which the CCP's equity should (or should not) be exposed to losses on resolution, beyond the prefunded CCP equity for covering losses as part of the default waterfall (SITG). Thus, while clearing members hold the view that CCP equity should fully absorb losses, the CCPs argue that the use of a CCP's equity in resolution, including where it is used as compensation to participants that contributed to a recovery or resolution, reduces incentives for market participants to appropriately manage their risks and actively participate in the default management process and recovery efforts, thus promoting CCP resolution over recovery.

In regard to the possible compensation of non-defaulting members and end users for absorbing losses, either during recovery or in resolution, using both equity and rights to future profits, CCPs hold the view that this also discourages members from participating in the management of default losses and from bidding in auctions for the defaulted portfolio.

¹ FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

5 Factors to improve the resolvability of CCPs. Incentives and divergent interests

Progress towards defining a CCP resolution framework has involved a great deal of debate concerning issues such as the use of margin variation gains haircutting (VMGH), resources, the liability for non-default losses of CCP members, the sources

of liquidity available to CCPs in stress conditions and the boundaries between recovery and resolution and financial resources to support CCP resolution.

The different consultations undertaken have revealed the existence of divergent interests and conflicting positions regarding the allocation of losses in the recovery and resolution of CCPs and the regulatory measures available.

The regulatory response to these questions should take into account that the regulation of CCPs is based on a delicate and essential incentives structure, which seeks to ensure that both the CCP and the clearing members and clients support and actively participate in the risk management of the CCP.⁴³

All tools offer advantages for some and disadvantages for others and their application can have procyclical effects. Therefore, the potentially harmful macroprudential implications, such as the risk of contagion, misalignment of incentives or uncertainty about the obligations of participants⁴⁴ should be carefully considered. Table 6 shows an analysis of the effectiveness of the different tools, as well as their limitations and possible impact in terms of systemic risk.

Thus, for example, a hypothetical inclusion of public money as a last resort resolution tool could introduce moral hazard in the sense that members could be discouraged from contributing resources to the CCP's lines of defence or could participate less actively in auctions with the expectation that the taxpayers will ultimately intervene to rescue the CCP. From the point of view of the CCP, the compensation mechanisms for non-defaulting members in the event that they have to make additional contributions in resolution also introduces moral hazard. However, members have expressed the view that this mechanism provides an equitable solution and encourages clearing members to support the management, recovery and resolution process.

Resolution cash calls also stress the incentives regime for stakeholders, especially if they are used to recapitalise the CCP and clearing members receive nothing in return for their contributions.

The possibility of increasing its capital buffer (SITG) with the aim of encouraging the CCP to engage in prudent risk management is also questioned by these entities since it reduces their business margins. CCPs rely on the fees they charge on cleared volumes as their sole source of income and, given the current low interest rate environment, it cannot be ruled out that some CCPs may seek higher returns through riskier investment practices.

One of the tools most questioned by members and their clients is the use of VMGH reduction due to its potential procyclical and destabilising effects. For this reason, despite its possible effectiveness to absorb losses, the application of this measure

43 "Effective CCP resolution planning should have regard to maintaining incentives for CCPs, clearing members, and market participants to centrally clear and to engage constructively in efforts to achieve a successful default management or recovery and so reduce the likelihood of resolution". FSB (2014). (*Op. cit.*). Preamble; FMI Annexes 1.1 and 3.1.

44 ESRB (2017). *Opinion on a central counterparty recovery and resolution framework*. July. This document analyses the effects arising from the application of the different resolution tools.

must be limited (to be used only with suitable products under the supervision of the competent authority if applied in recovery and with certain limits).

Effectiveness, limitations and potential systemic risk of resolution tools

TABLE 6

	Effectiveness of the tool	Limitations	Potential systemic risk
Loss allocation tools			
Cash calls on non-defaulting members	<ul style="list-style-type: none"> Provides additional, non prefunded, resources to absorb losses. Normally included in the regulations of the CCP and subject to limits, which provides certainty to members. 	<ul style="list-style-type: none"> The amount is normally limited. Moral hazard for CCPs, which discourages risk management. Strain on member incentives if used to recapitalise the CCP with no compensation to members. 	<ul style="list-style-type: none"> Solvency and liquidity problems for members. Procyclical effects in stressed market conditions. Market liquidity stresses. Risk of contagion.
Variation margin gains haircutting	<ul style="list-style-type: none"> Provides immediate access to resources to absorb losses. Normally included in the regulations of the CCP, although not in a generalised manner but with time, quantitative or other limitations. 	<ul style="list-style-type: none"> Does not allow the CCP to meet its objective of ensuring compliance with obligations. Puts pressure on member and customer incentives. Difficult to apply to clients. It can cause members and clients to seek an alternative CCP. 	<ul style="list-style-type: none"> Liquidity problems for members and clients. May trigger a liquidity spiral. Procyclical effects. Risk of contagion.
Position allocation tools			
Total or partial termination of contracts	<ul style="list-style-type: none"> Allows a matched book to be restored. Avoids the enforced allocation of positions. 	<ul style="list-style-type: none"> Does not allow the CCP to meet its objective of ensuring compliance with obligations. Exposes members and clients to uncovered risks and position replacement costs. 	<ul style="list-style-type: none"> Solvency and liquidity problems. Market liquidity stresses. Risk of contagion. Procyclical effects.
CCP loss absorption tools			
Write-down and conversion of equity and debt instruments	<ul style="list-style-type: none"> Contributes to loss absorption and recapitalisation of the CCP. 	<ul style="list-style-type: none"> Limited effectiveness, as the CCP's equity is relatively low and it does not have a significant volume of debt. Increases compensation costs. 	<ul style="list-style-type: none"> If all the capital is not written down, there may be conflicts of interest between new and old shareholders that may jeopardise the resolution objectives.
Government stabilisation tools			
Public support	<ul style="list-style-type: none"> Facilitates loss absorption and recapitalisation. Stabilises the CCP. Facilitates the instrumentation of transfer tools. 	<ul style="list-style-type: none"> Last resort measure that is temporary and conditional on recoverability. Puts stress on the incentives system to encourage members to participate in the CCP's lines of defence and on the CCP to manage its risk. 	<ul style="list-style-type: none"> Puts resolution goals at risk. Moral hazard. Generates losses for taxpayers.

Source: CNMV.

While it is not considered a resolution tool as such, the temporary suspension of the central clearing obligation⁴⁵ may be necessary in severe circumstances as part of a resolution in order to head off a serious threat to financial stability. Although, as the ESRB points out,⁴⁶ the application of this tool must be assessed from a macroprudential standpoint, and in any case, the existence and availability of alternative CCPs with the capacity to offer the CCP's services in resolution and the ability of the members to comply with the alternative CCP requirements should be considered.

Lastly, it should also be mentioned that in the mutualisation of losses regime on which central clearing is based, in which the participants of CCPs have to assume most of the default losses, it should be considered that the application of resolution tools may translate into a risk of contagion if the CCP does not consider the potential impact of the tools on its members. Therefore, these measures must be as transparent and predictable as possible, so that participants can estimate and manage their exposure to the CCP. Proper risk management by members not only minimises the likelihood of default, but also reduces uncertainty surrounding the potential need to provide additional funds.

Therefore, it is essential to establish the appropriate incentives and the regulatory response must take into account this delicate relationship of incentives and interrelations, in addition to the impact of any measure on financial stability.

6 Next steps

To move forward, during the preparation of its 2020 Guidance, the FSB held several forums for discussion and consultation with the main stakeholders, which resulted in the document being enhanced and the different sensitivities to delicate issues being properly weighed up. As a result of these consultations, the need for a clearer policy on the financial resources available to a CCP has been confirmed.

Some participants in these events reiterated the need to clarify the role of central banks in providing liquidity to CCPs and to limit central clearing to certain types of products. Among the topics most related to resilience, recovery, and resolution, participants made the following suggestions:⁴⁷

- Develop requirements on the amount of equity a CCP is required to hold and how equity would be required to cover losses in recovery and resolution.
- Determine how default and non-default losses should be allocated between the CCP and clearing members/participants.

45 Singh, M. and Turing, D. (2018). *Central Counterparties Resolution – An Unresolved Problem*. IMF Working Paper, WP 18/65 analyses, *inter alia*, the effectiveness of a possible relaxation of the central clearing obligation.

46 ESRB (2017). Opinion on a central counterparty recovery and resolution framework. July.

47 As stated in document FSB (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. 16 November.

- Distinguish between the “operational” and “financial” resources of a CCP.
- Introduce caps on the use of loss-absorbing resources (cash calls, variation margin gains haircutting (VMGH) and partial tear-ups (PTUs)) from market participants in recovery and resolution to diminish their pro-cyclical and market destabilising effect.
- Develop governance arrangements for the use of certain tools (particularly VMGH and PTUs) in recovery and resolution.
- Further facilitate enhanced cooperation between CCP supervisory and resolution authorities, particularly across crisis management groups (CMGs).
- Analyse the need for new types of prefunded resources for CCP resolution, such as bailable bonds.
- Consider new types of powers for the resolution authority, such as the ability to suspend central clearing.

In view of this, and taking into account the wide scope of the comments and the close links between the resilience, recovery and resolution of CCPs, the FSB, together with CPMI and IOSCO, will develop a joint work plan to consider, during the course of 2021, the development of international policy on the use, composition and amount of financial resources in recovery and resolution to further strengthen the resilience and resolvability of CCPs in default loss and non-default loss scenarios. This would include assessing whether any new types of prefunded resources would be necessary to enhance CCP resolvability.

To progress in this area, the workshops that are being jointly organised by the FSB, BCBS, CPMI and IOSCO to help the authorities assess the potential impact on financial stability of the use of CCP recovery and resolution tools should be mentioned. These workshops, which will be held in several sessions between December 2020 and June 2021, will serve both to reduce knowledge gaps and identify possible solutions that reflect the concerns of the different authorities and foster dialogue and improve coordination in their approach to systemic risk.⁴⁸

Section 4 of this article refers to one of the most recent advances in determining the resources available to address the resolution of a CCP, the new FSB Guidance. This provides operational guidance to help authorities identify the aspects that must be taken into account when assessing each resource or tool, but it does not provide a specific policy for each case.

Therefore, the Guidance will be reviewed within five years, in consultation with CPMI and IOSCO, to assess whether additional adjustments are needed, taking into

48 Fabio Panetta, member of the ECB Executive Board, makes concrete proposals for progress and coordination between the public and private sectors in understanding the implications and systemic interactions related to central clearing. Panetta, F. (2020). “Joining forces: stepping up coordination on risks in central clearing”. *Introductory remarks at the Second Joint Bundesbank/ECB/Federal Reserve Bank of Chicago Conference on CCP Risk Management*. February.

account the performance of the market and the experience of resolution authorities in its application, in coordination with the other authorities involved through crisis management groups.

The recent approval of the European Regulation on CCP recovery and resolution will allow a specific, harmonised recovery and resolution framework to be established for all CCPs in the European Union, the application of which will benefit from the new FSB Guidance.

The Regulation itself recognises that the European Commission must review its content to incorporate international developments in regard to the treatment of capital in resolution and, within the same period of five years, concerning the financial resources available to the resolution authorities to cover non-default losses of members and the CCP's own resources to be used in recovery and resolution.

7 Conclusions

CCP resolution remains a complex and challenging issue in legal, economic and operational terms, which is also conditioned by the diverging interests of the parties involved and by a complex incentives regime that ensures participation and proper risk management.

Given the cross-border nature of the clearing activity and the considerable interdependencies with the rest of the financial system, a harmonised global regulation is required, in addition to a high level of coordination between the corresponding authorities.

Although notable progress has been made in the design of a global harmonised clearing house resolution system, these constraints have meant that despite its having been identified as a priority reform after the global financial crisis, work continues at international and European level, and it is necessary to obtain a deeper understanding of the risk implications and contagion channels that derive from the close links between banks and CCPs.

Due to their essential role in the financial system, the disorderly collapse of a CCP could lead to serious systemic shock. Therefore, maintaining the continuity of critical central clearing functions is key for financial stability.

The forthcoming implementation in the European Union of a regulatory framework on CCP recovery and resolution represents an important step towards improving the resilience and resolvability of these entities, reinforcing their preparedness and that of the national authorities to address the failure of CCP in a coordinated manner, which helps ensure the smooth operation of the markets and bolsters confidence in the financial system.

References

Alfranseder, E., Fiedor, P., Lapschies, S., Orszaghova, L. and Sobolewski, P. (2018). *Indicators for the monitoring of central counterparties in the EU*. ESRB, Occasional Paper Series, No. 14.

Bank for International Settlements (BIS) (2020). *Statistical release: OTC derivatives statistics at end-December 2019*. 7 May.

— (2020). *OTC derivatives outstanding*.

Basel Committee on Banking Supervision (BCBS) (2019). *Capital requirements for bank exposures to CCP*.

Committee on Payments and Market Infrastructures (CPMI) – International Organization of Securities Commissions (IOSCO) (2012). *Principles for financial market infrastructures*. April.

— (2017). *Resilience of central counterparties (CCPs): further guidance on the PFMI*. July.

— (2017). *Recovery of financial market infrastructures*. July (revision of the October 2014 version of this document).

— (2020). *Central counterparty default management auctions – Issues for consideration*. June.

Domanski, D., Gambcorta, L. and Picillo, C. (2015) “Central clearing: trends and current issues”. *BIS Quarterly Review*. December.

European Association of CCP Clearing Houses (EACH). *How does clearing work?*

European Securities and Markets Authority (ESMA) (2020). *EU Derivatives Markets. Annual Statistical Report 2020*, p. 43.

— (2020) 3rd EU-wide CCP Stress Test Report. 13 July.

European Systemic Risk Board (ESRB) (2017). *Opinion on a central counterparty recovery and resolution framework*. July.

Faruqui, U., Huang, W. and Takáts, E. (2018). “Clearing risks in OTC derivatives markets: The CCP-bank nexus”. *BIS Quarterly Review*. December.

Financial Stability Board (FSB) (2014). *Key attributes of effective resolution regimes for financial institutions*. October.

— (2017). *Guidance on central counterparty resolution and resolution planning*. July.

— (2020). *FSB releases guidance on CCP financial resources for resolution and announces further work*. Press release. 16 November.

— (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution*. November.

— (2020). *Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution. Overview of responses to the consultation and Summary of virtual outreach events on 25 and 30 June 2020*. November.

— (2020). *Holistic Review of the March Market Turmoil*. November.

— (2020). *2020 Resolution Report*. November.

Financial Stability Board (FSB), Committee on Payments and Market Infrastructures (CPMI), International Organization of Securities Commissions (IOSCO) and Basel Committee on Banking Supervision (BCBS) (2017). *Analysis of Central Clearing Interdependencies*.

— (2018). *Analysis of Central Clearing Interdependencies*.

Hughes, D. and Manning, M. (2015). “CCPs and Banks: Different Risks, Different Regulations”. *RBA Bulletin*. December.

Khwaja, A. (2019). “2018 CCP Market Share Statistics”. Clarus Financial Technology.

Núñez, S. and Valdeolivas, E. (2019). “Central clearing counterparties: benefits, costs and risks”. Banco de España, *Financial Stability Review*, No. 36.

Panetta, F. (2020). “Joining forces: stepping up coordination on risks in central clearing”. *Introductory remarks at the Second Joint Bundesbank/ECB/Federal Reserve Bank of Chicago Conference on CCP Risk Management*. February.

Singh, M. and Turing, D. (2018). *Central Counterparties Resolution—An Unresolved Problem*. IMF, Working Paper, WP 18/65.

Annex 1 Example of the practical application of a CCP default waterfall and resources available in resolution in scenarios of default by its members

A CCP is assessed in different loss scenarios caused by the default of between two and six clearing members. These scenarios illustrate when the CCP would go into resolution and the cost in terms of the resources required to restore its viability.⁴⁹

To simplify the exercise, only loss absorption tools are used, consisting of cash calls on non-defaulting members, both in recovery and resolution, to address the default.

Basic data of the CCP

TABLE 7

Minimum capital according to Art. 16 EMIR	4
1 st tranche of SITG	1
2 nd tranche of SITG	2

Source: CNMV.

Scenario of default by two members

The accumulated risk for the CCP is 14, having applied the initial margins and the contributions to the collective guarantee fund of both defaulting members.

- The next step is to use the first tranche of the CCP's own resources, which is 1. The collective guarantee provided by the non-defaulting members would then be applied, which, in this case, amounts to 8.
- Subsequently, the second tranche of CCP resources would be applied, which in this example is 2.
- To cover the remaining loss, which currently stands at 3, the CCP would start the recovery phase and request additional funds from non-defaulting members for that amount (this cash call in recovery would be limited to 1 x the contribution to the default fund, and there would be a margin of 5 additional non-prefunded resources in recovery).

