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TECHNICAL NOTE ON REGULATION, SUPERVISION, OVERSIGHT, AND CRISIS MANAGEMENT OF FINANCIAL MARKET INFRASTRUCTURES

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TECHNICAL NOTE

REGULATION, SUPERVISION, OVERSIGHT, AND CRISIS MANAGEMENT OF FINANCIAL MARKET INFRASTRUCTURES

Prepared By
Monetary and Capital Markets Department

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program (FSAP) in Spain. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at http://www.imf.org/external/np/fsap/fssa.aspx

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Glossary

ACPR	Autorité de Contrôle Prudentiel et de Résolution (France)
AFM	Autoriteit Financiële Markten (Netherlands)
AMF	Autorité des Marchés Financiers (France)
AMI-SeCo	Advisory Group on Market Infrastructure for Securities and Collateral
APC	Anti-procyclicality
ARCO	Spanish Securities Settlement System, operated by Iberclear
AVD	Average Daily Volume
BaFin	Bundesanstalt für Finanzdienstleistungs Aufsicht (Germany)
BdE	Banco de España
BIA	Business Impact Assessment
BIS	Bank for International Settlements
BMEC	Bolsas y Mercados Españoles (BME) Clearing (Spanish CCP)
BRC	Business Recovery Plan
CoR	College of Resolution authorities
CoS	College of Supervisors
CSD	Central Securities Depository
CSDR	Central Securities Depository Regulation (Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012)
CCP	Central Counterparty
CCPPC	CCP Policy Committee
CCPRRR	Central Counterparty Recovery and Resolution Regulation (Regulation (EU) 2021/23 of the European Parliament and of the Council of 16 December 2020)
CCPSC	CCP Supervisory Committee at ESMA
CEO	Chief Executive Officer
CMs	Clearing members
CMG	Crisis Management Group
CNMV	Comisión Nacional del Mercado de Valores
CRO	Chief Risk Officer

CSD	Central Securities Depositories
CSDR	Central Securities Depositories Regulation (EU) No 909/2014 on improving securities settlement in the European Union and on central securities depositories
DF	Default Fund
DLT	Distributed Ledger Technology
DLT Pilot Regime	Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU
DPC	Data Processing Center
DORA	Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011
DvP	Delivery versus Payment
ECB	European Central Bank
EMIR	European Market Infrastructure Regulation (EU) No 648/2012 on OTC derivatives, central counterparties and trade repositories
EONIA	Euro Overnight Index Average
ESCB	European System of Central Banks
ESMA	European Securities and Markets Authority
ETF	Exchange-traded Funds
EU	European Union
FINMA	Financial Market Supervisory Authority (Switzerland)
FMIs	Financial Market Infrastructures
FRA	Forward Rate Agreement
FROB	Spanish executive resolution authority
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
HVaR	Historical Value at Risk
IC	IBERCLEAR (Spanish CSD)
IM	Initial Margin
IOSCO	International Organization of Securities Commissions
IRD	Interest Rate Derivative

IRL	Intra-day Risk Limit
IRS	Interest Rate Swap
Margins RTS	Regulatory Technical Standards on Margins (Commission Delegated Regulation (EU) No 153/2013 of 19 December 2012 supplementing Regulation (EU) 648/2012 of the European Parliament and of the Council with regard to regulatory technical standards for central counterparties)
MiCA	Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937
MiFIR	Markets in Financial Instruments Regulation (Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation)
MPoR	Margin Period of Risk
MTF	Multilateral Trading Facilities
NCAs	National Competent Authorities
NRAs	National Resolution Authorities
OCC	Oversight Crisis Communication
OIS	Overnight Indexed Swap
OTF	Organized Trading Facilities
PFMIs	Principles for Financial Market Infrastructures
PTI	Post-trade Interface
SIBE	Sistema de Interconexión Bursátil Español (Spanish Stock Exchange Interconnection System)
SITG	Skin in the Game
SML	Securities Market Law in Spain (Ley del Mercado de Valores)
SNB	Swiss National Bank
SRB	Single Resolution Board
SSITG	Second Skin in the Game
SSS	Securities Settlement System
T2S	Target 2 Securities
TC	Third country (non-EU)
UK	United Kingdom
US	United States of America
VM	Variation Margin

EXECUTIVE SUMMARY

The FSAP's focus was on selected topics in relation to the regulation, oversight and supervision of two Financial Market Infrastructures (FMIs) in Spain, Bolsas y Mercados Españoles Clearing (BMEC), a central counterparty (CCP), and Iberclear (IC) a central securities depository (CSD). Within this scope, this technical note focuses on: (i) the responsibilities of the Spanish authorities in the supervision and oversight of BMEC and IC with respect to compliance with the Principles for Financial Market Infrastructures (PFMIs) of the Committee on Payments and Markets Infrastructures and the International Organization of Securities Commissions (CPMI-IOSCO); (ii) the supervision of margining practices of BMEC; and (iii) the supervision of recovery procedures of BMEC and IC.

The Comisión Nacional del Mercado de Valores (CNMV) is a proactive supervisor that has a high level of engagement with market participants and FMIs through its regular supervisory duties, onsite visits and wide-ranging thematic reviews. BMEC and IC provided several examples of the CNMV's high level of engagement through its supervisory activities and a wide range of market participants noted fluid communication with the CNMV.

The CNMV lacks, and should be provided, full autonomy over its recruitment of staff, including in key specialist areas. The CNMV's lack of flexibility and independence in the process of hiring staff, due to uncertainties associated with government approvals needed on a case-by-case basis, hampers its ability to recruit and retain key human resources and execute future oriented succession planning in specialist areas. This challenge will grow in significance as the CNMV assumes new responsibilities resulting from several European Union (EU) legislations. The FSAP, therefore, recommends that the CNMV ensure alignment of resources to current and projected future work by gaining full autonomy over its recruitment and retention processes.

According to the Spanish Law, the CNMV and the Banco de España (BdE) are responsible for ensuring that the national securities clearing, settlement and registry systems operate in a manner that ensures the maintenance of financial stability. The CNMV, as supervisor of BMEC and IC, has sufficient powers to request information and the cessation of activities and to summon individuals, as well as the sanctioning capacity, to accomplish its responsibilities. This includes responsibilities under the European Market Infrastructure Regulation (EMIR); the framework for the recovery and resolution of CCPs (CCPRRR); and the CSD Regulation (CSDR). The BdE acts as overseer of BMEC and IC.

The CNMV's effective cooperation with the BdE and authorities from other jurisdictions to ensure adequate supervision of BMEC and IC could be further strengthened by formalizing current arrangements with the BdE. Cooperation happens at different levels and through different venues. In this regard, while the CNMV and the BdE have worked closely and effectively, the FSAP recommends formalizing a cooperation agreement by documenting the collaborative framework for the oversight of those FMIs.

The CNMV's supervision of BMEC's margin practices to ensure their compliance with the PFMIs is comprehensive and thorough. The CNMV ensures the robustness of BMEC's margin model through comprehensive supervision of the CCP's stress tests, back tests, and sensitivity analyses, as well as requiring and ensuring assessment by an independent validator and approval—by itself and the college of supervisors (CoS)—of any significant changes to BMEC's margin model. In this context, the CNMV's view of BMEC's margin model being more conservative than the EMIR requirements in some respects, (e.g., applying higher confidence levels and longer close-out periods in some segments), is reassuring.

The FSAP identified some enhancements to the supervision of margin practices that would make it even more robust. The CNMV should ensure that its recommendations to BMEC are implemented in timely fashion and, to the extent possible, that improvements made in one segment also benefit the others. Enhancements in the models to address the CNMV's recommendations, such as a more comprehensive integration of wrong-way risk and anti-procyclicality (APC) measures, should be implemented in all segments, not only in those using the Historical Value-at-Risk (VaR) model. In addition, the results of the sensitivity analysis should also be disclosed to clearing members (CMs).

The CNMV performs extensive periodical reviews of the recovery plans from BMEC and IC to ensure their compliance with EU regulation and international standards. Since the EU framework for the CCPRRR was adopted, the CNMV has worked closely with BMEC in the preparation of the recovery plan. The CNMV requested several changes to the initial plan and thoroughly supervised the severity of the recovery scenarios included. The plan foresees a range of tools and procedures to ensure the continuity of BMEC's critical functions. The CNMV is also responsible for the supervision of the recovery plan for IC and it reviews it annually as part of its review and evaluation process.

The FSAP recommends strengthening of some aspects of IC's recovery plan. The mission recommends the CNMV to request IC to improve and render clearer the narrative of its recovery plan in areas such as the results of the materialization of the recovery scenarios, and the consequences of situations where several scenarios occur simultaneously. Separately, the FSAP recommends that the CNMV coordinates with FINMA to participate in joint exercises that test BMEC's and IC's recovery plans in combination with the contingency plans for other entities in the SIX group.

Table 1. Spain: Main Recommendations			
	Priority[1]	**Timing**[2]	**Agency**
Responsibilities of the Authorities			
1. Formalize a cooperation agreement between the CNMV and BdE.	MH	NT	CNMV, BdE
2. Grant full autonomy to the CNMV over its recruitment and retention processes; and align human resources to current and expected future workloads, including needed expertise.	H	I	Government, CNMV
3. The CNMV should ensure that, where necessary, steps are taken by market participants to adjust their IT systems and find relevant alternative sources of data once the Post-trade Interface (PTI) is removed.	H	NT	CNMV
4. Enhance preparedness for implementation of new regulatory initiatives.	M	NT	CNMV, BdE
5. Further document internal procedures for supervising IC.	M	NT	CNMV
6. Continue working towards improving settlement efficiency rates.	MH	NT	CNMV
Supervision of Margin Practices – BMEC			
7. Ensure that the implementation of CNMV's recommendations takes place in a timely fashion.	MH	NT	CNMV
8. Require BMEC to implement additional necessary and identified measures to complete the migration to the new HVaR model.	MH	MT	CNMV, CoS
9. BMEC should be required to disclose to clearing members (CMs) the results from the sensitivity analysis.	MH	NT	CNMV
10. Require all relevant procedures related to BMEC's risk management to be adequately documented.	H	NT	CNMV
11. Ensure that practices and enhancements to BMEC's margin model to be adopted from SIX group are aligned with CNMV and BMEC requirements and objectives respectively.	MH	NT	CNMV
Recovery and Resolution – BMEC and IC			
12. Initiate joint recovery planning exercises with FINMA.	M	MT	CNMV
13. Ensure that all tools identified in the recovery plan can be deployed in a timely fashion and consider a wide range of scenarios in the resolution plan, including through assessing whether it would be necessary to consider the transfer of functions to another FMI to ensure the continuity of critical services in resolution.	MH	MT	CNMV
14. Communicate with CMs to raise awareness about resolution work by BMEC's Crisis Management Group (CMG) and the College of Resolution authorities (CoR) (once established) and about the coordination in place with the CMs' resolution authorities.	MH	I	CNMV
15. Encourage IC to improve the narrative of recovery plan	H	NT	CNMV

[1] Priority: H = High; MH = Medium High; M = Medium.

[2] I = Immediate; NT=Near Term (within six months to one year); MT=Medium Term (within two to three years).