In this scenario, to cover a loss of 14, prefunded resources of clearing members have been used for an amount of 8, resources of the CCP for an amount of 3, and non-prefunded resources required from members for an amount of 3. In addition, for the CCP to continue operating, non-defaulting members must replace the collective guarantee, amounting to 8, and the CCP must replace its own resources. The total cost would be 25.

⁴⁹ None of the scenarios include the potential additional costs deriving from the right to compensation resulting from the application of the NCWO safeguard. Operational, administrative and other costs related to maintaining critical CCP functions or the resolution itself are also excluded.

Total cost and resources in a scenario of two defaulting members

TABLE 8

Initial loss	Prefunded resources			Non-prefunded resources		Total cost
	Non-defaulting members	CCP	Cash call in recovery	Replacement of collective guarantee	Replenishment of CCP's own resources	
-14	8	3	3	8	3	25

Source: CNMV.

In this scenario, the CCP has sufficient resources to cover the losses caused by the default of its two largest members, and it has not been necessary to activate the resolution phase.

Scenarios of three or more defaulting members.

In the following scenarios shown in Table 9, applying this same mechanism, it can be observed that the resolution phase is activated after the default of three clearing members.

Total cost and resources in a scenario of three or more defaulting members

TABLE 9

Scenarios: Number of defaulting members	Going concern			Recovery phase			Resolution phase			Total cost
	Initial loss	Prefunded resources		Non-prefunded resources			Prefunded resources		Non-prefunded resources	
		Non-defaulting members	CCP	Cash call in recovery	Replacement of collective guarantee	Replenishment of own resources CCP	CCP equity	Cash call in resolution	CCP recapitalisation	
Default of 3 members	-16	6	3	6	6	3	1	0	1	26
Default of 4 members	-17	4	3	4	4	3	4	2	4	28
Default of 5 members	-19	3	3	3	3	3	4	6	4	29
Default of 6 members	-20	0	3	0	0	3	4	-	4	14 ¹

Source: CNMV.

1 Does not take into account that the open loss is still -13.

Once the resolution phase has been activated, since all available resources have been consumed to enable the CCP to address the total loss caused by the default of its members by itself, the CCP's equity will be used first. With equity of 4 (in addition to the 2 SITG tranches), based on the default of 4 members, a full write-down must be made to absorb the losses and in this scenario it is also necessary to make a cash call (for an amount of 2) on non-defaulting members. This leaves a margin of 6 that will allow the CCP to be recapitalised (replenishing the written-down equity of 4) so that it can continue operating.

The cap on cash calls available in resolution (2 times the collective guarantee according to the CCP R&R Regulation) is exhausted in the scenario of 5 defaulting members, with the absorption of the remaining loss, but there is no additional buffer to recapitalise the CCP. Thus, in the resolution phase the objective of keeping the CCP operating would not be achieved.

In the last scenario, with all members in default, there is a final resource mismatch of -13.

After analysing the different scenarios, it can be observed that the CCP's equity and resources are fixed amounts, regardless of the number of defaulting members. Furthermore, the greater the number of defaulting members, the lower the available collective guarantee, as the additional contribution from non-defaulting members is also lower. In these non-default scenarios, the resolution phase should be activated when there are 3 defaulting members, where the maximum number of defaults that could be successfully managed in resolution stands at 4.

Default loss scenarios

TABLE 10

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	RESOLUTION	(11)	(12)	(13)	(14)	(15)
Accumulated risk	Number of defaulting members	Tranche of CCP's own resources	Collective guarantee of non-defaulting members	Replacement of the collective guarantee	Additional resources of CCP	Contribution of clearing members in recovery	Resources available in recovery (3 + 4 + 6 + 7)	Loss applying the recovery plan	Buffer applying the recovery plan		CCP equity	Contribution of clearing members in resolution	Resources available in resolution (11 + 12)	Loss	Buffer applying the resolution plan
14	2	1	8	8	2	8	19	0	5		–	–	–	0	–
16	3	1	6	6	2	6	15	-1	–		4	12	16	0	15
17	4	1	4	4	2	4	11	-6	–		4	8	12	0	6
19	5	1	3	3	2	3	9	-10	–		4	6	10	0	–
20	6	1	0	0	2	0	3	-17	–	4	0	4	-13	–	

Source: CNMV.

- (1) **Accumulated risk:** Risk for the CCP after the initial margin and the collective guarantee corresponding to the defaulting members have been used.
- (2) **Number of defaulting members:** Number of defaulting clearing members.
- (3) **Tranche of CCP's own resources:** The CCP's own resources applied in the default waterfall (first tranche of SITG).
- (4) **Collective guarantee of non-defaulting members:** Collective guarantee of non-defaulting clearing members.
- (5) **Replacement of the collective guarantee:** Non-prefunded contribution from non-defaulting members to replenish the default fund (DF).

- (6) **Additional CCP resources:** Additional capital contribution from the CCP (second tranche of SITG).
- (7) **Contribution of clearing members in recovery:** Non-prefunded contribution from non-defaulting members to absorb losses in recovery. According to the CCP R&R Regulation, this contribution would be capped at one time the DF.
- (8) **Resources available in recovery:** The sum of the CCP's own resources (first tranche of SITG), the collective guarantee of the non-defaulting clearing members, the non-prefunded contribution of the non-defaulting members to absorb losses (cash call in recovery) and the additional capital contribution from the CCP (second tranche of SITG).
- (9) **Loss applying the recovery plan:** Resources required to cover the difference between the resources available in recovery and the accumulated risk.
- (10) **Buffer applying the recovery plan:** Resources available in recovery that are not used to cover losses and that may be used to replace the capital of the CCP and, where appropriate, reduce the cash calls from clearing members.
- (11) **CCP equity:** Minimum own resources held by the CCP in accordance with Article 16 of EMIR.
- (12) **Contribution of clearing members in resolution:** Non-prefunded contribution of non-defaulting members to absorb losses in resolution (cash call in resolution which according to the CCP R&R Regulation would be capped at twice the DF).
- (13) **Resources available in resolution:** The sum of the CCP's equity of the CCP and the contribution of non-defaulting members in resolution (cash call in resolution).
- (14) **Loss applying the resolution plan:** Resources required to cover the difference between the resources available in resolution and the accumulated risk.
- (15) **Buffer applying the resolution plan:** Resources available in resolution that are not used to cover losses and that may be used to replace the capital of the CCPs and, where appropriate, reduce the cash calls on non-defaulting members.

Annex 2 Example of the practical application of a CCP default waterfall and resources available in resolution in scenarios of non-default losses

A CCP is considered in two loss scenarios caused by theft of the liquid assets deriving from investment of its members' guarantees.

Basic data of the CCP

TABLE 11

Minimum capital according to Art. 16 EMIR	4
1 st tranche of SITG	1
2 nd tranche of SITG	2

Source: CNMV.

These scenarios also illustrate the moment at which the CCP would go into resolution and the cost in terms of resources required to restore its viability.⁵⁰

To simplify the exercise, only loss absorption tools are used, consisting of cash calls made on clearing members, both in recovery and resolution, to address the default.

NDL scenarios

A risk due to the theft of liquid assets of -14 is considered. In the first place, the 1st tranche of SITG would be applied, for the amount of 1, followed by the collective guarantee of the members, which amounts to 8. As this is not sufficient, the 2nd tranche of SITG is activated, for the amount of 2, and, lastly, an additional non-prefunded contribution of 8 is required to cover all the losses in recovery.

In this scenario, to cover a loss of 14, prefunded resources of the CCP were used for an amount of 3, resources from the members for an amount of 8, and non-prefunded resources were required from the members for an amount of 3. In addition, for CCP to continue operating, members would have to replace the collective guarantee, for an amount of 8, and the CCP would have to replenish its own resources. The total cost would be 25.

The CCP has sufficient resources to cover the losses caused by the theft of liquid assets, and it has not been necessary to activate the resolution phase.

If the risk of theft of liquid assets rose to 25, following the same sequence as in the previous scenario, the resources available in the recovery phase, 19, would not be sufficient, so it would be necessary to activate the resolution phase.

50 None of the scenarios include the potential additional costs deriving from the right to compensation resulting from the application of the NCWO safeguard. Operational, administrative and other costs related to maintaining critical CCP functions or the resolution itself are also excluded.

In the resolution phase, the first losses are absorbed by the equity, which means writing down an amount of 4 and then additional funds are requested from the members for an amount of 2, with a cap of 12, which would cover the recapitalisation of the CCP. The resolution would cover its objectives in this case.

In the event that losses due to theft amounted to 40, the resolution would not meet its objectives, as there would be a resource gap of -9, without taking into account the replenishment of the CCP's capital.

Non-default loss scenarios

TABLE 12

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	RESOLUTION	(10)	(11)	(12)	(13)	(14)
Risk due to theft of liquid assets	Tranche of CCP's own resources	Collective guarantee of members	Replacement of the collective guarantee	Additional resources of CCP	Contribution of clearing members in recovery	Resources available in recovery (2 + 3 + 5 + 6)	Loss applying the recovery plan	Buffer applying the recovery plan		CCP equity	Contribution of clearing members in resolution	Resources available in resolution (10 + 11)	Loss	Buffer applying the resolution plan
14	1	8	8	2	8	19	0	5		–	–	–	0	–
25	1	8	8	2	8	19	-6	–		4	8	12	0	6
40	1	8	8	2	8	19	-21			4	8	12	-9	

Source: CNMV.

- (1) **Risk of theft of liquid assets:** Loss caused by the theft of the assets deriving from initial margins and the collective guarantee.
- (2) **Tranche of CCP's own resources:** The CCP's own resources applied in the default waterfall (first tranche of SITG).
- (3) **Collective guarantee of members** Collective guarantee of clearing members.
- (4) **Replacement of the collective guarantee:** Non-prefunded contribution from members to replenish the DF.
- (5) **Additional CCP resources:** Additional capital contribution from the CCP (second tranche of SITG).
- (6) **Contribution of members in recovery:** Non-prefunded contribution of members to absorb losses in recovery (cash call in recovery). According to the CCP R&R Regulation, this contribution would be capped at one time the DF.
- (7) **Resources available in recovery:** The sum of the CCP's own resources (first tranche of SITG), the collective guarantee of the clearing members, the non-prefunded contribution of the members to absorb losses and the additional capital contribution from the CCP (second tranche of SITG).
- (8) **Loss applying the recovery plan:** Resources required to cover the difference between the resources available in recovery and the accumulated risk.

- (9) **Buffer applying the recovery plan:** Resources available in recovery that are not used to cover losses and that may be used to replace the capital of the CCP and, if applicable, reduce the cash calls on clearing members.
- (10) **CCP equity:** Minimum own resources held by the CCP in accordance with Article 16 of EMIR.
- (11) **Contribution of clearing members in resolution:** Non-prefunded contribution of non-defaulting members to absorb losses in resolution (cash call in resolution which, according to the CCP R&R Regulation would be capped at twice the DF).
- (12) **Resources available in resolution:** The sum of the CCP's equity of the CCP and the contribution of members in resolution (cash call in resolution).
- (13) **Loss applying the resolution plan:** Resources required to cover the difference between the resources available in resolution and the accumulated risk.
- (14) **Buffer applying the resolution plan:** Resources available in resolution that are not used to cover losses and that may be used to replace the capital of the CCPs and, if applicable, reduce the cash calls on members.

IV Legislative Annex

Since the publication of the *CNMV Bulletin* for the third quarter of 2020, the following legislative developments have taken place:

National regulations

- **Law 5/2020, of 15 October**, on the Financial Transactions Tax.

The tax will be levied on the acquisition for valuable consideration of shares in Spanish companies (defined in the terms of Article 92 of the Recast Text of the Corporate Enterprises Act), regardless of the persons or entities involved in the transaction. Any acquisitions of depository receipts representing these shares are also subject to the tax.

The tax does not apply to all acquisitions of shares in Spanish companies, only to shares in companies with shares admitted to trading on a regulated market, regardless of whether transaction is executed through a trading venue, and which have a market capitalisation of more than €1 billion.

Certain transactions performed on the primary market are exempt from the tax such as those required to ensure that the markets function correctly, those arising from business restructuring transactions or resolution measures, the acquisition of shares carried out between companies belonging to the same group and acquisitions carried out under a buyback programme. This Law will enter into force three months after its publication in the Official State Gazette (*BOE*).

- **Law 4/2020, of 15 October**, on the Tax on Certain Digital Services.

This Law regulates the Tax on Certain Digital Services as an indirect levy applicable, in the manner and conditions provided in said Law, to the provision of certain digital services with the intervention of users located in the territory of application of the tax.

This Law will enter into force three months after its publication in the Official State Gazette (*BOE*).

- **Royal Decree 926/2020, of 25 October**, declaring the state of alarm to contain the spread of infections caused by SARS-CoV-2.

This Royal Decree declares a state of alarm with effect throughout Spain for an initial period of 15 days. The government will then ask parliament to extend the measures for six months.

The competent authority will be the Spanish government, and in each autonomous region and city, the delegated competent authority will be the authority holding the presidency of said autonomous region or city, and these bodies may establish the degree to which the measures contained in the Royal Decree are applied in accordance with their individual circumstances.

The autonomous regions may restrict entry and exit to and from their territories, closing the entire perimeter of the regions or a smaller area. They may also restrict the number of people who can gather in public or private spaces to a maximum of six, unless they live in the same household. These measures will be implemented for a minimum of seven calendar days and the presidents of the autonomous regions and cities will be the delegated competent authorities in the decision as to whether the entry and exit restrictions and limits on the maximum number of people who can gather together in groups are fully or partially applied.

- **Law 6/2020, of 11 November**, regulating certain aspects of electronic trust services.

The purpose of this Law is to regulate certain aspects of electronic trust services, as a supplement to Regulation (EU) No. 910/2014 of the European Parliament and of the Council, of 23 July 2014, on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

The direct applicability of the regulation does not deprive the Member States of all regulatory capacity with regard to the matter regulated; indeed, they are obliged to adapt their national regulations to ensure that it is effectively applied. This adaptation may require the amendment or repeal of existing rules and the implementation of new provisions to complete Regulation (EU) No. 910/2014 in aspects that it does not harmonise but leaves to the discretion of the Member States.

Therefore, it covers aspects such as the qualified providers liability regime, the penalty system, the verification of the identity and attributes of applicants for qualified certificates, the inclusion of additional requirements at the national level for these certificates, such as national identifiers, and their maximum validity period, as well as the conditions for the withdrawal of certificates.

The previous regulation has been amended to grant evidentiary value to electronic documents for the production or communication of which a qualified trust service has been used. In this manner, the burden of proof is simplified, since the mere verification of the inclusion of the aforementioned service in the trusted list of qualified providers of electronic services, regulated by Article 22 of Regulation (EU) No. 910/2014, is sufficient.

For electronic certificates, several provisions have been included in the Law regarding the issue and content of such certificates, the maximum validity of which is maintained at five years. In this regard, service providers are not permitted to use certificate chaining to renew qualified certificates using a current one more than once, for reasons of legal security.

In response to changes in technology and market demands, Regulation (EU) No. 910/2014 opens up the possibility of providing innovative services based on mobile and cloud solutions, such as remote electronic signing and stamping, where the environment is managed by a trusted service provider on behalf

of the owner. In order to ensure that these electronic services obtain the same legal recognition as those used in a fully user-managed environment, the providers must apply specific security procedures and use trustworthy systems and products, including secure electronic communication channels, to ensure that the environment is reliable and is used under the exclusive control of the owner. The aim is to achieve a balance between ease of access and use of services, without detriment to security.

The aforementioned regulation establishes that only natural persons are qualified to provide an electronic signature. Therefore, it does not envisage the issue of electronic signature certificates to legal persons or entities without legal personality. These may use electronic seals, which guarantee the authenticity and integrity of documents such as electronic invoices.

Without prejudice to the foregoing, legal persons may act through the certified signature of the natural persons who legally represent them.

This Law repeals the following provisions:

- i) Law 59/2003, of 19 December, on electronic signing.
 - ii) Article 25 of Law 34/2002, of 11 July, on services of the information society and electronic commerce.
 - iii) Order of the Ministry of Development, of 21 February 2000, approving the Regulation on the accreditation of certification service providers and the certification of certain electronic signature products.
- Law 7/2020, of 13 November, for the digital transformation of the financial system.

This Law regulates a controlled testing environment (sandbox) that allows the implementation of technological innovation projects in the financial system in full compliance with the legal and supervisory framework, respecting in all cases the principle of non-discrimination. Title II is the main part of the Law, since it regulates a controlled testing environment with its own characteristics, known as the “regulatory sandbox” in the European and international sphere.

Additionally, the Law strengthens the instruments necessary to ensure the objectives of financial policy in the context of digital transformation.