INTRODUCTION[3]

A. Scope and Objectives

1. **This technical note reports the findings and recommendations arising from the FSAP's review of the regulatory, supervisory and oversight role of Spanish authorities regarding certain activities of BMEC and IC.** The scope of the review covered:

- The responsibilities of the Spanish authorities in the regulation, supervision, and oversight of BMEC and IC, in accordance with the CPMI-IOSCO PFMIs and their Disclosure framework and Assessment methodology).[4]
- The CNMV's supervision and oversight of BMEC's margin models and practices (in accordance with the CPMI-IOSCO PFMIs' Margin principle).
- The crisis preparedness (recovery plans) of BMEC and IC and resolution procedures for BMEC (according to international standards and principles of the FSB and the BIS).[5]

2. **The objective of the review is to identify regulatory and supervisory challenges that could have implications for financial stability in relation to the activities and business of BMEC and IC.**[6] These two FMIs have a central position in the Spanish financial system. Ensuring their continued operation is critical to the functioning of the financial market. It is thus imperative that BMEC and IC are adequately regulated, supervised, and overseen, and have in place a comprehensive framework for managing the risks they bear and are exposed to. This report therefore contains the assessment of how the relevant authorities supervise and oversee BMEC and IC in Spain, in relation to the aspects in scope, and against the applicable international standards and principles.

B. Methodology and Information Used

3. **This technical note is based on different sources of information, including document reviews and in-person meetings and interviews.** The CNMV and BdE provided responses to

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[3] This technical note was prepared by Yaiza Cabedo (IMF). The FSAP team thanks its Spanish counterparts for their excellent cooperation and hospitality during the mission, including the CNMV, the BdE, the Ministry of Economy, Trade and Enterprise, BMEC, IC, other financial and nonfinancial institutions, and the European Securities and Markets Authority.

[4] Principles for Financial Market Infrastructures (bis.org) and the Principles for financial market infrastructure: Disclosure framework and Assessment methodology (bis.org).

[5] Recovery of financial market infrastructures (bis.org) (2017), Central Counterparty Financial Resources for Recovery and Resolution (fsb.org) (2022), Guidance on Financial Resources to Support CCP Resolution and on the Treatment of CCP Equity in Resolution: Final Report (fsb.org) (2020), Key Attributes of Effective Resolution Regimes for Financial Institutions (fsb.org) (2014), FSB Guidance on Central Counterparty Resolution and Resolution Planning (2017)

[6] A separate workstream of this FSAP covered issues related to the regulation and supervision of the cyber security risk of, and its management by, these FMIs, and the findings of that analyses may be found in the corresponding FSAP Technical Note on *Cyber Risk and Financial Stability*.

questionnaires prepared by the FSAP team and additional data and documentation requested. For the preparation of this note, the analysis took account of relevant documentation, including information available on the websites of BMEC and IC and their authorities, as well as national laws, applicable regulations, rules and procedures governing BMEC and IC systems and operations, and other available material. In addition, the FSAP team held a significant number of meetings with the authorities (the CNMV, the BdE, and the European Securities and Markets Authority, ESMA) and discussions and interviews with BMEC, IC and a diverse sample of market participants. A representative of the Ministry of Economy, Trade and Enterprise (MINECO) attended all meetings and discussions.

OVERVIEW OF THE CLEARING AND SETTLEMENT LANDSCAPE

4. **BMEC and IC are entities of the BME Group, which in turn is a wholly owned subsidiary of SIX, a Swiss group operating markets and post-trading infrastructures.** According to the official registers of the CNMV and ESMA (ESMA Registers (europa.eu)), BME Group operates all the regulated markets in Spain (Stock Exchanges, MEFF[7] and AIAF[8]), as well as the only CCP (BMEC) and the only CSD (IC) established in Spain.[9, 10] Additionally, BME Group operates several Multilateral Trading Facilities (MTFs), such as MARF, SENAF, Latibex, BME Growth, and BME MTF Equity.[11]

5. **In addition to the infrastructures operated by the BME Group, there are some other smaller players that are operating trading venues in Spain.** These trading venues are MTFs (Dowgate MTF, Portfolio Stock Exchange) and Organized Trading Facilities (OTFs) (CAPI OTF, CIMD OTF and Tradition España OTF). Several credit institutions have a license to provide financial services as settlement internalisers (i.e., BBVA, Banco Santander, Credit Suisse Bank Europe, Banco Sabadell, Cecabank, and CaixaBank).[12]

A. BMEC

6. **BMEC is the sole CCP authorized by the CNMV in Spain.** BMEC acts as a buyer to every seller and a seller to every buyer, thereby mitigating counterparty credit risk. The objective of a CCP

[7] MEFF is BME's Derivatives Exchange.

[8] The AIAF is a regulated market in Spain for the fixed income market for Public and Corporate securities. It is part of the BME group.

[9] CNMV - List of market infrastructures and ESMA Registers (europa.eu).

[10] Neither BMEC nor IC has a banking license.

[11] A diagram outlining the infrastructures operated by BME Group, can be found following this link: Business Areas | BME Bolsas y Mercados Españoles.

[12] According to the CSDR, a settlement internaliser means any institution which executes transfer orders on behalf of clients or on its own account other than through a securities settlement system.

is to ensure that in the event of a default by one of its participants or clearing members (CMs), the remaining participants would not suffer losses.

7. BMEC cleared the following amounts for the energy, equity and fixed income segments in 2022.[13] In the energy segment, (including electricity and gas), the total nominal cash value was around EUR 2 billion and 2,248 transactions; in the equity segment, the total cash value was around EUR 711 billion and 78 million trades; in the fixed income segment, EUR 99.5 billion of cash value and 1,142 number of trades.

8. BMEC is authorized to offer clearing services in six segments, of which five were active at the time of the FSAP mission:

- **Equity segment**: for securities listed on BME equity markets, i.e., shares, rights, warrants, certificates, and exchange-traded funds (ETFs).
- **Financial Derivatives segment**: for contracts listed and traded on MEFF for all its activity of Equity and FX Derivatives and futures on Spanish sovereign bonds.
- **Energy segment**: for electricity contracts listed on MEFF, as well as natural gas OTC contracts.
- **Fixed Income segment**: for Fixed Income Securities traded on stock exchanges, electronic trading systems or OTC. Nowadays, BMEC clears buy/sell-back or repo transactions on Spanish as well as Austrian, Dutch, French, German, Italian, and Portuguese Sovereign Debt. It is expected that clearing repo transactions on the European Commission's debt will start in in Q4 2023.
- **Interest Rate Derivatives** (IRDs) **segment**: for Interest Rate Swaps (IRS), Forward Rate Agreements (FRA) and Overnight Indexed Swaps (OIS) OTC transactions.
- **Derivatives linked to crypto assets**: for futures on crypto indexes traded on MTFs. This segment is currently inactive.

9. BMEC is authorized to operate cross-border and with multiple currencies. BMEC can accept multicurrency cash collateral (besides euro, also AUD, CHF, GBP, JPY, and USD). However, at the time of drafting this technical note, BMEC only accepts cash collateral denominated in euro. In addition, BMEC also accepts as collateral sovereign debt denominated in foreign currencies (from the United States, in USD; from the United Kingdom, in GBP; and it plans to accept sovereign debt from Switzerland in CHF). The new and currently inactive segment for derivatives linked to crypto assets is denominated in USD.

B. IC

10. IC is the only CSD authorized by the CNMV in Spain and has a dominant position in the registry and settlement of the securities issued under Spanish law. In addition, under the current regulation of CSDs in Europe, the CSDR, other European CSDs are authorized to provide notary services for securities issued under Spanish law. Two international CSDs have a share of initially

[13] CNMV - Informe anual de la CNMV sobre los mercados de valores y su actuación. A version in English is available.

recorded securities, mainly for corporate debt instruments. In addition, IC has links to several European Union (EU)-CSDs, as depicted in Figure 1.[14]

11. At the end of 2022, the number of issues registered with IC was 8,431, with a nominal amount of EUR 1.87 trillion. According to data provided by ESMA for 2021, 91 percent of the total value of issues carried out by Spanish entities was initially registered with IC. The remaining activity was mainly carried out in the central depositories of the Clearstream and Euroclear groups. The settlement inefficiency ratios in 2022 were at 5.8 percent for the number of transactions and 4.1 percent for the amount.

Figure 1. Spain: Links between IC and other Central Security Depositories (CSDs)

Iberclear Links to Other Central Securities Depositories (CSD) Where Iberclear Acts as an ISSUER CSD

Iberclear

Asset type	Clearstream Banking Frankfurt	Euronext Securities|Milan	ESES France	SIX
Public debt	✓	✓	✓	✓
Corporate debt	✓	✓	✓	✓
Equities	✓	✓		✓

Iberclear Links to Other Central Securities Depositories (CSD) Where Iberclear Acts as an INVESTOR CSD

Iberclear

Asset type	Clearstream Banking Frankfurt	ESES France	ESES Netherlands	Euronext Securities|Milan	Euronext Securities|Porto	OEKB	SIX	NBB-SSS	B3 BOVESPA	CAJA DE VALORES
Public debt	✓	✓	✓	✓	✓	✓	✓	✓		
Corporate debt	✓	✓	✓	✓	✓	✓	✓	✓		✓
Equities	✓	✓	✓	✓	✓	✓	✓		✓	✓
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

12. As is the case for other CSDs in Europe, settlement operations for IC are outsourced to TARGET2-Securities (T2S). T2S is a common securities settlement platform, owned, operated, and overseen by the Eurosystem, of which the BdE is part. T2S facilitates the cross-border transfer of cash and securities. Market participants access T2S settlement by having a securities account with a connected CSD and a dedicated cash account at a connected central bank. As such, money settlement in T2S takes place in central bank money. Currently, 24 CSDs from 23 European countries are connected to the platform.[15] IC migrated to the platform in September 2017. As a member of T2S, IC maintains business relations and contracts with its participants and provides custody and maintenance services for securities, such as managing corporate rights, among other services. In

[14] Links to other CSDs | Iberclear.

[15] See https://www.ecb.europa.eu/paym/target/t2s/profuse/shared/pdf/List_of_CSDs_connected_to_T2S.pdf for a list of countries and CSDs connected to T2S.

2022, settlement efficiency in T2S reached a daily average of 93.74 percent in volume terms and 93.29 percent in value terms.

13. IC registers and settles securities through ARCO, the Securities Settlement System, connected to T2S. Those are the main characteristics of the settlement process:

- ARCO is the settlement system for all securities settled on IC (formerly there were two different systems, one for equity and another for debt instruments).
- Validation, matching, and settlement of instructions take place using the T2S engine and systems.
- Delivery-versus-Payment (DVP) Settlement takes place against Euro accounts opened in a Eurosystem central bank.
- Participants can make use of the auto-collateralization facilities provided by the Eurosystem through T2S (IC does not provide this nor any other credit facility).[16]
- IC can establish interoperable links with other CSDs connected to T2S, ensuring that T2S-connected CSDs settle instructions among them.

14. IC operates cross-border, by registering and settling securities issued by foreign issuers, under a foreign law or through a linked CSD; however, it does not operate in multiple currencies.

RESPONSIBILITIES OF THE AUTHORITIES ON REGULATION, OVERSIGHT, AND SUPERVISION OF BMEC AND IC[17]

A. Description and Findings

15. The CNMV's executive board adopted the PFMIs in December 2014, and the principles were incorporated into the legislative framework through the European Legislation, (i.e., through EMIR and the CSDR regulatory packages).[18] The CNMV, as a member of IOSCO, supported the elaboration of the PFMIs. The PFMIs were adopted by the ECB's Governing Council as standards for the Eurosystem in 2013, and they therefore also apply to the BdE.