To this end, the Law provides the competent authorities and developers of technology-based innovations applicable in the financial system, and users of financial services, with tools to help them better understand the implications of digital transformation, in order to enhance efficiency, the quality of service and, particularly, security and protection against new financial technology risks.

This ensures that the financial authorities have the proper tools to continue to optimally carry out their functions in the new digital context. The innovation

process is also facilitated to achieve a more equitable development through better access to financing for the different productive sectors and the recruitment of talent in a highly competitive international technology environment.

The supervisory authority is the national financial authority with competent supervisory functions in the matter, either the Bank of Spain, the CNMV or the General Directorate of Insurance and Pension Funds, in accordance with the provisions of Article 7 of Law 13/1994, of 1 June, on the Autonomy of the Bank of Spain; Article 17 of Royal Legislative Decree 4/2015, of 23 October, approving the recast text of the Securities Market Act, and Article 7 of Law 20/2015, of 14 July, on regulation, supervision and solvency of insurance and reinsurance entities.

The Additional Provisions of the Law include an authorisation to the General Secretariat of the Treasury and International Financing to establish the application model and the first date for the submission of applications to enter the sandbox. Article 26, which refers to the report on the application of financial-based technological innovation in the supervisory function, provides that the supervisory authorities must include in their annual report a report on the application of technology-based innovation in their supervisory functions. In particular, this report must contain an evaluation of the implementation of the innovations that have been tested in the sandbox regulated by this Law and that prove applicable to the improved performance of the supervisory function.

- **Royal Decree-Law 34/2020, of 17 November**, on urgent measures to support business solvency and the energy sector, and on tax matters.

Since the beginning of the crisis, measures have been implemented to resolve the liquidity problems of companies and self-employed persons, to support their investment decisions through a new line of investment guarantees, and their solvency, through the creation of the Solvency Support Fund for Strategic Enterprises. The purpose of this Royal Decree-Law is to support the solvency of companies in the case of a prolongation of the effects of the crisis, through the adoption of financial and bankruptcy measures.

The period initially established for granting these guarantees ended on 31 December 2020, in accordance with the initial provisions of the European Union regulations on State aid. However, in the fourth amendment to the Temporary Framework for State Aid measures, the European Union extended the period of availability of the guarantees permitted by the Temporary Framework until 30 June 2021. The course of the pandemic has led to the establishment of a new state of alarm that reaches beyond 2020 and restrictive measures on activity both in Spain and in other European countries that extend the exceptional circumstances for business decision-making. The Spanish regulation is aligned with this new timeframe.

Consequently, this Royal Decree-Law also establishes 30 June 2021 as the expiry date for the granting of public guarantees to cover the liquidity needs of self-employed persons and enterprises, thereby amending the provisions

of Article 29 of Royal Decree-Law 8/2020, of 17 March, and Article 1 of Royal Decree-Law 25/2020, of 3 July.

Royal Decree-Law 34/2020, to strengthen the support measures for liquidity and solvency and expand their scope, establishes, in its Ninth Final Provision, that promissory notes included in the Alternative Fixed Income Market (MARF) may benefit from these guarantees, as Royal Decree-Law 15/2020, of 21 April, had done with respect to the line of guarantees included in Royal Decree-Law 8/2020, of 17 March. This encourages the continued use of funding sources provided by the capital markets and not only through traditional banking channels. In this case, as previously, the terms of the guarantees will be established by agreement of the Council of Ministers.

- **Bank of Spain Circular 5/2020, of 25 November**, to payment institutions and electronic money institutions, on public and reserved financial reporting standards, and model financial statements, amending Circular 6/2001, of 29 October, on owners of currency exchange establishments and Circular 4/2017, of 27 November, to credit institutions on public and reserved financial reporting standards and model financial statements.

This Circular establishes the accounting regime for payment institutions and electronic money institutions, and establishes the accounting documents that these entities and their groups must submit, including the model public and reserved financial statements.

It also establishes the recognition, assessment, presentation and information standards that must be included in the report and the breakdown of the information in the model statements that must be applied.

The Circular takes as reference the accounting regulations of credit institutions, either setting criteria similar to these, or referring directly to the rules of Circular 4/2017, of 27 November, to credit institutions on public and reserved financial reporting standards and model financial statements.

- **Royal Decree 1089/2020, of 9 December**, developing aspects related to the adjustment of the free allocation of greenhouse gas emission allowances in the 2021-2030 period.
- **Law 9/2020, of 16 December**, amending Law 1/2005, of 9 March, regulating the regime for trading greenhouse gas emission allowances, to enhance cost-effective emission reductions.

This Law partially incorporates Directive (EU) 2018/410 of the European Parliament and of the Council, of 14 March 2018, amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, which entered into force on 8 April 2018.

Chapter III regulates the legal nature of emission allowances, understood as the subjective right to release into the atmosphere an equivalent metric ton of

carbon dioxide from an aircraft or from a facility included in the scope of this Law.

The emission allowance will be transferable. The issue, ownership, transfer, transmission, delivery and removal of emission allowances must be registered in the Spanish area of the European Union Registry.

Article 10 provides that financial regulations are applicable to emission allowances. Emission allowances and their derivatives are considered financial instruments in accordance with applicable national and European Union regulations. The regulations established at the national and European Union level regarding the markets for financial instruments and the control of these markets will be applicable to natural or legal persons that trade in emission allowances or their derivatives.

The Seventh Additional Provision on anti-competitive practices, activities related to money laundering, terrorist financing or market abuse is amended. The Spanish Office for Climate Change, as the competent authority for the administration of the Spanish area of the European Union Registry, will inform the competent authorities in matters of investigation and fight against fraud, money laundering, terrorist financing, corruption or other serious crimes, of any suspicious action in relation to these matters and will cooperate with the competent national or EU authorities in matters of supervision of the emission allowances markets, when it has reasonable grounds to suspect acts that constitute insider trading in that market, and in accordance with the coordination mechanisms established by EU regulations.

CNMV

- **CNMV Circular 1/2020, of 6 October**, amending Circular 5/2013, of 12 June, establishing the templates for the annual corporate governance report for listed public limited companies, savings banks and other entities that issue securities admitted to trading on official securities markets and Circular 4/2013, of 12 June, establishing the templates for the annual report on the remuneration of directors of listed public limited companies and members of the Boards of Directors and control committees of savings banks that issue securities admitted to trading on official securities markets.

Following the approval of the partial review of the good governance code for listed companies, by Resolution of the CNMV Board, of 25 June 2020, amendments were made to the templates for the annual corporate governance report and the annual report on the remuneration of directors included respectively in CNMV Circular 5/2013, of 12 June, establishing templates for the annual corporate governance report of listed public limited companies, savings banks and other entities that issue securities admitted to trading on official securities markets and in CNMV Circular 4/2013, of 12 June, establishing the templates for the annual report on the remuneration of directors of listed public limited companies and members of the Boards of Directors and control committees of

savings banks that issue securities admitted to trading on official securities markets, following the amendments introduced by CNMV Circular 2/2018, of 12 June.

This Circular entered into force on the date following its publication in the Official State Gazette (*BOE*) and applies to the annual corporate governance reports and the annual reports on director remuneration that reporting entities are required to file for financial years ending on or after 31 December 2020.

- **CNMV Circular 2/2020, of 28 October**, on advertising of investment products and services.

This Circular will enter into force three months after its publication in the Official State Gazette (*BOE*), with the exception of Rule 7, on the characteristics of the register, which will enter into force six months after publication by the Bank of Spain of the technical standards set down in the Second Final Provision of Bank of Spain Circular 4/2020 of 26 June on advertising of banking products and services.

- **Correction of errors in CNMV Circular 2/2020, of 28 October**, on advertising of investment products and services.
- **CNMV amendment of technical guide 4/2017**, for the assessment of the knowledge and competence of staff giving information or advice, to permanently allow examinations to be carried out using remote means

European Union regulations (in order of publication in the *OJEU*)

- **Commission Implementing Regulation (EU) 2020/1406, of 2 October 2020**, laying down implementing technical standards with regard to procedures and forms for exchange of information and cooperation between competent authorities, ESMA, the Commission and other entities under Articles 24(2) and 25 of Regulation (EU) No. 596/2014 of the European Parliament and of the Council on market abuse.

Published in the *OJEU* (L) No. 325 of 7/10/2020.

- **Directive (EU) 2020/1504 of the European Parliament and of the Council, of 7 October 2020**, amending Directive 2014/65/EU on markets in financial instruments.

Published in the *OJEU* (L) No. 347 of 20/10/2020.

- **Regulation (EU) 2020/1503 of the European Parliament and of the Council, of 7 October 2020**, on European crowdfunding service providers for business, and amending Regulation (EU) 2017/1129 and Directive (EU) 2019/1937.

Published in the *OJEU* (L) No. 347 of 20/10/2020.

- **Commission Interpretative Communication** on the preparation, audit and publication of the financial statements included in the annual financial reports drawn up in accordance with Commission Delegated Regulation (EU) 2019/815 on the European Single Electronic Format (ESEF).

Published in the *OJEU* (L) No. 379 of 10/11/2020.

- **European Securities and Markets Authority Decision (EU) 2020/1689, of 16 September 2020**, renewing the temporary requirement to natural or legal persons who have net short positions to lower the notification thresholds of net short positions in relation to the issued share capital of companies whose shares are admitted to trading on a regulated market to notify the competent authorities above a certain threshold in accordance with point (a) of Article 28(1) of Regulation (EU) No. 236/2012 of the European Parliament and of the Council.

Published in the *OJEU* (L) No. 379 of 13/11/2020.

- **Commission Delegated Regulation (EU) 2020/1732, of 18 September 2020**, supplementing Regulation (EU) 2017/2402 of the European Parliament and of the Council with regard to fees charged by the European Securities and Markets Authority to securitisation repositories.

Published in the *OJEU* (L) No. 390 of 20/11/2020.

- **Commission Implementing Decision (EU) 2020/1766, of 25 November 2020**, determining, for a limited period of time, that the regulatory framework applicable to central securities depositories of the United Kingdom of Great Britain and Northern Ireland is equivalent in accordance with Regulation (EU) No. 909/2014 of the European Parliament and of the Council.

Published in the *OJEU* (L) No. 397 of 26/11/2020.

IV Statistics Annex

1 Markets

1.1 Equity

Share issues and public offerings¹

TABLE 1.1

	2018	2019	2020	2019 IV	2020 I	II	III	IV
NO. OF ISSUERS								
Total	46	33	28	12	8	8	8	14
Capital increases	45	33	28	12	8	8	8	14
Primary offerings	2	1	1	0	0	0	0	1
Bonus issues	12	10	12	2	5	1	5	6
Of which, scrip dividend	10	9	12	1	5	1	5	6
Capital increases by conversion	6	3	2	1	2	0	0	0
For non-monetary consideration	7	2	1	0	1	0	0	1
With pre-emptive subscription rights	10	8	5	3	0	1	1	3
Without trading warrants	16	13	9	8	0	6	2	4
Secondary offerings	1	0	0	0	0	0	0	0
NO. OF ISSUES								
Total	81	52	40	15	8	8	8	16
Capital increases	80	52	40	15	8	8	8	16
Primary offering	2	1	1	0	0	0	0	1
Bonus issues	17	15	17	2	5	1	5	6
Of which, scrip dividend	15	14	17	1	5	1	5	6
Capital increases by conversion	10	4	2	1	2	0	0	0
For non-monetary consideration	9	2	2	0	1	0	0	1
With pre-emptive subscription rights	10	9	5	3	0	1	1	3
Without trading warrants	32	21	13	9	0	6	2	5
Secondary offerings	1	0	0	0	0	0	0	0
CASH VALUE (millions of euros)								
Total	12,063.2	9,806.0	10,852.1	4,135.5	571.3	1,611.9	5,108.5	3,560.3
Capital increases	11,329.5	9,806.0	10,852.1	4,135.5	571.3	1,611.9	5,108.5	3,560.3
Primary offerings	200.1	10.0	150.1	0.0	0.0	0.0	0.0	150.1
Bonus issues	3,939.7	1,565.4	1,949.0	2.6	396.4	93.5	1,083.9	375.2
Of which, scrip dividend	3,915.2	1,564.1	1,949.0	1.3	396.4	93.5	1,083.9	375.2
Capital increases by conversion	388.7	354.9	162.4	341.1	162.4	0.0	0.0	0.0
For non-monetary consideration ²	2,999.7	2,034.2	233.0	0.0	12.5	0.0	0.0	220.5
With pre-emptive subscription rights	888.4	4,729.8	6,837.2	3,132.8	0.0	50.0	3,999.5	2,787.7
Without trading warrants	2,912.9	1,111.8	1,520.3	659.0	0.0	1,468.4	25.1	26.8
Secondary offerings	733.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOMINAL VALUE (millions of euros)								
Total	2,092.4	1,336.9	1,282.0	305.9	124.2	30.3	328.3	799.2
Capital increases	1,810.6	1,336.9	1,282.0	305.9	124.2	30.3	328.3	799.2
Primary offerings	104.9	0.5	7.8	0.0	0.0	0.0	0.0	7.8
Bonus issues	381.6	307.6	799.6	2.6	121.4	1.2	301.7	375.2
Of which, scrip dividend	357.1	306.3	799.6	1.3	121.4	1.2	301.7	375.2
Capital increases by conversion	90.0	16.6	1.7	3.4	1.7	0.0	0.0	0.0
For non-monetary consideration	557.6	401.0	68.0	0.0	1.1	0.0	0.0	66.8
With pre-emptive subscription rights	611.1	372.1	370.9	109.5	0.0	1.0	25.3	344.5
Without trading warrants	65.5	239.1	34.1	190.3	0.0	28.1	1.3	4.8
Secondary offerings	281.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pro memoria: transactions BME Growth³								
No. of issuers	8	12	9	4	5	3	2	3
No. of issues	12	17	14	4	6	3	2	3
Cash value (millions of euros)	164.5	298.3	238.5	200.5	18.3	9.9	36.0	174.3
Capital increases	164.5	298.3	238.5	200.5	18.3	9.9	36.0	174.3
Of which, primary offerings	0.0	229.4	173.5	196.3	0.1	0.0	0.0	173.4
Secondary offerings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

¹ Registered transactions at the CNMV. Does not include data from BME Growth, ETF or Latibex.

² Capital increases for non-monetary consideration are valued at market prices.

³ Unregistered transactions at the CNMV. Source: BME and CNMV.

Companies listed¹

TABLE 1.2

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Total electronic market ²	133	129	126	129	129	129	127	126
Of which, foreign companies	8	7	7	7	7	7	7	7
Second market	4	3	0	3	3	0	0	0
Madrid	1	1	0	1	1	0	0	0
Barcelona	3	2	0	2	2	0	0	0
Bilbao	0	0	0	0	0	0	0	0
Valencia	0	0	0	0	0	0	0	0
Open outcry	11	9	11	9	8	11	11	11
Madrid	4	3	3	3	2	3	3	3
Barcelona	6	5	6	5	4	6	6	6
Bilbao	3	2	2	2	2	2	2	2
Valencia	3	2	2	2	2	2	2	2
BME Growth ³	2,842	2,709	2,580	2,709	2,677	2,653	2,627	2,580
Latibex	19	19	19	19	19	19	19	19

1 Data at the end of period.

2 Without ETFs (Exchange Traded Funds).

3 Alternative Stock Market.

Capitalisation¹

TABLE 1.3

Millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Total electronic market ²	733,656.4	806,064.3	690,101.6	806,064.3	551,292.8	587,384.7	565,124.3	690,101.6
Of which, foreign companies ³	143,598.7	141,671.0	113,478.9	141,671.0	73,645.8	78,273.2	79,132.6	113,478.9
Ibex 35	444,178.3	494,789.4	424,167.3	494,789.4	352,613.5	377,846.0	355,491.3	424,167.3
Second market	37.4	31.1	0.0	31.1	31.1	0.0	0.0	0.0
Madrid	1.9	1.9	0.0	1.9	1.9	0.0	0.0	0.0
Barcelona	35.4	29.2	0.0	29.2	29.2	0.0	0.0	0.0
Bilbao	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Valencia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open outcry	1,459.1	1,154.2	1,053.6	1,154.2	1,053.0	1,096.6	1,053.9	1,053.6
Madrid	219.4	69.8	30.9	69.8	58.9	54.0	44.4	30.9
Barcelona	1,318.4	1,036.5	956.0	1,036.5	939.6	981.3	944.6	956.0
Bilbao	56.5	32.9	20.6	32.9	32.9	26.0	22.5	20.6
Valencia	257.0	80.4	76.0	80.4	76.0	76.0	76.0	76.0
BME Growth ^{4, 5}	40,020.7	44,706.4	43,595.5	44,706.4	39,698.8	41,841.8	42,231.5	43,595.5
Latibex	223,491.3	199,022.2	177,210.3	199,022.2	128,748.4	144,296.1	136,210.7	177,210.3

1 Data at the end of period.

2 Without ETFs (Exchange Traded Funds).

3 Capitalisation of foreign companies includes their entire shares, whether they are deposited in Spain or not.

4 Calculated only with outstanding shares, not including treasury shares, because capital stock is not reported until the end of the year.