[16] The auto-collateralization function is one of the key features of T2S. Auto-collateralization is a credit operation that is triggered when a buyer does not have sufficient funds to settle a securities transaction, in order to improve its cash position. The credit provided can be secured using either the very same securities that are being purchased ("auto-collateralization on flow") or securities already held by the buyer ("auto-collateralization on stock"). At the end of the day all auto-collateralization operations are reimbursed to prevent the extension of overnight credit.

[17] This section assesses the authorities' responsibilities according to the PFMIs.

[18] By EMIR and CSDR regulatory packages we refer here to the two regulations and all the supplementing EU delegated acts applicable to CCPs and CSDs.

16. The EMIR and the CSDR make express reference to the PFMIs and to the importance of observing international principles and recommendations for FMIs. Therefore, authorities in Spain ensure that BMEC and IC comply with the PFMIs, by supervising that EU regulation is adequately implemented. In addition, the CNMV adopted guidelines and recommendations to ensure that in the exercise of its duties, it will safeguard compliance with the PFMIs. In parallel, the CCP and the CSD are required to self-assess their compliance with the PFMIs. These self-assessments are part of the documentation package the FMIs submit to the CNMV for their annual review and evaluation.

17. The CoS for CCPs, and ESMA more broadly, ensure that the European legislation is implemented in a consistent manner across jurisdictions. The CNMV chairs BMEC's CoS, a college of authorities tasked to ensure coordinated supervision of the CCP. The CoS issues opinions during the authorization process and is consulted on surveillance aspects, for instance, regarding any significant change in BMEC's risk model or for an extension of services. To further ensure supervisory convergence and a consistent implementation of the European legislative framework, there are aspects for which the CCP will need an opinion from ESMA and the CCP Supervisory Committee (CCPSC), a standing committee that brings together all National Competent Authorities (NCAs) supervising a CCPs in the EU.

18. IC outsources the matching and settlement engine to T2S, which has been assessed by the ECB against the PFMI.

Regulatory, Supervisory, and Oversight Powers

19. CSDs and CCPs in Spain—systemic and non-systemic—are subject to the regulation, supervision and oversight of CNMV, who also holds sanctioning powers.[19] According to the Spanish Securities Market Law (SML), the CNMV, and the BdE ensure that the operation of the national securities clearing, settlement, and registry systems preserves the stability of the financial system. The criteria for authorization of a CCP and of a CSD stems from European regulation, the EMIR and the CSDR respectively. The SML establishes that the CNMV is responsible of maintaining a public register of the CCPs and CSDs authorized in Spain.[20]

20. While the BdE has no powers over the supervision of the CCP and the CSD, according to the SML, it oversees these FMIs and works closely with the CNMV. The BdE has a specific role towards CSDs and CCPs under EMIR and CSDR, as a member of the Eurosystem, as the central bank of issue of the currency in which those infrastructures settle their operations, and as the central bank

[19] Although EU authorized CCPs and CSDs are subject to the European regulatory framework, the CNMV holds regulatory powers for certain aspects, for example for granting extension of certain services of the CCPs.

[20] The links to the CNMV registers are: CNMV - Central Securities Depositories, CNMV - Regulation (EU) 648/2012 (EMIR), CNMV - List of market infrastructures. ESMA is responsible for maintaining a public register of the EU CCPs authorized under EMIR: ccps_authorised_under_emir.pdf (europa.eu) and the list of CSDs authorized under CSDR: esma70-155-11635_csds_register_-_art_21.pdf (europa.eu).

in which these settlement accounts reside. Within this framework, recommendations from the BdE are integrated by the CNMV in its annual reviews and evaluations of BMEC and IC. Further, the CNMV and the BdE have cross-representation on each other's governing bodies.[21]

21. The CNMV as supervisor of the CSD and the CCP, has sufficient powers to comply with its responsibilities for the purposes of CSDR and EMIR. In general terms, the SML, grants sanctioning and corrective action powers to the CNMV with respect to all supervised entities. In addition, the CNMV also has powers as required by EMIR and CSDR. These powers include, among others, to access and request information and documents, question individuals to obtain information, perform onsite inspections, request telephone records, freeze assets, request the ceasing of any practice contrary to regulation, and the possibility to request auditors to carry out verifications. The CNMV can refer matters to criminal prosecution. According to an ESMA report, the CNMV does not need to seek approval either from the Government nor from other authorities in relation to its supervisory decisions.[22] Nevertheless, it is noted that the General Secretary of the Treasury and International Financing of Spain sits and votes at the CNMV Board (abstention is not allowed), where aspects such as sanctions are discussed.

22. The European framework—EMIR and CSDR—provide direct powers to the CNMV. These powers refer, among others, to the authorization and extension of services, the withdrawal of authorization, the authorization of outsourcing arrangements, the validation of the CCP's models, access to the CCP's records, and the approval of interoperability arrangements for the CCP and the approval of links for the CSDs.

23. In addition, according to the Settlement Finality Directive, the transfer orders and netting agreements are legally enforceable and binding on third parties in the event of insolvency proceedings against a participant in the CCP or the CSD. If transfer orders are entered into the system before the moment of opening such insolvency proceedings, BMEC and IC should enforce the transfer and the netting of positions.

24. BMEC and IC report annually to the CNMV on how they fulfill each requirement under EMIR and CSDR (i.e., article-by-article). In addition, both infrastructures are required to annually report the fees they intend to charge to users to the CNMV, whereupon the CNMV can impose limits under certain circumstances. The CNMV is satisfied in general terms with the amount of information received from both infrastructures, with BMEC reporting information on a more frequent basis, going beyond the EMIR requirements, in some cases.

25. BMEC's regulatory reporting to the CNMV encompasses a wide range of indicators, trends, and reports at a variety of frequencies. The CCP provides to the CNMV: (a) an updated version of the recovery plan, minutes of the risk committees and the Board, user complaints,

[21] The Vice Chair of CNMV is a member of the BdE's Governing Council, and the Deputy Governor of the BdE sits on the CNMV's Board.

[22] ESMA: Report on the Independence of National Competent Authorities. ESMA42-110-3265. October 2021.

pending legal claims, and audit plans at least on an annual basis; (b) a Key Risk Indicators report, containing metrics on the levels of credit, liquidity, concentration, and operational risk on a quarterly basis; and (c) an inventory of operational issues on a monthly basis. Under exceptional circumstances, the CNMV has on occasion requested additional information on daily and weekly bases, such as was motivated by the war in Ukraine and the associated spike in volatility in the energy commodity derivatives market and during the COVID-19 crisis. BMEC also provides statistical information on its monthly activity according to the template established by ESMA, allowing the CNMV access to granular data on positions and on CMs' margins and a comprehensive understanding of the risks that the CCP poses and bears.

26. The BdE receives BMEC's information as a member of BMEC's CoS and it can access additional information from the CNMV.[23] The BdE is part of the BMEC's CoS, in its capacities as overseer, the central bank of issue of the currency in which BMEC operates, and the provider of settlement accounts. In addition, the BdE is requested to issue a report before the approval of any changes in the CCP rulebook, for which information is provided by the CNMV. Moreover, as BMEC has access to TARGET intraday and, under certain conditions, to overnight credit,[24] the BdE is responsible for reporting to the Eurosystem any issues detected in the CCP in Spain.

27. The information IC shares with the CNMV, as part of the annual review and evaluation process, includes—among other documentation—a report on the substantive changes during the last period, latest audited financial statements, pending proceedings, a report on operational incidents, a report on the performance of the securities settlement system (SSS), types of manual interventions performed, changes affecting the CSD links, statistical documentation on participants, settlement volumes and values, and initial recording of securities volumes and values.[25] Regular information duties also include changes to the governance and organization of IC (annually or when a material change happens). IC submits a report on settlement volumes and values and details regarding settlement fails monthly and reports information on matched settlement instructions status, securities accounts balances and registered issuances on a daily basis. This information allows the CNMV to access granular data to understand the risks that the CSD poses and bears. The ongoing supervisory work of the CNMV towards IC is not documented internally, and the preparation of an internal manual could certainly help to systemize the supervisory know-how in the CNMV team. In addition, an internal manual would be helpful for future new hires to the CNMV team, and at the same time, it could facilitate a rotation of colleagues that currently work on other topics, who could more easily learn about the current supervisory duties and practices.

[23] The information is detailed under Article 21 of EMIR.

[24] This is a discretionory facility of the Eurosystem, to be accessed only in emergency situations.

[25] The list of information is detailed under the Commission Delegated Regulation (EU) 2017/392 of November 11, 2016 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on authorization, supervisory and operational requirements for central securities depositories.

28. The BdE receives IC's review and evaluations through the CNMV. When performing its review and evaluation, as set out in the CSDR, the CNMV shares the documentation sent by IC with the BdE and consults the BdE regarding the functioning of the SSS, and subsequently, BdE submits an opinion to the CNMV.[26] The CNMV informs the BdE of the results of its review, including any remedial actions or penalties. Further, according to the SML, the BdE has also a role regarding changes in the CSD's rulebook.

29. Recently, in its regulatory capacity towards IC, the CNMV promoted a change to remove entry barriers to the Spanish market by decommissioning the use of an information system used by IC and its participants to report data on shares' beneficiaries. The system, called the Post-Trade Interface (PTI), used for reporting data concerning the ownership of shares, applies exclusively in Spain. This system was identified as a barrier to entry to the Spanish market by foreign participants and it will cease to exist in two-years' time. In addition, some EU regulatory developments have rendered the PTI superfluous, such as the introduction of a reporting field under the Markets in Financial Instruments Regulation (MiFIR) to identify the person that gives the order to buy the shares; or the adoption of the EU shareholders' rights Directive, which allows the issuer of shares to trace the chain of owners. In discussions with market participants, they were in favor of removing such barrier and admitted they need time to adjust their systems, which in some cases, used the PTI as a source of data.

Resources

30. The CNMV's budget is integrated into the General Budget of the Government and includes fees paid by supervised entities and participants. BMEC, IC and their respective CMs and participants pay a fee calculated over the volume cleared and the security balances maintained.

31. At the CNMV, the Secondary Markets Department in the Markets Directorate General is responsible for supervising the CCP and the CSD. Within the department, the post-trading division is staffed with a deputy director and seven officers to oversee and supervise BMEC, and with two officers for IC. Other issues common to the SIX/BME group (for instance Cyber resilience) are also handled jointly with the market infrastructures division. At the BdE, two full time equivalent experts oversee the CCP and the CSD, from the Oversight and Analysis of infrastructures division. The BdE reported that their available resources allow them to carry out the obligations established in the EU and national applicable regulations but do not allow them to focus on deep dives nor to carry out in-depth thematic analysis.

32. New EU financial regulatory provisions require new skillsets and expertise to fulfill authorities' responsibilities. In the area of post-trading, a range of new developments requires specialized expertise, some examples being the Distributed Ledger Technology (DLT) Pilot regime,

[26] The BdE acts as representative of the Eurosystem, as central bank of issue and as central bank in whose books the cash leg of the SSS operated by IC is settled,

which requires expertise on FMIs and DLT;[27] the Markets in Crypto Assets (MiCA) regulation, on crypto assets; and the Digital Operational Resilience Act (DORA), on operational resilience. These needs represent a significant challenge given that the CNMV lacks full autonomy over its recruitment of supervisors, including in key specialist areas due to significant uncertainties associated with government approval needed on a case-by-case basis. On specific expertise required, the BdE reports there is no specific training foreseen on FMIs. Yet, besides the new regulations to be implemented, EMIR and CSDR are under review and may be subject to significant changes that require intensified efforts to set-up new governance structures, raise awareness among market participants, and accompany them in the implementation phase-in.