5 Alternative Stock Market.

Trading

TABLE 1.4

Millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Total electronic market ¹	583,327.6	462,378.8	421,921.5	126,679.1	127,686.0	108,194.3	81,140.3	104,900.9
Of which, foreign companies	3,517.1	3,477.8	4,261.3	966.6	987.7	1,265.4	1,066.8	941.4
Second market	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Madrid	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Barcelona	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bilbao	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Valencia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open outcry	8.2	6.2	2.5	0.7	1.1	0.6	0.2	0.5
Madrid	0.7	0.8	0.1	0.0	0.1	0.0	0.0	0.0
Barcelona	7.4	3.2	2.4	0.7	1.0	0.6	0.2	0.5
Bilbao	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Valencia	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
BME Growth ²	4,216.3	4,014.4	3,919.2	1,358.7	1,145.3	809.5	641.8	1,322.6
Latibex	151.6	136.4	79.4	39.2	29.2	24.5	16.5	9.3

1 Without ETFs (Exchange Traded Funds).

2 Alternative Stock Market.

Trading on the electronic market by type of transaction¹

TABLE 1.5

Millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Regular trading	552,716.8	450,575.7	404,255.6	124,322.8	123,941.0	102,664.3	76,276.1	101,374.2
Orders	300,107.8	258,242.2	277,651.1	65,055.7	87,831.8	70,418.8	54,142.3	65,258.3
Put-throughs	48,644.1	38,888.0	42,666.5	10,283.0	12,503.4	9,276.1	9,273.5	11,613.4
Block trades	203,965.0	153,445.5	83,938.0	48,984.1	23,605.8	22,969.4	12,860.3	24,502.5
Off-hours	1,667.2	3,098.1	4,174.3	797.4	1,715.4	1,065.4	456.4	937.2
Authorised trades	2,597.0	1,706.3	2,001.4	342.8	254.7	239.5	938.5	568.8
Art. 36.1 SMA trades	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tender offers	18,981.7	2,509.5	5,250.9	0.0	0.0	2,569.1	2,681.7	0.0
Public offerings for sale	1,333.2	634.4	967.8	574.9	0.0	802.8	0.0	165.0
Declared trades	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Options	3,793.9	3,422.0	3,369.1	1,378.5	980.5	701.6	378.3	1,308.7
Hedge transactions	2,037.8	1,799.4	1,902.4	629.2	794.5	151.6	409.3	546.9

1 Without ETFs (Exchange Traded Funds).

1.2 Fixed income

Gross issues registered at the CNMV

TABLE 1.6

	2018	2019	2020	2019 IV	2020 I	II	III	IV
NO. OF ISSUERS								
Total	43	39	47	18	13	17	13	25
Covered bonds	12	12	14	6	3	8	3	6
Territorial-covered bonds	2	2	3	2	0	2	3	0
Non-convertible bonds and debentures	13	13	11	7	6	3	3	8
Convertible bonds and debentures	0	0	0	0	0	0	0	0
Backed securities	14	13	15	6	2	3	4	6
Commercial paper	13	11	11	2	2	4	1	4
Of which, asset-backed	1	0	0	0	0	0	0	0
Of which, non-asset-backed	12	11	11	2	2	4	1	4
Other fixed-income issues	0	1	2	0	0	2	0	0
Preference shares	4	1	2	0	0	0	1	1
NO. OF ISSUES								
Total	303	298	244	95	59	56	62	67
Covered bonds	28	29	26	9	6	10	4	6
Territorial-covered bonds	2	3	6	3	0	3	3	0
Non-convertible bonds and debentures	215	205	143	60	43	24	42	34
Convertible bonds and debentures	0	0	0	0	0	0	0	0
Backed securities	41	48	52	21	8	11	11	22
Commercial paper ¹	13	11	11	2	2	4	1	4
Of which, asset-backed	1	0	0	0	0	0	0	0
Of which, non-asset-backed	12	11	11	2	2	4	1	4
Other fixed-income issues	0	1	4	0	0	4	0	0
Preference shares	4	1	2	0	0	0	1	1
NOMINAL AMOUNT (millions of euros)								
Total	101,295.6	90,164.5	132,111.3	35,018.7	20,762.7	35,880.4	20,743.1	54,725.1
Covered bonds	26,575.0	22,933.0	22,960.0	7,508.0	6,250.0	11,100.0	1,160.0	4,450.0
Territorial-covered bonds	2,800.0	1,300.0	9,150.0	1,300.0	0.0	4,750.0	4,400.0	0.0
Non-convertible bonds and debentures	35,836.4	29,605.6	33,412.5	12,084.4	6,158.7	924.7	373.2	25,955.9
Convertible bonds and debentures	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backed securities	18,145.2	18,740.9	36,281.0	9,680.5	3,065.7	5,059.5	8,193.2	19,962.6
Commercial paper ²	15,089.1	15,085.0	22,291.6	4,445.9	5,288.3	7,780.0	5,616.6	3,606.7
Of which, asset-backed	240.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Of which, non-asset-backed	14,849.1	15,085.0	22,291.6	4,445.9	5,288.3	7,780.0	5,616.6	3,606.7
Other fixed-income issues	0.0	1,500.0	6,266.2	0.0	0.0	6,266.2	0.0	0.0
Preference shares	2,850.0	1,000.0	1,750.0	0.0	0.0	0.0	1,000.0	750.0
Pro memoria:								
Subordinated issues	4,923.0	3,213.5	14,312.1	2,088.3	860.7	516.0	2,020.2	10,915.2
Underwritten issues	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 Shelf registrations.

2 The figures for commercial paper refer to the amount placed.

Issues admitted to trading on AIAF¹

TABLE 1.7

Nominal amount in millions of euros

	2018	2019	2020	2019 IV	2020 I	II	III	IV
Total	76,751.3	114,034.0	114,505.2	28,921.7	26,909.2	38,581.3	20,295.8	33,443.9
Commercial paper	15,007.0	15,036.1	22,293.8	5,609.4	4,126.3	8,951.9	4,264.1	4,951.4
Bonds and debentures	19,234.2	45,082.0	20,407.1	1,684.8	16,299.0	909.3	294.1	2,904.7
Covered bonds	19,935.0	29,375.0	23,058.3	9,560.0	5,448.3	12,100.0	1,160.0	4,350.0
Territorial-covered bonds	800.0	3,300.0	9,150.0	1,300.0	0.0	4,750.0	4,400.0	0.0
Backed securities	18,925.2	18,740.9	31,556.0	10,767.5	1,035.7	5,580.0	9,177.5	20,487.8
Preference shares	2,850.0	1,000.0	1,750.0	0.0	0.0	0.0	1,000.0	750.0
Matador bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other fixed-income issues	0.0	1,500.0	6,290.1	0.0	0.0	6,290.1	0.0	0.0

1 Only corporate bonds are included.

				2019	2020			
	2018	2019	2020	IV	I	II	III	IV
NO. OF ISSUERS								
Total	353	331	321	331	327	325	323	321
Corporate bonds	320	299	289	299	295	293	291	289
Commercial paper	9	9	8	9	9	9	8	8
Bonds and debentures	45	40	41	40	39	39	40	41
Covered bonds	40	35	29	35	35	36	30	29
Territorial-covered bonds	7	7	8	7	7	7	8	8
Backed securities	244	227	222	227	224	223	224	222
Preference shares	7	6	5	6	6	5	5	5
Matador bonds	5	5	5	5	5	5	5	5
Government bonds	33	32	32	32	32	32	32	32
<i>Letras del Tesoro</i>	1	1	1	1	1	1	1	1
Long government bonds	1	1	1	1	1	1	1	1
Regional government debt	14	13	13	13	13	13	13	13
Foreign public debt	9	10	10	10	10	10	10	10
Other public debt	8	8	8	8	8	8	8	8
NO. OF ISSUES								
Total	2,851	2,775	2,610	2,775	2,701	2,682	2,646	2,610
Corporate bonds	1,917	1,834	1,655	1,834	1,765	1,719	1,677	1,655
Commercial paper	106	84	53	84	67	78	49	53
Bonds and debentures	737	718	589	718	678	620	604	589
Covered bonds	213	209	200	209	212	215	207	200
Territorial-covered bonds	20	23	22	23	21	21	22	22
Backed securities	828	787	777	787	774	773	782	777
Preference shares	8	8	9	8	8	7	8	9
Matador bonds	5	5	5	5	5	5	5	5
Government bonds	934	941	955	941	936	963	969	955
<i>Letras del Tesoro</i>	12	12	12	12	12	12	12	12
Long government bonds	243	236	231	236	237	237	233	231
Regional government debt	164	173	167	173	164	169	176	167
Foreign public debt	502	508	533	508	511	533	536	533
Other public debt	13	12	12	12	12	12	12	12
OUTSTANDING BALANCE¹ (millions of euros)								
Total	6,663,565.5	6,421,003.0	6,297,532.5	6,421,003.0	6,412,421.1	6,478,122.2	6,414,281.5	6,297,532.5
Corporate bonds	448,394.4	463,816.1	464,170.7	463,816.1	465,404.2	479,780.9	478,091.0	464,170.7
Commercial paper	9,308.7	6,423.1	4,812.4	6,423.1	5,840.2	6,401.8	4,675.1	4,812.4
Bonds and debentures	47,894.0	62,477.8	53,696.1	62,477.8	69,882.2	75,780.5	75,743.3	53,696.1
Covered bonds	183,266.8	195,719.1	199,054.1	195,719.1	199,396.8	207,478.3	202,543.3	199,054.1
Territorial-covered bonds	18,362.3	20,762.3	18,262.3	20,762.3	17,762.3	19,112.3	18,512.3	18,262.3
Backed securities	185,002.7	172,878.9	181,341.0	172,878.9	166,967.9	165,753.2	170,362.2	181,341.0
Preference shares	4,245.0	5,240.0	6,690.0	5,240.0	5,240.0	4,940.0	5,940.0	6,690.0
Matador bonds	314.8	314.8	314.8	314.8	314.8	314.8	314.8	314.8
Government bonds	6,215,171.1	5,957,186.8	5,833,361.8	5,957,186.8	5,947,017.0	5,998,341.3	5,936,190.4	5,833,361.8
<i>Letras del Tesoro</i>	70,442.2	68,335.5	79,765.7	68,335.5	68,888.5	81,414.0	88,038.0	79,765.7
Long government bonds	918,000.0	937,290.9	1,026,625.5	937,290.9	1,006,709.3	1,057,726.8	1,067,073.6	1,026,625.5
Regional government debt	33,100.4	35,247.6	32,775.5	35,247.6	31,493.3	32,097.8	32,815.4	32,775.5
Foreign public debt	5,192,055.3	4,914,792.7	4,692,674.9	4,914,792.7	4,838,405.6	4,825,582.4	4,746,743.2	4,692,674.9
Other public debt	1,573.2	1,520.2	1,520.2	1,520.2	1,520.2	1,520.2	1,520.2	1,520.2

¹ Nominal amount.

AIAF. Trading

TABLE 1.9

Nominal amount in millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
BY TYPE OF ASSET								
Total	94,241.3	158,807.2	140,509.4	26,175.9	45,994.9	53,413.4	25,232.4	15,868.7
Corporate bonds	435.4	275.2	170.2	62.9	61.8	27.5	36.4	44.5
Commercial paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bonds and debentures	427.0	260.0	169.4	62.4	61.4	27.5	36.2	44.3
Covered bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Territorial-covered bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backed securities	7.3	13.8	0.0	0.2	0.0	0.0	0.0	0.0
Preference shares	1.2	1.4	0.8	0.3	0.4	0.1	0.2	0.2
Matador bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Government bonds	93,805.8	158,532.0	140,339.2	26,113.1	45,933.1	53,385.9	25,196.0	15,824.2
Letras del Tesoro	24,766.7	25,858.4	27,975.5	7,865.0	5,504.2	12,722.2	5,472.2	4,276.9
Long government bonds	56,122.5	92,592.8	83,478.8	11,072.9	30,410.2	30,920.3	13,865.2	8,283.1
Regional government debt	3.2	35.1	0.0	0.0	0.0	0.0	0.0	0.0
Foreign public debt	12,913.5	40,027.8	28,884.9	7,175.2	10,018.6	9,743.4	5,858.6	3,264.3
Other public debt	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0
BY TYPE OF TRANSACTION								
Total	94,241.3	158,807.2	140,509.4	26,175.9	45,994.9	53,413.4	25,232.4	15,868.7
Outright	94,241.3	158,807.2	140,509.4	26,175.9	45,994.9	53,413.4	25,232.4	15,868.7
Repos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sell-buybacks/Buy-sellbacks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

AIAF. Third-party trading. By purchaser sector

TABLE 1.10

Nominal amount in millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Total	92,661.9	158,792.5	140,495.9	26,172.0	45,990.7	53,407.9	25,230.1	15,867.2
Non-financial companies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial institutions	92,661.9	158,792.5	140,495.9	26,172.0	45,990.7	53,407.9	25,230.1	15,867.2
Credit institutions	437.9	385.5	176.6	69.8	56.4	37.4	22.1	60.7
CIS, insurance and pension funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other financial institutions	92,224.0	158,407.0	140,319.3	26,102.2	45,934.3	53,370.4	25,208.0	15,806.5
General government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Households and NPISHs ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of the world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

¹ Non-profit institutions serving households.

Equity markets. Issuers, issues and outstanding balances

TABLE 1.11

				2019	2020			
	2018	2019	2020	IV	I	II	III	IV
NO. OF ISSUERS								
Total	14	13	11	13	12	12	12	11
Private issuers	6	5	4	5	5	5	5	4
Non-financial companies	0	0	0	0	0	0	0	0
Financial institutions	6	5	4	5	5	5	5	4
General government ¹	8	8	7	8	7	7	7	7
Regional governments	2	2	2	2	2	2	2	2
NO. OF ISSUES								
Total	58	54	44	54	52	52	50	44
Private issuers	19	16	11	16	16	16	16	11
Non-financial companies	0	0	0	0	0	0	0	0
Financial institutions	19	16	11	16	16	16	16	11
General government ¹	39	38	33	38	36	36	34	33
Regional governments	21	20	18	20	18	18	18	18
OUTSTANDING BALANCES ² (millions of euros)								
Total	8,268.3	7,340.4	6,158.4	7,340.4	6,249.6	6,242.6	6,227.9	6,158.4
Private issuers	589.8	481.1	366.3	481.1	464.2	449.1	435.6	366.3
Non-financial companies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial institutions	589.8	481.1	366.3	481.1	464.2	449.1	435.6	366.3
General government ¹	7,678.5	6,859.2	5,792.2	6,859.2	5,785.5	5,793.5	5,792.3	5,792.2
Regional governments	6,959.7	6,260.7	5,179.3	6,260.7	5,179.3	5,179.3	5,179.3	5,179.3

¹ Without public book-entry debt.

² Nominal amount.

SENAF. Public debt trading by type

TABLE 1.12

Nominal amounts in millions of euros

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Total	96,708.0	150,634.0	120,706.0	34,036.0	28,005.0	31,167.0	24,130.0	37,404.0
Outright	96,708.0	150,634.0	120,706.0	34,036.0	28,005.0	31,167.0	24,130.0	37,404.0
Sell-buybacks/Buy-sellbacks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1.3 Derivatives and other products

1.3.1 Financial derivative markets: MEFF

Trading on MEFF

TABLE 1.13

Number of contracts

	2018	2019	2020	2019	2020	II	III	IV
				IV	I			
Debt products	0	0	0	0	0	0	0	0
Debt futures ¹	0	0	0	0	0	0	0	0
Ibex 35 products ^{2,3}	6,983,287	7,935,425	7,784,513	1,999,333	2,693,090	1,602,972	1,699,700	1,788,751
Ibex 35 plus futures	6,342,478	5,965,905	5,905,782	1,475,185	1,992,435	1,231,531	1,328,472	1,353,344
Ibex 35 mini futures	149,023	1,454,885	1,543,507	366,525	619,842	307,848	302,183	313,634
Ibex 35 micro futures	–	36	0	3	0	0	0	0
Ibex 35 dividend impact futures	70,725	144,831	91,571	52,827	10,122	8,225	24,922	48,302
Ibex 35 sector futures	2,745	6	0	1	0	0	0	0
Call mini options	193,480	177,369	104,132	60,488	36,055	18,825	12,461	36,792
Put mini options	224,835	192,393	139,521	44,304	34,636	36,543	31,662	36,680
Stock products ⁴	31,412,879	32,841,027	30,313,892	9,339,160	9,850,736	7,531,055	4,226,165	8,705,936
Futures	10,703,192	15,298,027	10,968,411	3,103,189	3,437,527	3,657,008	875,676	2,998,200
Stock dividend futures	471,614	758,700	130,055	108,004	62,040	4,200	7,800	56,015
Stock plus dividend futures	200	0	7,752	0	0	3,264	612	3,876
Call options	7,761,974	7,405,619	8,564,019	2,597,957	3,216,199	1,393,792	1,880,966	2,073,062
Put options	12,475,899	9,378,681	10,643,655	3,530,010	3,134,970	2,472,791	1,461,111	3,574,783

1 Contract size: €100,000.

2 The number of Ibex 35 mini futures (multiples of €1) and micro futures (multiples of €0.1) was standardised to the size of the Ibex 35 plus futures (multiples of €10).