Cooperation with Other Authorities

33. The CNMV and the BdE cooperate with other authorities through the CoS of BMEC. The CoS facilitates the flow of information and coordination across all the authorities that have a direct or indirect interest in the supervision of the CCP, due to for example, being the central bank of issue of the currency in which products are cleared at BMEC, or the authority in charge of the supervision of the CCP's CMs. Since May 2023, BMEC's CoS is composed of the CNMV and the BdE, ESMA, the European Central Bank (ECB), the Autorité de Contrôle Prudentiel et de Resolution (ACPR) and the Autorité des Marchés Financiers (AMF) (France), the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) (Germany) and the Autoriteit Financiële Markten (AFM) (Netherlands).

34. The CNMV, through the ESMA CCP Directorate, the CCP Standing Committee and the Markets Standing Committee, effectively cooperates and coordinates with other supervisory authorities. ESMA's CCP Directorate plays a coordination role among the EU NCAs supervising CCPs, leads peer reviews and coordinates the annual EU wide CCP stress test. The CNMV also coordinates with ESMA and other NCAs through its participation in the standing committees (SCs), such as the CCP SC and the CCP policy committee. The CCP SC is responsible for several tasks in relation to CCPs established in the EU and in third countries, and its objective is to enhance supervisory convergence and ensure a resilient CCP landscape. One of the aspects they coordinate is the EU emergency protocol for CCPs, a process that would activate in the event of a crisis with impact to CCPs at an EU-wide level. The CCP SC is composed of all the supervisory authorities in the EU that supervise a CCP. The Markets Standing Committee and its dependent working groups are a forum to discuss topics related to secondary markets and securities settlement. The FSAP's discussions with ESMA clarified that the CNMV, in its role of supervisor of BMEC and IC, is an active and cooperative contributor of high quality and in-depth analysis to the ESMA groups.

35. The CNMV integrates ESMA's EU-wide supervisory priorities in its own workplan and participates in peer reviews and the ESMA stress test for CCPs. Through the key ESMA groups—the CCP SC, Market SC and Post-Trading Working Group—supervisory authorities discuss aspects relevant to the supervision of CCPs and CSDs. The outcome of these discussions is a heatmap (not

[27] See Regulation (EU) 2022/858 on a pilot regime for market infrastructures based on DLT.

publicly disclosed) and ESMA's CCP Strategic Objectives that are publicly available.[28] The CNMV's workplan and priorities are aligned with ESMA's strategic objectives for 2023-25. ESMA also coordinates several supervisory exercises, including peer reviews, to test NCAs' capacity and to strengthen consistency in supervisory outcomes and the annual, EU-wide, CCP stress tests. Each year, ESMA may include or exclude some components of the exercise, such as credit, liquidity, operational, concentration risk and, as last year's innovation, climate risk components.

36. The CNMV, in its role as supervisor of IC, cooperates with different authorities. The CNMV cooperates with the BdE (as overseer, as a member of the Eurosystem, in its role as central bank of issue for the euro, and as a central bank where the cash leg of ARCO is settled); with ESMA; and with the NCAs supervising other entities that have a link with IC, such as other CSDs, CCPs, payment systems and markets and trading platforms.[29] Furthermore, CSDR mandates the annual exchange of information between ESMA and NCAs, on CSDs' activity involving non-resident issuers or activity carried out by IC participants outside the CSD's jurisdiction (outside Spain, in this case). If the amount of that activity is deemed of substantial importance for another jurisdiction, the respective authorities must agree on some form of cooperation. The CNMV agreed to a quarterly exchange of information with another EU-country, given that an IC participant of substantial importance is based there.

37. Importantly, the CNMV has comprehensive arrangements for supervisory cooperation with FINMA. FINMA is the Swiss authority in charge of the supervision of the SIX Group, the owner of BME Group. The CNMV has fluid and regular exchanges of information with FINMA. They share their supervisory actions and priorities. In 2023, the CNMV was invited to collaborate in two supervisory actions undertaken by FINMA with regards to the BME Group. One focused on outsourcing and took place in May; and another focused on the governance of the post-trading business unit at the level of the SIX group. The CNMV highlighted to the FSAP team the desirability of cooperation with FINMA regarding some policies that the BME Group is adopting from SIX, which FINMA has reviewed. In this regard, the CNMV does not rely on FINMA's assessment for the new policies adopted, continuing to perform all its responsibilities as the direct supervisor of BMEC and IC. The CNMV and FINMA have an MoU signed that was last amended in 2022.

38. The CNMV can reach out to other countries' authorities for periodic exchanges of information and on an ad-hoc basis. The CNMV has signed bilateral MOUs with authorities, but

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[28] ESMA CCP Strategic Objectives 2023-2025.

[29] IC has links with several CSDs: Clearstream Banking Frankfurt (DE), Euronext securities Milan (IT), ESES (FR), ESES (NL), Oesterreichische Kontrollbank AG (AT), SIX SIS (SW), NBB-SSS (BE), Euronext Securities Porto (PT), Caja de Valores (Argentina) and B3 (Brazil).

IC has links to several CCPs: BMEC, Cboe Clear Europe (NL), LCH Ltd, LCH SA, and SIX x-Clear.

IC has links with exchanges and trading platforms: ARCO system to register and settle securities admitted to trading on Spanish markets (BME MTF Equity Market, Alternative Fixed Income Market – MARF –, Latin American Stock Market denominated in euros – Latibex –, and on the AIAF Fixed Income Market for public debt, fix income and corporate debt) and ARCO system also enables registration and settlement of unlisted securities.