3 Contract size: Ibex 35, €10.

4 Contract size: 100 stocks.

1.3.2 Warrants, option buying and selling contracts, and ETF (Exchange-Traded Funds)

Issues registered at the CNMV

TABLE 1.14

				2019	2020			
	2018	2019	2020	IV	I	II	III	IV ¹
WARRANTS								
Premium amount (millions of euros)	2,084.9	1,837.7	1,167.7	557.7	219.4	453.3	0.6	494.4
On stocks	819.0	901.4	445.7	258.3	72.1	202.0	0.0	171.6
On indexes	1,160.5	809.3	674.0	267.5	139.8	233.7	0.6	299.8
Other underlyings ¹	105.5	127.1	48.1	31.9	7.5	17.7	0.0	22.9
Number of issues	5,231	5,496	3,081	1,306	646	1,426	1	1,008
Number of issuers	5	6	5	6	3	2	1	3
OPTION BUYING AND SELLING CONTRACTS								
Nominal amounts (millions of euros)	953.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On stocks	950.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On indexes	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other underlyings ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of issues	11	0	0	0	0	0	0	0
Number of issuers	2	0	0	0	0	0	0	0

1 It includes the following underlying: baskets of stocks, exchange rates, interest rates and commodities.

	2018	2019	2020	2019 IV	2020 I	II	III	IV
WARRANTS								
Trading (millions of euros)	435.2	291.6	319.7	63.3	86.4	82.1	71.3	80.0
On Spanish stocks	93.3	81.1	121.1	21.1	20.5	28.3	29.7	42.6
On foreign stocks	31.6	19.7	26.0	7.1	9.6	6.5	5.3	4.6
On indexes	305.5	186.6	161.7	33.6	53.1	44.8	34.7	29.1
Other underlyings ¹	4.8	3.7	10.9	1.6	3.2	2.4	1.6	3.6
Number of issues ²	3,986	3,605	3,785	823	1,095	1,074	805	811
Number of issuers ²	7	8	7	8	7	7	6	4
CERTIFICATES								
Trading (millions of euros)	0.3	0.3	0.2	0.1	0.2	0.0	0.0	0.0
Number of issues ²	2	2	1	2	1	1	1	1
Number of issuers ²	1	1	1	1	1	1	1	1
ETFs								
Trading (millions of euros)	3,027.6	1,718.8	2,548.1	461.6	819.0	671.4	436.0	621.6
Number of funds	6	6	5	5	5	5	5	5
Assets ³ (millions of euros)	288.9	229.2	241.5	229.2	205.5	234.0	206.6	241.5

1 It includes the following underlying: baskets of stocks, exchange rates, interest rates and commodities.

2 Issues or issuers which were traded in each period.

3 Only assets from national collective investment schemes are included because assets from foreign schemes are not available. Available data: November 2020.

2 Investment services

Investment services. Spanish firms, branches and agents

TABLE 2.1

	2017	2018	2019	2019 IV	2020 I	II	III	IV
BROKER-DEALERS								
Spanish firms	41	39	39	39	37	38	38	38
Branches in Spain	24	25	19	19	18	17	14	14
Agents operating in Spain	5,747	2,027	1,944	1,944	1,698	1,397	1,385	1,407
Branches in EEA ¹	5	9	9	9	9	9	9	8
Firms providing services in EEA ¹	24	24	25	25	25	26	25	24
Passports to operate in EEA ^{1, 2}	165	172	205	205	205	205	205	191
BROKERS								
Spanish firms	48	52	56	56	56	55	57	57
Branches in Spain	23	21	23	23	23	23	23	24
Agents operating in Spain	461	414	361	361	338	328	356	353
Branches in EEA ¹	2	2	1	1	1	1	0	0
Firms providing services in EEA ¹	22	25	24	24	25	24	28	28
Passports to operate in EEA ^{1, 2}	116	150	144	144	146	146	153	196
PORTFOLIO MANAGEMENT COMPANIES								
Spanish firms	1	1	1	1	1	1	1	1
FINANCIAL ADVISORY FIRMS								
Spanish firms	171	158	140	140	140	139	139	140
Branches in Spain	19	21	22	22	21	21	23	23
Branches in EEA ¹	2	2	2	2	2	2	2	2
Firms providing services in EEA ¹	29	29	29	29	26	28	28	27
Passports to operate in EEA ^{1, 2}	62	51	51	51	48	50	50	47
CREDIT INSTITUTIONS³								
Spanish firms	122	114	112	112	111	111	111	111

1 EEA: European Economic Area.

2 Number of passports to provide services in the EEA. The same entity may provide investment services in one or more Member States.

3 Source: Banco de España [Bank of Spain] and CNMV.

Investment services. Foreign firms

TABLE 2.2

	2017	2018	2019	2019 IV	2020 I	II	III	IV
Total	3,339	3,474	3,567	3,567	3,562	3,588	3,607	3,617
Investment services firms	2,872	3,002	3,088	3,088	3,083	3,105	3,123	3,131
From EU Member states	2,869	2,999	3,085	3,085	3,080	3,102	3,120	3,128
Branches	53	61	65	65	64	66	69	66
Free provision of services	2,816	2,938	3,020	3,020	3,016	3,036	3,051	3,062
From non-EU States	3	3	3	3	3	3	3	3
Branches	0	0	0	0	0	0	0	0
Free provision of services	3	3	3	3	3	3	3	3
Credit institutions ¹	467	472	479	479	479	483	484	486
From EU Member states	461	466	473	473	474	478	478	480
Branches	52	53	54	54	54	53	52	50
Free provision of services	409	413	419	419	420	425	426	430
Subsidiaries of free provision of services institutions	0	0	0	0	0	0	0	0
From non-EU States	6	6	6	6	5	5	6	6
Branches	4	3	3	3	3	3	4	4
Free provision of services	2	3	3	3	2	2	2	2

1 Source: Banco de España [Bank of Spain] and CNMV.

Intermediation of spot transactions¹

TABLE 2.3

Millions of euros

				2019		2020			
	2017	2018	2019	III	IV	I	II	III	
FIXED INCOME									
Total	3,727,687.0	3,082,789.5	3,222,363.2	791,523.6	735,041.6	1,108,871.4	1,117,312.0	812,220.5	
Broker-dealers	2,347,959.0	2,184,921.9	2,263,416.4	574,831.6	497,478.6	679,536.9	1,114,160.4	809,770.1	
Spanish organised markets	836,831.1	855,948.9	909,992.9	239,719.8	201,547.3	270,037.2	241,184.6	335,918.7	
Other Spanish markets	1,255,087.2	1,111,231.9	1,012,359.1	235,678.5	215,515.3	321,387.3	767,902.7	386,420.7	
Foreign markets	256,040.7	217,741.1	341,064.4	99,433.3	80,416.0	88,112.4	105,073.1	87,430.7	
Brokers	1,379,728.0	897,867.6	958,946.8	216,692.0	237,563.0	429,334.5	3,151.6	2,450.4	
Spanish organised markets	6,067.6	6,237.8	17,314.9	4,714.1	901.2	912.9	95.6	63.8	
Other Spanish markets	1,175,387.4	702,731.7	803,742.9	178,640.9	210,317.5	405,160.9	6.7	15.5	
Foreign markets	198,273.0	188,898.1	137,889.0	33,337.0	26,344.3	23,260.7	3,049.3	2,371.1	
EQUITY									
Total	804,328.3	630,896.1	1,213,388.9	330,078.7	387,429.2	512,419.7	481,027.4	399,610.5	
Broker-dealers	660,312.8	600,442.4	1,194,473.3	326,053.1	382,524.4	503,328.1	476,513.5	395,365.0	
Spanish organised markets	610,682.8	525,648.7	329,666.8	69,963.7	88,826.2	90,300.4	70,683.0	61,868.9	
Other Spanish markets	3,178.2	839.1	1,771.0	446.3	941.4	1,650.4	1,138.4	1,358.8	
Foreign markets	46,451.8	73,954.6	863,035.5	255,643.1	292,756.8	411,377.3	404,692.1	332,137.3	
Brokers	144,015.5	30,453.7	18,915.6	4,025.6	4,904.8	9,091.6	4,513.9	4,245.5	
Spanish organised markets	7,037.7	6,462.5	7,712.5	2,115.0	1,980.0	2,510.1	1,627.2	1,157.4	
Other Spanish markets	12,052.0	1,328.5	1,006.8	241.5	262.2	454.0	174.8	204.5	
Foreign markets	124,925.8	22,662.7	10,196.3	1,669.1	2,662.6	6,127.5	2,711.9	2,883.6	

1 Period accumulated data. Quarterly.

Intermediation of derivative transactions^{1, 2}

TABLE 2.4

Millions of euros

	2017	2018	2019	2019		2020		
				III	IV	I	II	III
Total	10,708,583.9	10,308,915.0	10,807,586.8	2,595,476.8	3,092,990.7	2,647,243.6	2,333,005.1	2,778,782.7
Broker-dealers	10,528,524.3	10,065,090.4	10,523,995.1	2,552,432.9	2,995,603.4	2,500,341.1	2,312,414.3	2,737,831.0
Spanish organised markets	5,330,761.9	5,457,270.1	5,058,147.9	1,267,019.9	1,398,540.1	1,125,366.5	657,784.1	1,028,024.7
Foreign organised markets	4,676,156.7	3,927,718.5	4,160,941.8	999,213.7	1,200,656.7	1,028,475.9	1,349,458.4	1,432,002.8
Non-organised markets	521,605.7	680,101.8	1,304,905.4	286,199.3	396,406.6	346,498.7	305,171.8	277,803.5
Brokers	180,059.6	243,824.6	283,591.7	43,043.9	97,387.3	146,902.5	20,590.8	40,951.7
Spanish organised markets	17,171.0	30,836.1	29,601.4	4,695.3	6,539.9	4,100.6	2,201.8	2,770.0
Foreign organised markets	48,043.8	105,915.8	116,038.0	21,661.2	35,758.0	59,555.4	16,425.1	37,982.9
Non-organised markets	114,844.8	107,072.7	137,952.3	16,687.4	55,089.4	83,246.5	1,963.9	198.8

1 The amount of the buy and sell transactions of financial assets, financial futures on values and interest rates, and other transactions on interest rates will be the securities nominal or notional value or the principal to which the contract applies. The amount of the transactions on options will be the strike price of the underlying asset multiplied by the number of instruments committed.

2 Period accumulated data. Quarterly.

Portfolio management. Number of portfolios and assets under management¹

TABLE 2.5

				2019		2020		
	2017	2018	2019	III	IV	I	II	III
NUMBER OF PORTFOLIOS								
Total ²	12,601	16,172	25,389	21,935	25,389	32,814	38,359	41,911
Broker-dealers. Total	3,769	3,807	3,219	3,620	3,219	3,383	3,291	3,491
CIS ³	18	37	40	43	40	40	40	35
Other ⁴	3,751	3,770	3,179	3,577	3,179	3,343	3,251	3,456
Brokers. Total	8,831	12,364	22,169	18,315	22,169	29,431	35,068	38,420
CIS ³	89	83	79	79	79	78	81	81
Other ⁴	8,742	12,281	22,090	18,236	22,090	29,353	34,987	38,339
Portfolio management companies. ² Total	1	1	1	–	1	–	–	–
CIS ³	1	1	1	–	1	–	–	–
Other ⁴	0	0	0	–	0	–	–	–
ASSETS UNDER MANAGEMENT (thousands of euros)								
Total ²	36,923,861	4,854,719	4,946,670	5,057,339	4,946,670	4,736,945	5,322,476	5,607,558
Broker-dealers. Total	33,958,038	2,216,956	2,266,997	2,484,996	2,266,997	2,221,520	2,419,320	2,527,115
CIS ³	344,474	838,379	1,059,718	1,020,180	1,059,718	1,038,540	1,061,277	1,091,841
Other ⁴	33,613,564	1,378,577	1,207,279	1,464,816	1,207,279	1,182,980	1,358,043	1,435,274
Brokers. Total	2,949,741	2,619,297	2,658,674	2,572,343	2,658,674	2,515,425	2,903,156	3,080,443
CIS ³	1,595,851	1,295,580	1,346,615	1,054,869	1,346,615	920,360	1,135,309	1,024,130
Other ⁴	1,353,890	1,323,717	1,312,059	1,517,474	1,312,059	1,595,065	1,767,847	2,056,313
Portfolio management companies. ² Total	16,082	18,466	20,999	–	20,999	–	–	–
CIS ³	16,082	18,466	20,999	–	20,999	–	–	–
Other ⁴	0	0	0	–	0	–	–	–

1 Data at the end of period. Quarterly.

2 Only public information about portfolio management companies is shown with the aim of maintaining statistical secrecy, as the number of companies is not enough to guarantee this. For the rest of the periods, only data on broker-dealers and brokers are shown.

3 It includes both resident and non-resident CIS management.

4 It includes the rest of clients, both covered and not covered by the Investment Guarantee Fund – an investor compensation scheme regulated by Royal Decree 948/2001.

Financial advice. Number of contracts^{1, 2}

TABLE 2.6

				2019		2020		
	2017	2018	2019	III	IV	I	II	III
NUMBER OF CONTRACTS								
Total ³	20,170	23,149	26,561	25,762	26,561	29,158	30,262	30,732
Broker-dealers. Total	5,125	5,241	6,163	5,971	6,163	7,647	8,474	8,553
Retail clients	5,108	5,211	6,115	5,932	6,115	7,598	8,424	8,500
Professional clients	6	21	31	29	31	47	44	47
Eligible counterparties	11	9	17	10	17	2	6	6
Brokers. Total	15,045	17,908	20,398	19,791	20,398	21,511	21,788	22,179
Retail clients	14,881	17,654	20,125	19,439	20,125	21,221	21,498	21,878
Professional clients	132	199	229	310	229	249	249	258
Eligible counterparties	32	55	44	42	44	41	41	43
Portfolio management companies. ³ Total	0	0	0	–	0	–	–	–
Retail clients	0	0	0	–	0	–	–	–
Professional clients	0	0	0	–	0	–	–	–
Eligible counterparties	0	0	0	–	0	–	–	–
Pro memoria: commission received for financial advice ⁴ (thousands of euros)								
Total ⁴	16,473	35,287	37,583	30,581	37,583	8,139	13,757	21,650
Broker-dealers	5,555	9,562	23,400	21,118	23,400	1,455	2,809	4,098
Brokers	10,918	25,725	14,183	9,463	14,183	6,684	10,948	17,552
Portfolio management companies ⁴	0	0	0	–	0	–	–	–

1 Data at the end of period. Quarterly.

2 Quarterly data on assets advised are not available since the entry into force of CNMV Circular 3/2014, of 22 October.

3 Only public information about portfolio management companies is shown with the aim of maintaining statistical secrecy, as the number of companies is not enough to guarantee this. For the rest of the periods, only data on broker-dealers and brokers are shown.

4 Accumulated data from the beginning of the year to the last day of every quarter. It includes companies removed during the year.

Aggregated income statement. Broker-dealers

TABLE 2.7

Thousands of euros¹

	2017	2018	2019	2019	2020	II	III	IV ³
				IV	I ²			
I. Interest income	21,377	73,969	38,125	38,125	-1,582	12,589	24,500	30,819
II. Net commission	402,154	296,037	279,650	279,650	73,729	140,318	217,674	247,114
Commission revenues	549,298	414,595	427,813	427,813	126,716	246,775	375,890	421,234
Brokering	217,601	160,320	164,606	164,606	68,269	120,852	186,917	210,482
Placement and underwriting	17,553	11,090	8,849	8,849	529	1,270	2,022	2,799
Securities deposit and recording	38,200	42,958	42,643	42,643	11,696	21,646	29,832	32,133
Portfolio management	49,720	13,505	15,102	15,102	2,782	5,513	8,463	9,388
Design and advice	16,406	21,135	34,751	34,751	4,543	8,546	12,178	13,018
Stock search and placement	1,500	543	1,302	1,302	237	358	591	594
Market credit transactions	0	0	0	0	0	0	0	0
CIS marketing	83,354	55,483	53,506	53,506	12,533	24,390	37,102	41,345
Other	124,964	109,561	107,055	107,055	26,127	64,199	98,786	111,475
Commission expenses	147,144	118,558	148,163	148,163	52,987	106,457	158,216	174,120
III. Financial investment income	43,725	27,088	29,452	29,452	12,209	76,359	81,645	84,492
IV. Net exchange differences and other operating products and expenses	28,507	16,614	29,066	29,066	15,860	43,553	62,949	79,172
V. Gross income	495,763	413,708	376,293	376,293	100,216	272,819	386,768	441,597
VI. Operating income	145,364	85,837	55,978	55,978	28,917	104,835	118,562	126,784
VII. Earnings from continuous activities	120,683	91,771	54,528	54,528	25,567	93,627	108,852	116,125
VIII. Net earnings from the period	157,065	91,771	54,528	54,528	25,567	93,627	108,852	116,125

¹ Accumulated data from the beginning of the year to the last day of every quarter. It includes companies removed during the year.

² Revised data.

³ Available data: October 2020.

Results of proprietary trading. Broker-dealers

TABLE 2.8

Thousands of euros¹

				2019		2020		
	2017	2018	2019	III	IV	I ²	II ²	III
TOTAL								
Total	92,832	114,751	101,039	74,611	101,039	26,479	132,428	169,792
Money market assets and public debt	3,909	11,193	2,625	2,266	2,625	1,054	20,266	20,480
Other fixed-income securities	34,369	11,842	27,811	21,178	27,811	6,399	2,073	7,299
Domestic portfolio	20,941	8,304	13,186	8,873	13,186	2,581	8,133	9,259
Foreign portfolio	13,428	3,538	14,625	12,305	14,625	3,818	-6,060	-1,960
Equities	53,601	10,844	8,009	5,218	8,009	914	24,095	23,890
Domestic portfolio	11,494	9,901	7,006	4,265	7,006	1,250	24,344	24,124
Foreign portfolio	42,107	943	1,003	953	1,003	-336	-249	-234
Derivatives	-40,286	-1,167	-3,873	-1,911	-3,873	4,368	20,341	20,882
Repurchase agreements	-288	-107	-3,492	-2,105	-3,492	-1,597	-3,106	-4,883
Market credit transactions	0	0	0	0	0	0	0	0
Deposits and other transactions with financial intermediaries	114	3,884	1,084	829	1,084	-303	-2,766	-4,582
Net exchange differences	4,353	283	118	-24	118	158	-340	-563
Other operating products and expenses	24,154	16,330	28,949	21,755	28,949	15,703	43,893	63,512
Other transactions	12,906	61,649	39,808	27,405	39,808	-217	27,972	43,757
INTEREST INCOME								
Total	21,377	73,968	38,127	27,327	38,127	-1,582	12,589	24,501
Money market assets and public debt	1,576	2,036	1,027	839	1,027	147	302	441
Other fixed-income securities	1,285	1,300	3,319	1,971	3,319	597	832	1,051
Domestic portfolio	415	124	734	113	734	341	409	479
Foreign portfolio	870	1,176	2,585	1,858	2,585	256	423	572
Equities	6,140	3,673	2,767	1,800	2,767	48	827	927
Domestic portfolio	3,047	2,892	2,456	1,564	2,456	30	657	709
Foreign portfolio	3,093	781	311	236	311	18	170	218
Repurchase agreements	-288	-107	-3,492	-2,105	-3,492	-1,597	-3,106	-4,883
Market credit transactions	0	0	0	0	0	0	0	0
Deposits and other transactions with financial intermediaries	114	3,884	1,084	829	1,084	-303	-2,766	-4,582
Other transactions	12,550	63,182	33,422	23,993	33,422	-474	16,500	31,547
FINANCIAL INVESTMENT INCOME								
Total	43,725	27,088	29,451	22,366	29,451	12,212	76,358	81,647
Money market assets and public debt	2,333	9,157	1,598	1,427	1,598	907	19,964	20,039
Other fixed-income securities	33,084	10,542	24,492	19,207	24,492	5,802	1,241	6,248
Domestic portfolio	20,526	8,180	12,452	8,760	12,452	2,240	7,724	8,780
Foreign portfolio	12,558	2,362	12,040	10,447	12,040	3,562	-6,483	-2,532
Equities	47,461	7,171	5,242	3,418	5,242	866	23,268	22,963
Domestic portfolio	8,447	7,009	4,550	2,701	4,550	1,220	23,687	23,415
Foreign portfolio	39,014	162	692	717	692	-354	-419	-452
Derivatives	-40,286	-1,167	-3,873	-1,911	-3,873	4,368	20,341	20,882
Other transactions	1,133	1,385	1,992	225	1,992	269	11,544	11,515
EXCHANGE DIFFERENCES AND OTHER ITEMS								
Total	27,730	13,695	33,461	24,918	33,461	15,849	43,481	63,644
Net exchange differences	4,353	283	118	-24	118	158	-340	-563
Other operating products and expenses	24,154	16,330	28,949	21,755	28,949	15,703	43,893	63,512
Other transactions	-777	-2,918	4,394	3,187	4,394	-12	-72	695

¹ Accumulated data from the beginning of the year to the last day of every quarter. It includes companies removed during the year.

² Revised data

Aggregated income statement. Brokers

TABLE 2.9

Thousands of euros¹

	2017	2018	2019	2019	2020	II	III	IV ²
				IV	I			
I. Interest income	3,127	1,583	1,252	1,252	-4	551	601	611
II. Net commission	120,674	135,782	130,293	130,293	34,779	65,697	94,756	104,157
Commission revenues	142,771	156,624	150,842	150,842	40,524	75,912	111,082	122,550
Brokering	20,449	20,018	23,194	23,194	8,196	14,004	17,508	18,780
Placement and underwriting	3,427	1,120	580	580	979	1,172	1,198	1,227
Securities deposit and recording	903	824	879	879	216	417	618	667
Portfolio management	12,470	15,412	14,890	14,890	3,404	6,648	10,239	11,494
Design and advice	11,263	26,446	14,426	14,426	6,705	11,004	17,641	19,039
Stock search and placement	0	0	0	0	0	0	0	0
Market credit transactions	0	0	0	0	0	0	0	0
CIS marketing	60,571	63,821	62,866	62,866	14,549	29,299	44,738	50,198
Other	33,689	28,983	34,008	34,008	6,475	13,367	19,137	21,144
Commission expenses	22,097	20,842	20,549	20,549	5,745	10,215	16,326	18,393
III. Financial investment income	1,133	-51	910	910	-7,366	-6,788	-6,239	-6,367
IV. Net exchange differences and other operating products and expenses	-1,680	-279	1,194	1,194	-198	-416	-864	-943
V. Gross income	123,254	137,035	133,648	133,648	27,211	59,044	88,254	97,458
VI. Operating income	17,024	12,031	9,284	9,284	-5,456	-3,604	-1,018	-1,410
VII. Earnings from continuous activities	11,620	7,459	6,163	6,163	-5,109	-1,547	630	190
VIII. Net earnings of the period	11,620	7,459	6,163	6,163	-5,109	-1,547	630	190

1 Accumulated data from the beginning of the year to the last day of every quarter. It includes companies removed during the year.

2 Available data: October 2020.

Aggregated income statement. Portfolio management companies¹

TABLE 2.10

Thousands of euros²

	2015	2016	2017	2018	2019
I. Interest income	399	83	23	6	5
II. Net commission	8,526	6,617	1,543	350	404
Commission revenues	13,064	6,617	1,543	350	404
Portfolio management	11,150	4,228	1,095	350	404
Design and advice	371	354	59	0	0
Other	1,544	2,035	390	0	0
Commission expenses	4,538	0	0	0	0
III. Financial investment income	-28	-1	6	-25	13
IV. Net exchange differences and other operating products and expenses	-234	-126	-52	-20	-20
V. Gross income	8,663	6,573	1,520	311	402
VI. Operating income	3,331	3,172	623	-2	52
VII. Earnings from continuous activities	2,335	2,222	439	-2	37
VIII. Net earnings of the period	2,335	2,222	439	-2	37

1 Only public information about portfolio management companies is shown with the aim of maintaining statistical secrecy, as the number of companies is not enough to guarantee this.

2 Accumulated data from the beginning of the year. It includes companies removed during the year.

Capital adequacy and capital ratio¹

TABLE 2.11

	2017	2018	2019	2019		2020		
				III	IV	I	II	III
TOTAL²								
Total capital ratio ³	33.40	42.36	46.92	35.74	46.92	37.13	38.13	35.50
Own fund surplus (thousands of euros)	803,793	915,383	1,165,707	901,336	1,165,707	1,098,487	1,140,625	1,118,080
Surplus (%) ⁴	317.54	429.49	486.52	346.78	486.52	364.11	376.61	343.76
No. of companies according to surplus percentage								
≤ 100%	18	20	23	24	23	25	26	22
> 100–≤ 300%	23	29	31	26	31	27	26	30
> 300–≤ 500%	14	10	10	10	10	12	10	11
> 500%	18	15	13	20	13	13	14	14
BROKER-DEALERS								
Total capital ratio ³	34.28	45.16	49.63	36.95	49.63	39.05	39.90	36.83
Own fund surplus (thousands of euros)	755,143	874,235	1,118,273	852,187	1,118,273	1,037,871	1,076,361	1,052,871
Surplus (%) ⁴	328.55	464.51	520.42	361.84	520.42	388.12	398.73	360.42
No. of companies according to surplus percentage								
≤ 100%	8	7	7	7	7	6	8	8
> 100–≤ 300%	10	10	14	14	14	13	13	13
> 300–≤ 500%	8	7	4	3	4	6	4	4
> 500%	13	14	11	15	11	11	12	12
BROKERS								
Total capital ratio ³	24.69	21.17	23.34	24.11	23.34	22.14	23.62	23.75
Own fund surplus (thousands of euros)	48,452	40,952	47,249	49,149	47,249	60,616	64,264	65,209
Surplus (%) ⁴	208.66	164.84	191.77	201.40	191.77	176.80	195.24	196.84
No. of companies according to surplus percentage								
≤ 100%	10	13	16	17	16	19	18	14
> 100–≤ 300%	12	18	16	12	16	14	13	17
> 300–≤ 500%	6	3	6	7	6	6	6	7
> 500%	5	1	2	5	2	2	2	2
PORTFOLIO MANAGEMENT COMPANIES²								
Total capital ratio ³	30.70	29.68	25.72	–	25.72	–	–	–
Own fund surplus (thousands of euros)	198	196	185	–	185	–	–	–
Surplus (%) ⁴	282.86	272.22	221.50	–	221.50	–	–	–
No. of companies according to surplus percentage								
≤ 100%	0	0	0	–	0	–	–	–
> 100–≤ 300%	1	1	1	–	1	–	–	–
> 300–≤ 500%	0	0	0	–	0	–	–	–
> 500%	0	0	0	–	0	–	–	–

1 This table only includes the entities subject to reporting requirements according to Regulation (EU) No. 575/2013 of the European Parliament and of the Council, of 26 June 2013, on prudential requirements for credit institutions and investment firms.

2 Only public information about portfolio management companies is shown with the aim of maintaining statistical secrecy, as the number of companies is not enough to guarantee this. For the rest of the periods, only data on broker-dealers and brokers are shown.

3 Total capital ratio is the own funds of the institution expressed as a percentage of the total risk exposure amount. This ratio should not be under 8%, pursuant to the provisions of Regulation.

4 Average surplus percentage is weighted by the required equity of each company. It is an indicator of the number of times, in percentage terms, that the surplus contains the required equity in an average company.

Return on equity (ROE) before taxes¹

TABLE 2.12

	2017	2018	2019	2019 III	2019 IV	2020 I	2020 II	2020 III
TOTAL²								
Average (%) ³	17.73	12.27	9.23	6.91	9.23	10.41	25.53	19.58
Number of companies according to annualised return								
Losses	20	40	32	39	32	44	39	42
0-≤ 15%	28	22	22	27	22	13	10	10
> 15-≤ 45%	22	10	19	17	19	17	15	18
> 45-≤ 75%	4	6	7	4	7	3	8	6
> 75%	15	14	12	10	12	15	19	17
BROKER-DEALERS								
Average (%) ³	17.84	12.16	8.87	6.36	8.87	14.25	27.89	21.16
Number of companies according to annualised return								
Losses	7	18	13	19	13	17	15	20
0-≤ 15%	17	12	13	15	13	6	6	2
> 15-≤ 45%	11	5	7	5	7	10	7	9
> 45-≤ 75%	1	2	1	1	1	1	6	2
> 75%	4	2	2	0	2	2	3	4
BROKERS								
Average (%) ³	16.49	13.24	12.05	11.80	12.05	-13.84	9.77	9.37
Number of companies according to annualised return								
Losses	13	21	19	20	19	27	24	22
0-≤ 15%	11	10	9	12	9	7	4	8
> 15-≤ 45%	10	5	11	12	11	7	8	9
> 45-≤ 75%	3	4	6	3	6	2	2	4
> 75%	11	12	10	10	10	13	16	13
PORTFOLIO MANAGEMENT COMPANIES²								
Average (%) ³	20.65	-0.84	19.74	-	19.74	-	-	-
Number of companies according to annualised return								
Losses	0	1	0	-	0	-	-	-
0-≤ 15%	0	0	0	-	0	-	-	-
> 15-≤ 45%	1	0	1	-	1	-	-	-
> 45-≤ 75%	0	0	0	-	0	-	-	-
> 75%	0	0	0	-	0	-	-	-

1 ROE has been calculated as:

$$ROE = \frac{\text{Earnings before taxes (annualized)}}{\text{Own funds}}$$

Own funds = Share capital + Paid-in surplus + Reserves – Own shares + Prior year profits and retained earnings – Interim dividend.

2 Only public information about portfolio management companies is shown, with the aim of maintaining statistical secrecy, as the number of companies is not enough to guarantee this. For the rest of the periods, only data on broker-dealers and brokers are shown.

3 Average weighted by equity, %.

Financial advisory firms. Main figures¹

TABLE 2.13

Thousands of euros

	2015	2016	2017	2018	2019
ASSETS UNDER ADVICE²					
Total	25,084,882	30,174,877	30,790,535	31,658,460	21,627,677
Retail clients	6,499,049	7,588,143	9,096,071	10,281,573	8,313,608
Rest of clients and entities	18,585,833	22,586,734	21,694,464	21,376,887	13,314,069
Professional	5,108,032	5,654,358	6,482,283	7,052,031	-
Other	13,477,801	16,932,376	15,212,181	14,324,856	-
COMMISSION INCOME³					
Total	57,231	52,534	65,802	62,168	56,128
Commission revenues	56,227	51,687	65,191	61,079	55,258
Other income	1,004	847	611	1,088	870
EQUITY					
Total	25,021	24,119	32,803	33,572	32,746
Share capital	5,881	6,834	8,039	6,894	5,522
Reserves and retained earnings	7,583	12,123	13,317	15,386	17,525
Income for the year ³	11,481	7,511	11,361	10,626	7,889
Other own funds	76	-2,349	86	666	1,809

1 Annual frequency since 2015 (CNMV Circular 3/2014, of 22 October).

2 Data at the end of each period. Since 2019, due to the entry into force of CNMV Circular 4/2018, there is no disaggregated information of non-retail clients.

3 Accumulated data from the beginning of the year.

3 Collective Investment Schemes (CIS)^a

Number, management companies and depositories of CIS registered at the CNMV

TABLE 3.1

	2017	2018	2019	2019	2020	II	III	IV ¹
				IV	I			
Total financial CIS	4,564	4,386	4,233	4,233	4,182	4,152	4,092	4,035
Mutual funds	1,676	1,617	1,595	1,595	1,578	1,562	1,534	1,518
Investment companies	2,833	2,713	2,569	2,569	2,535	2,518	2,484	2,441
Funds of hedge funds	8	7	7	7	7	7	7	7
Hedge funds	47	49	62	62	62	65	67	69
Total real estate CIS	7	7	5	5	5	5	5	5
Real estate mutual funds	3	3	2	2	2	2	2	2
Real estate investment companies	4	4	3	3	3	3	3	3
Total foreign CIS marketed in Spain	1,013	1,024	1,033	1,033	1,035	1,042	1,042	1,042
Foreign funds marketed in Spain	455	429	399	399	402	402	402	404
Foreign companies marketed in Spain	558	595	634	634	633	640	640	638
Management companies	109	119	123	123	124	124	125	124
CIS depositories	54	37	36	36	36	36	36	36

1 Available data: November 2020.

Number of CIS investors and shareholders

TABLE 3.2

	2017	2018	2019	2019	2020	II	III	IV ¹
				IV	I			
Total financial CIS ²	10,704,585	11,627,118	12,132,581	12,132,581	12,142,357	12,324,766	12,613,450	12,694,029
Mutual funds	10,283,312	11,213,482	11,734,029	11,734,029	11,746,642	11,939,407	12,232,861	12,323,848
Investment companies	421,273	413,636	398,552	398,552	395,715	385,359	380,589	370,181
Total real estate CIS ²	1,424	905	799	799	796	795	795	797
Real estate mutual funds	1,097	483	483	483	483	483	483	483
Real estate investment companies	327	422	316	316	313	312	312	314
Total foreign CIS marketed in Spain ^{3, 4}	1,984,474	3,172,682	3,361,901	3,361,901	3,421,733	3,839,528	3,939,998	–
Foreign funds marketed in Spain	431,295	547,517	521,648	521,648	531,035	573,316	568,132	–
Foreign companies marketed in Spain	1,553,179	2,625,165	2,840,253	2,840,253	2,890,698	3,266,212	3,371,866	–

1 Available data: October 2020.

2 Investors and shareholders who invest in many sub-funds from the same CIS have only been taken into account once. For this reason, investors and shareholders may be different from those in Tables 3.6 and 3.7.

3 Only data on UCITS are included. Data on Exchange Traded Funds (ETFs) are not included until IV-2017. From I-2018 onwards, data are estimated.

4 On 1 January 2018 CNMV Circular 2/2017, of 25 October, entered into force, which has increased the entities subject to reporting requirements; therefore data may not be comparable with previous information.

a Information about mutual funds and Investment companies contained in this section does not include hedge funds or funds of hedge funds. The information about hedge funds and funds of hedge funds is included in Table 3.12.

CIS total net assets

TABLE 3.3

Millions of euros

	2017	2018	2019	2019	2020	II	III	IV ¹
				IV	I			
Total financial CIS	296,619.5	286,930.9	308,170.1	308,170.1	274,633.1	289,847.9	293,159.3	290,632.3
Mutual funds ²	265,194.8	259,095.0	279,377.4	279,377.4	250,126.3	263,619.4	267,084.6	265,126.7
Investment companies	31,424.7	27,835.9	28,792.7	28,792.7	24,506.9	26,228.5	26,074.7	25,505.6
Total real estate CIS	991.4	1,058.2	1,072.9	1,072.9	1,076.8	1,205.1	1,210.2	1,210.9
Real estate mutual funds	360.0	309.4	309.4	309.4	309.7	309.7	310.6	310.6
Real estate investment companies	631.4	748.8	763.5	763.5	767.1	895.4	899.5	900.3
Total foreign CIS marketed in Spain ^{3, 4}	150,420.6	162,701.9	178,841.5	178,841.5	167,800.5	186,002.0	190,324.3	–
Foreign funds marketed in Spain	26,133.9	34,237.1	30,843.4	30,843.4	29,844.4	30,056.0	26,815.7	–
Foreign companies marketed in Spain	124,286.7	128,464.9	147,998.1	147,998.1	137,956.1	155,945.9	163,508.6	–

1 Available data: October 2020.

2 Mutual funds investment in financial mutual funds of the same management company reached €7,449.9 million in September 2020.

3 Only data on UCITS re included. Data on Exchange Traded Funds (ETFs) are not included until IV-2017. From I-2018 onwards, data are estimated.

4 On 1 January 2018 CNMV Circular 2/2017, of 25 October, entered into force, which has increased the entities subject to reporting requirements; therefore, data may not be comparable with previous information.

Asset allocation of mutual funds

TABLE 3.4

Millions of euros

	2017	2018	2019	2019	2020	I	II	III
				III	IV			
Asset	265,194.8	259,095.0	279,377.4	273,100.7	279,377.4	250,126.3	263,619.4	267,084.6
Portfolio investment	244,598.0	241,016.2	256,750.7	251,719.1	256,750.7	225,972.0	240,056.3	244,025.4
Domestic securities	83,032.1	74,486.1	66,520.4	69,542.8	66,520.4	55,616.4	55,564.9	53,561.9
Debt securities	55,389.1	50,537.5	44,637.7	47,670.3	44,637.7	38,960.2	39,528.1	38,418.7
Shares	10,911.7	10,868.4	9,047.9	9,258.3	9,047.9	5,696.7	5,810.0	5,283.9
Collective investment schemes	7,625.9	6,984.9	8,581.9	7,982.2	8,581.9	7,729.5	8,019.8	8,081.5
Deposits in credit institutions	8,657.1	5,854.8	4,004.8	4,375.5	4,004.8	3,103.6	2,067.2	1,645.0
Derivatives	441.4	235.4	243.2	251.3	243.2	114.8	126.9	120.7
Other	6.8	5.2	4.9	5.2	4.9	11.7	12.8	12.1
Foreign securities	161,556.6	166,522.5	190,224.5	182,169.4	190,224.5	170,350.5	184,486.8	190,459.0
Debt securities	67,794.0	74,079.1	83,817.5	82,625.8	83,817.5	82,667.6	83,963.6	86,819.1
Shares	27,081.8	26,660.8	33,115.9	30,924.1	33,115.9	25,407.5	29,738.0	30,293.6
Collective investment schemes	66,099.9	65,624.3	73,054.4	68,328.8	73,054.4	62,442.1	70,616.8	73,159.4
Deposits in credit institutions	74.7	21.1	4.5	14.7	4.5	4.5	11.1	9.7
Derivatives	504.7	136.0	231.3	275.0	231.3	-172.1	156.4	176.4
Other	1.4	1.2	0.9	1.0	0.9	0.9	0.9	0.9
Doubtful assets and matured investments	9.3	7.6	5.8	6.9	5.8	5.0	4.6	4.5
Intangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net fixed assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash	19,988.5	16,897.1	21,735.1	20,954.7	21,735.1	21,319.0	21,651.0	21,373.8
Net balance (Debtors - Creditors)	608.3	1,181.7	891.6	426.9	891.6	2,835.3	1,912.1	1,685.4

Asset allocation of investment companies

TABLE 3.5

Millions of euros

	2017	2018	2019	2019		2020		
				III	IV	I	II	III
Asset	31,424.7	27,835.9	28,792.7	28,366.6	28,792.7	24,506.9	26,228.5	26,074.7
Portfolio investment	28,804.9	24,840.8	25,940.3	25,140.6	25,940.3	21,490.8	23,583.5	23,439.5
Domestic securities	6,229.4	5,031.5	4,588.3	4,621.3	4,588.3	3,622.1	3,438.0	3,293.7
Debt securities	1,653.8	1,433.8	1,217.1	1,265.2	1,217.1	1,155.8	885.1	878.1
Shares	2,674.5	2,193.7	1,982.8	1,992.2	1,982.8	1,440.5	1,497.5	1,381.3
Collective investment schemes	1,625.9	1,193.8	1,232.2	1,178.6	1,232.2	892.6	927.5	921.8
Deposits in credit institutions	236.2	164.3	98.6	134.6	98.6	79.8	73.0	57.9
Derivatives	-0.6	-0.2	0.8	-2.1	0.8	-3.0	-3.0	-4.0
Other	39.7	46.2	56.8	52.9	56.8	56.5	58.0	58.7
Foreign securities	22,566.2	19,803.8	21,348.2	20,512.8	21,348.2	17,864.4	20,142.0	20,142.4
Debt securities	4,396.6	4,241.6	4,617.7	4,469.0	4,617.7	4,030.2	4,075.8	3,860.2
Shares	6,987.8	5,979.1	6,133.8	5,975.1	6,133.8	4,998.1	6,022.3	5,915.0
Collective investment schemes	11,153.5	9,540.9	10,549.0	10,023.7	10,549.0	8,781.9	9,988.5	10,315.4
Deposits in credit institutions	0.0	0.0	1.1	1.1	1.1	0.0	0.0	0.0
Derivatives	19.3	27.6	34.1	27.6	34.1	41.9	42.1	38.6
Other	8.9	14.5	12.5	16.3	12.5	12.3	13.2	13.1
Doubtful assets and matured investments	9.3	5.6	3.8	6.4	3.8	4.3	3.5	3.4
Intangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net fixed assets	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Cash	2,421.7	2,731.9	2,659.8	2,926.1	2,659.8	2,707.5	2,396.2	2,404.0
Net balance (Debtors - Creditors)	197.5	262.6	192.1	299.4	192.1	308.0	248.3	230.6

Financial mutual funds: number, investors and total net assets by category^{1, 2}

TABLE 3.6

				2019	2020			
	2017	2018	2019	IV	I	II	III	IV ³
NO. OF FUNDS								
Total financial mutual funds	1,741	1,725	1,710	1,710	1,697	1,692	1,654	1,649
Fixed income ⁴	290	279	281	281	283	283	276	275
Mixed fixed income ⁵	155	168	173	173	173	175	170	171
Mixed equity ⁶	176	184	185	185	187	186	183	186
Euro equity	111	113	113	113	112	110	108	104
Foreign equity	211	236	263	263	272	275	279	277
Guaranteed fixed income	79	67	66	66	66	63	57	57
Guaranteed equity ⁷	188	163	155	155	147	145	136	136
Global funds	225	242	255	255	254	247	250	247
Passive management ⁸	202	172	133	133	119	125	117	118
Absolute return	104	99	84	84	82	81	76	76
INVESTORS								
Total financial mutual funds	10,287,454	11,217,569	11,739,183	11,739,183	11,751,437	11,944,057	12,237,441	12,328,243
Fixed income ⁴	2,627,547	2,709,547	3,668,324	3,668,324	3,660,775	3,793,867	4,002,906	4,030,249
Mixed fixed income ⁵	1,197,523	1,188,157	1,087,881	1,087,881	1,203,900	1,204,871	1,184,715	1,185,857
Mixed equity ⁶	584,408	624,290	707,159	707,159	707,919	715,404	737,674	737,747
Euro equity	710,928	831,115	598,901	598,901	532,060	500,778	487,843	485,480
Foreign equity	1,865,367	2,225,366	2,655,123	2,655,123	2,732,902	2,775,877	2,914,093	2,944,966
Guaranteed fixed income	190,075	165,913	154,980	154,980	148,317	145,787	141,812	141,605
Guaranteed equity ⁷	527,533	494,660	428,470	428,470	391,235	383,372	368,979	367,769
Global funds	1,086,937	1,501,730	1,359,915	1,359,915	1,355,885	1,376,316	1,355,646	1,366,245
Passive management ⁸	638,966	543,192	429,428	429,428	396,398	435,035	438,709	467,052
Absolute return	858,170	930,641	646,042	646,042	619,085	609,793	602,106	598,315
TOTAL NET ASSETS (millions of euros)								
Total financial mutual funds	265,194.8	259,095.0	279,377.4	279,377.4	250,126.3	263,619.4	267,084.6	265,126.7
Fixed income ⁴	70,563.9	66,889.3	78,583.2	78,583.2	73,475.8	76,179.4	78,775.6	79,467.5
Mixed fixed income ⁵	43,407.0	40,471.0	40,819.9	40,819.9	41,312.7	42,581.8	41,957.1	41,690.0
Mixed equity ⁶	22,386.7	23,256.0	28,775.8	28,775.8	25,829.7	27,511.7	29,019.2	28,583.3
Euro equity	12,203.2	12,177.7	10,145.1	10,145.1	6,618.2	7,027.7	6,399.0	5,889.5
Foreign equity	24,064.6	24,404.9	34,078.9	34,078.9	27,636.0	31,757.0	32,763.6	32,032.9
Guaranteed fixed income	5,456.7	4,887.4	4,809.3	4,809.3	4,505.2	4,517.4	4,397.6	4,402.7
Guaranteed equity ⁷	15,417.5	14,556.0	13,229.1	13,229.1	11,684.0	11,626.5	11,328.0	11,286.3
Global funds	35,511.5	42,137.2	43,041.9	43,041.9	37,120.7	39,071.8	39,057.4	38,464.2
Passive management ⁸	19,477.8	16,138.6	14,073.8	14,073.8	11,708.7	13,054.6	13,223.8	13,256.0
Absolute return	16,705.9	14,172.5	11,818.3	11,577.6	11,818.3	10,233.0	10,161.5	10,052.4

1 Sub-funds which have sent reports to the CNMV excluding those in process of dissolution or liquidation.

2 Data on side-pocket sub-funds are only included in aggregate figures, and not in each individual category.

3 Available data: October 2020.

4 Until I-2019 it includes: fixed income euro, foreign fixed income, monetary market funds and short-term monetary market funds. From II-2019 onwards, it includes: short-term euro fixed income, euro fixed income, foreign fixed income, public debt constant net asset value short-term money market funds (MMFs), low volatility net asset value short-term MMFs, variable net asset value short-term MMFs and variable net asset value standard MMFs.

5 Mixed euro fixed income and foreign mixed fixed income.

6 Mixed euro equity and foreign mixed equity.

7 Guaranteed equity and partial guarantee.

8 Until I-2019 it includes: passive management CISs. From II-2019 onwards, it includes: passive management CIS, index-tracking CIS and non-guaranteed specific return target CIS.

Financial mutual funds: Detail of investors and total net assets by types

TABLE 3.7

				2019	2020			
	2017	2018	2019	IV	I	II	III	IV ¹
INVESTORS								
Total financial mutual funds	10,287,454	11,217,569	11,739,183	11,739,183	11,751,437	11,944,057	12,237,441	12,328,243
Natural persons	10,080,255	11,008,977	11,534,957	11,534,957	11,551,161	11,738,396	12,028,712	12,113,986
Residents	9,994,395	10,917,387	11,440,086	11,440,086	11,456,061	11,642,328	11,931,340	12,015,990
Non-residents	85,860	91,590	94,871	94,871	95,100	96,068	97,372	97,996
Legal persons	207,199	208,592	204,226	204,226	200,276	205,661	208,729	214,257
Credit institutions	515	655	1,928	1,928	1,415	1,435	1,444	1,424
Other resident institutions	205,804	207,073	201,408	201,408	198,000	203,379	206,431	211,983
Non-resident institutions	880	864	890	890	861	847	854	850
TOTAL NET ASSETS (millions of euros)								
Total financial mutual funds	265,194.8	259,095.0	279,377.4	279,377.4	250,126.3	263,619.4	267,084.6	265,126.7
Natural persons	218,429.6	215,785.0	231,434.8	231,434.8	207,225.4	218,464.1	221,134.7	219,499.3
Residents	215,290.8	212,758.3	228,214.4	228,214.4	204,390.5	215,479.5	218,133.5	216,517.3
Non-residents	3,138.8	3,026.7	3,220.4	3,220.4	2,834.9	2,984.6	3,001.2	2,982.0
Legal persons	46,765.1	43,310.0	47,942.6	47,942.6	42,900.8	45,155.3	45,949.8	45,627.4
Credit institutions	342.2	384.1	523.7	523.7	412.4	440.1	447.1	446.5
Other resident institutions	45,518.8	41,967.9	46,628.9	46,628.9	41,913.2	44,127.4	44,892.0	44,605.1
Non-resident institutions	904.1	957.9	790.0	790.0	575.2	587.8	610.7	575.9

1 Available data: October 2020.

Subscriptions and redemptions of financial mutual funds by category^{1, 2}

TABLE 3.8

Millions of euros

	2017	2018	2019	2019	2020			
				III	IV	I	II	III
SUBSCRIPTIONS								
Total financial mutual funds	151,586.4	130,577.0	156,702.7	32,555.6	34,009.0	40,155.8	22,418.1	22,788.8
Fixed income	59,088.5	53,165.8	91,050.8	15,125.4	15,896.8	17,098.9	10,772.7	10,912.9
Mixed fixed income	20,513.3	14,823.4	14,154.1	3,373.1	4,623.9	7,341.1	1,628.1	3,347.8
Mixed equity	10,452.2	10,406.8	11,156.0	1,624.4	3,665.9	3,238.3	1,160.3	2,385.2
Euro equity	9,452.9	7,024.3	2,998.4	511.4	769.0	714.8	664.9	252.2
Foreign equity	14,866.5	13,265.2	16,864.0	7,452.2	3,843.4	5,649.8	3,758.1	2,584.2
Guaranteed fixed income	986.9	796.0	854.1	36.7	8.4	45.5	204.7	173.0
Guaranteed equity	2,413.1	2,116.8	898.2	68.6	22.4	15.4	8.9	24.7
Global funds	21,571.9	20,455.3	12,713.7	2,296.0	3,628.0	4,395.4	1,978.3	1,646.2
Passive management	2,374.0	3,014.3	2,261.9	376.4	476.8	928.1	1,541.1	1,015.1
Absolute return	9,867.1	5,493.3	3,751.5	1,691.4	1,074.5	728.4	701.2	447.5
REDEMPTIONS								
Total financial mutual funds	130,248.0	122,669.5	154,273.0	32,262.7	31,757.6	42,240.3	22,286.0	22,129.0
Fixed income	62,087.2	55,823.7	80,046.4	10,531.1	14,948.6	18,569.8	9,413.2	8,611.4
Mixed fixed income	18,011.6	16,685.2	16,004.2	4,307.6	3,049.7	5,333.4	2,072.5	4,517.1
Mixed equity	4,942.6	7,344.0	7,943.7	1,551.0	2,970.6	2,962.3	1,142.5	1,566.0
Euro equity	6,908.0	5,246.8	6,540.2	1,024.1	1,235.0	1,536.8	1,037.7	711.5
Foreign equity	10,363.6	9,476.0	12,963.1	4,691.8	2,352.9	3,911.7	4,160.7	2,471.0
Guaranteed fixed income	3,876.9	1,202.9	1,136.7	162.9	287.3	306.9	203.8	272.5
Guaranteed equity	3,001.5	2,582.6	2,739.2	816.4	1,101.5	1,302.8	222.0	350.5
Global funds	8,587.6	11,301.6	15,133.7	5,702.2	3,133.4	4,841.6	2,187.2	2,227.3
Passive management	6,954.8	5,776.3	5,272.0	1,139.0	1,757.8	2,027.1	817.8	930.7
Absolute return	5,488.2	7,230.5	6,493.7	2,336.3	920.8	1,447.8	1,028.4	471.0

1 Estimated data.

2 Data on side-pocket sub-funds are only included in aggregate figures, and not in each individual category.

**Change in assets in financial mutual funds by category:
Net subscriptions/redemptions and return on assets^{1, 2}**

TABLE 3.9

Millions of euros

				2019		2020		
	2017	2018	2019	III	IV	I	II	III
NET SUBSCRIPTIONS/REDEMPTIONS								
Total financial mutual funds	21,325.0	7,841.8	2,467.5	295.6	2,247.9	-2,103.9	145.6	680.6
Fixed income	-3,638.0	-2,766.0	10,732.6	4,352.6	914.1	-3,186.6	1,393.8	2,141.4
Mixed fixed income	2,890.5	-1,063.7	-1,506.1	-949.3	1,618.4	3,742.5	-353.7	-988.9
Mixed equity	5,498.6	2,485.9	3,288.8	-0.8	693.1	411.2	6.8	1,036.4
Euro equity	2,549.7	1,848.7	-3,588.2	-518.3	-466.0	-836.8	-366.0	-485.7
Foreign equity	4,514.0	3,864.1	4,113.8	2,843.5	1,492.7	1,735.7	-355.5	174.0
Guaranteed fixed income	-3,262.6	-575.8	-282.6	-126.2	-278.9	-261.3	-43.8	-156.9
Guaranteed equity	-309.5	-667.2	-1,857.0	-745.2	-1,078.6	-1,313.7	-213.0	-347.2
Global funds	13,405.9	9,448.9	-2,553.9	-3,325.4	495.4	-574.7	-253.4	-580.3
Passive management	-4,585.0	-2,790.4	-3,026.8	-780.1	-1,295.8	-1,099.7	737.5	158.5
Absolute return	4,287.3	-1,899.6	-2,852.9	-454.9	153.5	-720.6	-407.0	-270.7
RETURN ON ASSETS								
Total financial mutual funds	6,022.6	-13,919.3	18,002.8	1,898.4	4,197.3	-27,140.2	13,353.6	2,796.2
Fixed income	-24.1	-908.5	961.9	316.0	-202.0	-1,920.7	1,309.9	455.6
Mixed fixed income	451.4	-1,865.1	1,866.9	267.5	248.0	-3,245.8	1,627.0	369.4
Mixed equity	577.8	-1,616.6	2,231.0	264.1	469.4	-3,357.3	1,675.2	471.1
Euro equity	987.8	-1,871.2	1,556.4	-124.2	577.1	-2,690.2	776.0	-142.5
Foreign equity	1,872.3	-3,522.6	5,561.1	341.1	2,139.2	-8,178.5	4,477.5	832.6
Guaranteed fixed income	39.4	6.6	204.4	71.5	-54.9	-42.8	56.1	37.1
Guaranteed equity	251.3	-194.2	530.0	202.0	-87.3	-231.3	155.6	48.7
Global funds	1,190.3	-2,602.1	3,460.8	359.1	844.5	-5,345.9	2,204.0	566.4
Passive management	472.9	-537.5	1,133.2	157.6	176.4	-1,262.9	608.4	15.2
Absolute return	203.4	-796.6	498.7	43.7	87.2	-864.8	464.4	142.7

¹ Data on side-pocket sub-funds are only included in aggregate figures, and not in each individual category.

² A change of category is treated as a redemption in the original category and a subscription in the final one. For this reason, and the adjustments due to de-registrations in the quarter, the net subscription/refund data may be different from those in Table 3.8

Return on assets in financial mutual funds. Breakdown by category¹

TABLE 3.10

% of daily average total net assets

				2019	2020				
	2017	2018	2019	III	IV	I	II	III	
MANAGEMENT YIELDS									
Total financial mutual funds	3.41	-4.19	7.67	0.95	1.77	-9.74	5.44	1.31	
Fixed income	0.59	-0.79	1.83	0.55	-0.14	-2.39	1.89	0.72	
Mixed fixed income	2.22	-3.25	5.75	0.95	0.87	-7.22	4.11	1.15	
Mixed equity	4.36	-5.46	9.79	1.32	2.03	-11.38	6.58	1.99	
Euro equity	11.14	-11.98	16.01	-0.81	6.20	-30.24	11.68	-1.71	
Foreign equity	10.80	-11.89	21.00	1.55	7.10	-25.19	15.31	3.01	
Guaranteed fixed income	1.14	0.56	4.52	1.50	-1.01	-0.82	1.42	1.04	
Guaranteed equity	2.18	-0.80	4.20	1.54	-0.56	-1.77	1.46	0.56	
Global funds	5.39	-5.11	9.24	1.15	2.32	-12.50	6.04	1.74	
Passive management	2.81	-2.55	7.88	1.15	1.36	-9.82	5.29	0.27	
Absolute return	2.32	-4.01	4.93	0.59	0.98	-7.37	4.74	1.61	
EXPENSES. MANAGEMENT FEE									
Total financial mutual funds	0.91	0.86	0.85	0.21	0.21	0.20	0.20	0.21	
Fixed income	0.54	0.45	0.44	0.11	0.11	0.10	0.10	0.11	
Mixed fixed income	1.05	0.96	0.92	0.23	0.23	0.21	0.22	0.22	
Mixed equity	1.34	1.26	1.29	0.32	0.33	0.31	0.31	0.32	
Euro equity	1.71	1.47	1.49	0.37	0.38	0.36	0.36	0.37	
Foreign equity	1.69	1.41	1.41	0.34	0.35	0.32	0.31	0.32	
Guaranteed fixed income	0.48	0.38	0.36	0.09	0.09	0.09	0.09	0.09	
Guaranteed equity	0.58	0.53	0.47	0.11	0.11	0.11	0.11	0.11	
Global funds	1.07	0.98	1.03	0.26	0.27	0.26	0.26	0.27	
Passive management	0.52	0.48	0.42	0.10	0.10	0.10	0.10	0.11	
Absolute return	0.91	0.79	0.81	0.20	0.21	0.20	0.19	0.19	
EXPENSES. DEPOSITORY FEE									
Total financial mutual funds	0.08	0.07	0.07	0.02	0.02	0.02	0.02	0.02	
Fixed income	0.07	0.06	0.06	0.02	0.02	0.02	0.02	0.02	
Mixed fixed income	0.09	0.08	0.08	0.02	0.02	0.02	0.02	0.02	
Mixed equity	0.10	0.10	0.10	0.02	0.02	0.02	0.02	0.02	
Euro equity	0.11	0.10	0.10	0.03	0.02	0.02	0.02	0.02	
Foreign equity	0.10	0.09	0.09	0.02	0.02	0.02	0.02	0.02	
Guaranteed fixed income	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01	
Guaranteed equity	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01	
Global funds	0.09	0.08	0.08	0.02	0.02	0.02	0.02	0.02	
Passive management	0.06	0.05	0.05	0.01	0.01	0.01	0.01	0.01	
Absolute return	0.07	0.06	0.06	0.02	0.02	0.02	0.02	0.02	

¹ Data on side-pocket sub-funds are only included in aggregate figures, and not in each individual category.

Quarterly return of mutual funds. Breakdown by category¹

TABLE 3.11

%

	2017	2018	2019	2019	2020	II	III	IV ²
				IV	I			
Total financial mutual funds	2.42	-4.89	7.12	1.57	-9.30	5.56	1.08	-0.72
Fixed income	-0.13	-1.44	1.38	-0.26	-2.43	1.82	0.60	0.21
Mixed fixed income	1.10	-4.27	4.75	0.59	-6.97	3.96	0.90	-0.44
Mixed equity	3.23	-6.45	9.25	1.68	-11.06	6.54	1.71	-1.06
Euro equity	11.16	-13.01	14.27	5.95	-28.48	11.94	-2.25	-5.31
Foreign equity	8.75	-12.34	22.18	6.91	-23.11	16.43	2.62	-2.46
Guaranteed fixed income	0.72	0.09	3.98	-1.07	-0.94	1.20	0.83	0.37
Guaranteed equity	1.61	-1.33	3.62	-0.63	-1.86	1.35	0.43	0.10
Global funds	4.46	-5.69	8.45	2.04	-12.00	6.15	1.46	-0.71
Passive management	2.13	-3.16	7.45	1.27	-9.29	5.54	0.10	-1.37
Absolute return	1.44	-4.81	3.94	0.75	-7.50	4.66	1.42	-0.19

¹ Data on side-pocket sub-funds are only included in aggregate figures, and not in each individual category.

² Available data: October 2020.

Hedge funds and funds of hedge funds

TABLE 3.12

	2017	2018	2019	2019	2020			
				III	IV	I	II	III ¹
HEDGE FUNDS								
Investors/shareholders	3,656	4,444	7,548	6,451	7,548	8,025	8,023	7,968
Total net assets (millions of euros)	2,298.2	2,262.2	2,832.4	2,467.1	2,832.4	2,523.3	2,704.5	2,700.7
Subscriptions (millions of euros)	663.9	500.7	1,290.0	208.3	835.4	215.5	70.8	24.7
Redemptions (millions of euros)	607.2	320.4	937.0	68.7	570.7	86.1	80.9	103.2
Net subscriptions/redemptions (millions of euros)	56.7	180.3	353.0	139.6	264.8	129.3	-10.1	-78.6
Return on assets (millions of euros)	149.4	-153.8	217.2	6.0	100.6	-438.5	191.4	69.7
Returns (%)	7.84	-6.47	10.35	0.22	3.94	-13.75	7.83	1.96
Management yields (%) ²	9.51	-5.46	9.94	0.49	4.08	-15.76	7.39	3.03
Management fees (%) ²	2.59	1.70	1.19	0.23	0.25	0.23	0.23	0.37
Financial expenses (%) ²	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
FUNDS OF HEDGE FUNDS								
Investors/shareholders	3,596	2,804	2,859	2,861	2,859	2,855	2,859	2,860
Total net assets (millions of euros)	468.7	468.8	566.7	562.4	566.7	546.8	612.3	617.2
Subscriptions (millions of euros)	205.4	7.2	72.3	42.2	0.0	2.2	12.1	-
Redemptions (millions of euros)	22.1	0.6	0.3	0.1	-0.4	0.1	0.4	-
Net subscriptions/redemptions (millions of euros)	183.4	6.6	71.4	42.2	-0.4	2.1	11.7	-
Return on assets (millions of euros)	-8.3	-6.5	26.5	6.5	4.6	-22.0	53.7	-
Returns (%)	-1.66	-1.28	5.23	1.10	0.83	-3.49	3.26	0.80
Management yields (%) ³	-0.24	-3.04	6.32	1.61	1.12	-3.08	2.81	-
Management fees (%) ³	1.45	1.64	1.63	0.39	0.36	0.36	0.36	-
Depository fees (%) ³	0.06	0.06	0.06	0.02	0.02	0.01	0.02	-

1 Available data: August 2020.

2 % of monthly average total net assets.

3 % of daily average total net assets.

Management companies. Number of portfolios and assets under management

TABLE 3.13

	2017	2018	2019	2019	2020			
				IV	I	II	III	IV ¹
NUMBER OF PORTFOLIOS²								
Mutual funds	1,676	1,617	1,595	1,595	1,578	1,562	1,534	1,526
Investment companies	2,824	2,713	2,560	2,560	2,530	2,512	2,479	2,452
Funds of hedge funds	8	7	7	7	7	7	7	7
Hedge funds	47	49	62	62	62	65	67	69
Real estate mutual funds	3	3	2	2	2	2	2	2
Real estate investment companies	4	4	3	3	3	3	3	3
ASSETS UNDER MANAGEMENT (millions of euros)								
Mutual funds	265,194.8	259,095.0	279,377.4	279,377.4	250,126.3	263,619.4	267,084.6	265,126.7
Investment companies	31,021.1	27,479.7	28,385.5	28,385.5	24,220.8	25,883.3	25,742.1	25,180.8
Funds of hedge funds ³	468.7	468.8	566.7	566.7	546.8	559.9	617.2	-
Hedge funds ³	2,298.2	2,262.2	2,832.4	2,832.4	2,523.3	2,700.1	2,700.7	-
Real estate mutual funds	360.0	309.4	309.4	309.4	309.7	309.7	310.6	310.6
Real estate investment companies	631.5	748.8	763.5	763.5	767.1	895.4	899.5	900.3

1 Available data: October 2020.

2 Data source: Registers of Collective Investment Schemes.

3 Available data: August 2020.

Foreign Collective Investment Schemes marketed in Spain¹

TABLE 3.14

	2017	2018	2019	2019	2020				
				III	IV	I	II	III	
INVESTMENT VOLUME ^{2, 3} (millions of euros)									
Total	150,420.6	162,335.0	178,841.5	177,664.7	178,841.5	167,800.5	186,002.0	190,324.3	
Mutual funds	26,133.9	34,209.6	30,843.4	30,207.0	30,843.4	29,844.4	30,056.0	26,815.7	
Investment companies	124,286.7	128,125.5	147,998.1	147,457.7	147,998.1	137,956.1	155,945.9	163,508.6	
INVESTORS/SHAREHOLDERS ²									
Total	1,984,474	3,173,245	3,361,901	3,145,703	3,361,901	3,421,733	3,839,528	3,939,998	
Mutual funds	431,295	547,826	521,648	488,584	521,648	531,035	573,316	568,132	
Investment companies	1,553,179	2,625,419	2,840,253	2,657,119	2,840,253	2,890,698	3,266,212	3,371,866	
NUMBER OF SCHEMES ⁴									
Total	1,013	1,024	1,033	1,017	1,033	1,035	1,042	1,042	
Mutual funds	455	429	399	392	399	402	402	404	
Investment companies	558	595	634	625	634	633	640	638	
COUNTRY ⁴									
Luxembourg	429	447	462	461	462	463	469	468	
France	292	263	222	221	222	222	221	224	
Ireland	184	200	220	216	220	219	221	221	
Germany	35	42	48	47	48	49	49	46	
United Kingdom	33	27	23	24	23	23	23	23	
The Netherlands	2	2	4	4	4	4	4	4	
Austria	21	24	30	25	30	31	31	31	
Belgium	5	5	5	4	5	5	5	5	
Denmark	1	1	1	1	1	1	1	1	
Finland	8	9	11	10	11	11	11	12	
Liechtenstein	3	4	4	4	4	4	4	4	

1 Only data on UCITS are included. On 1 January 2018 CNMV Circular 2/2017, of 25 October, entered into force, which has increased the entities subject to reporting requirements; therefore, data may not be comparable with previous information

2 Data on Exchange Traded Funds (ETFs) are not included until IV-2017. From I-2018 onwards, data are estimated.

3 Investment volume: participations or shares owned by the investors/shareholders at the end of the period valued at that time.

4 UCITS (funds and societies) registered at the CNMV.

Real estate investment schemes¹

TABLE 3.15

	2017	2018	2019	2019	2020			
				IV	I	II	III	IV ²
REAL ESTATE MUTUAL FUNDS								
Number	3	2	2	2	2	2	2	2
Investors	1,097	483	483	483	483	483	483	483
Assets (millions of euros)	360.0	309.4	309.4	309.4	309.7	309.7	310.6	310.6
Return on assets (%)	-2.60	0.24	-0.02	0.02	0.09	0.01	0.30	0.00
REAL ESTATE INVESTMENT COMPANIES								
Number	4	4	3	3	3	3	3	3
Shareholders	327	422	316	316	313	312	312	314
Assets (millions of euros)	631.5	748.8	763.5	763.5	767.1	895.4	899.5	900.3

1 Real estate investment schemes which have sent reports to the CNMV, excluding those in process of dissolution or liquidation.

2 Available data: October 2020.