IC has links to payment systems: ARCO system participates in Target-BdE and in T2S.

also multilateral MOUs.[30] When facing a particular issue where entities from other jurisdictions are involved, the CNMV shares information with that country's NCA. Further, in the context of T2S, the CNMV is also part of the T2S cooperative arrangement. In addition, the CNMV participates in the AMI-SeCo Spain, chaired by the BdE. The group acts as a link with the AMI-SeCo, a group established by the Eurosystem at the EU level to provide advice to the Eurosystem on T2S matters, on issues related to the clearing and settlement of securities, and on collateral management.

39. In recent crisis events, the CNMV coordinated closely with ESMA and peer authorities through the CCP SC. In recent crisis events, the CNMV informed the CCP's CoS of any material issues affecting BMEC, and informed ESMA and the Eurosystem (through the BdE) of decisions affecting the stability of the financial system regarding the CSD and the CCP. Examples of these recent events are the COVID-19 pandemic, the extreme volatility in energy markets (especially in the days before and after the Russian invasion of Ukraine), in the ION cyberattack event, and the March 2023 merger of Credit Suisse into UBS. As a concrete example, during the early days of the pandemic, the CNMV shared sensitive information with ESMA regarding settlement fails' data. Further, in critical events, the BdE follows the Oversight Crisis Communication (OCC), to ensure a sound crisis communication framework in case of systemic disruptions related to FMIs, their participants and critical service providers.[31]

B. Strengths, Challenges, and Recommendations

Strengths

40. PFMI adoption. To ensure the adoption of the PFMIs, the CNMV regularly analyses documentation provided by BMEC and IC and accompanies market participants in the implementation of the EU regulation that integrates the PFMIs.

41. Good collaboration between the CNMV and the BdE. The CNMV and the BdE work in close cooperation on a number of topics for the purpose of supervision and oversight of CSDs and CCPs. While the BdE has no supervisory powers over these FMIs, their recommendations (under its oversight function according to the CSDR) are incorporated by the CNMV. The CNMV estimates the BdE's contributions as highly valuable.

42. Relevant powers to access information. According to the SML, the CNMV and the BdE are responsible for ensuring that the operation of the national securities clearing, settlement and registry systems preserves the stability of the financial system. The CNMV has specific powers to

[30] The list of International MoUs signed by the CNMV: [CNMV - International agreements (MoUs).]

[31] This framework, designed to facilitate oversight crisis communication for potential crises with a likelihood of systemic relevance, states the responsibilities of the different parties involved at the first signal of a potential crisis and the process to be activated as the crisis unfolds. It also provides a process for the flow of information from the national overseer to the ECB Oversight Function and the additional parties involved.

request information, summon people, request documentation, conduct on-site inspections under EMIR and CSDR, which it uses to ensure compliance with the PFMIs.

43. Expertise in the FMI supervisory function. The teams working on the supervision of the CCP and the CSD at the CNMV bring a comprehensively wide range and technically strong level of skill sets. In the secondary markets and post-trading teams, the experts' profiles and their backgrounds are adequate for undertaking their supervisory duties in such a specialized field. This has assisted in the CNMV's ability to successfully dispose of its supervisory functions relative to BMEC and IC notwithstanding the currently tight and constrained headcount.

44. Coordination at the EU and at the international levels. The CNMV and the BdE cooperate closely with authorities from other jurisdictions, through different venues: the CoS of BMEC, the ESMA CCP supervisory committee and through the various committees and working groups looking after secondary markets at ESMA, with representation from all European Economic Area (EEA) countries. The CNMV also participates in annual exchanges of information. For example, it agreed to a quarterly exchange of information bilaterally with another EU-country. The CNMV also has an MoU signed with FINMA, supervisor of the SIX group, and is also a part of the T2S cooperative arrangement, which is an arrangement set up by the Eurosystem and ESMA regarding T2S, and the AMI-SeCo Spain, which is chaired by the BdE.

45. High level of engagement and communication with market participants. From the discussions held with a diversity of market participants and the FMIs, it is apparent that communication is continuous and fluid. Moreover, regulated entities trust the CNMV and feel confident in expressing their complaints and asking for guidance when the need arises. Market participants also highlighted that the CNMV listens to them, even if it might make decisions that they are not comfortable with at all times.

Challenges

46. A number of new regulatory requirements will enter into force in the coming months and year and will require intensified effort from the authorities. These include EMIR Refit, CSDR Refit, DORA, MICA, the DLT pilot regime, and other adjustments in delegated acts by the EU.

47. Resource constraints at the CNMV in its supervisory and post-trading functions will increase the challenge of effective oversight given that pressures from new responsibilities and regulatory requirements are expected to grow. Limited resources reflect significant rigidities in the recruitment process, exogenous to this authority. Specifically, the process that the CNMV has to follow to secure government approval for its recruitment of new staff introduces uncertainties regarding its ability to ensure an adequate number of, and expansion in, staff, including expert and specialized human resources, e.g., in highly competitive areas like quantitative risk management, post-trading policy skills, and detailed knowledge of CCPs' and CSDs' operations. This represents a significant challenge considering several new (or amended) regulations, such as DORA and MiCA that will enter into force in the coming months and years, and which will require resources and very technical expertise.

48. Smooth cooperation between the CNMV and the BdE could be reinforced regarding CSDs' and CCPs' oversight, by further formalizing their cooperation, as foreseen in the SML.

49. Decommissioning the PTI will clear away entrance barriers in the Spanish market but **may require an adjustment in market participants' IT systems** as the PTI was used as a source of information.

50. Several market participants emphasized to the FSAP that regulatory restrictions on securities lending in Spain could be adversely affecting settlement efficiency. In Spain, funds cannot lend the securities they hold, and this can reduce access to securities by market participants that may need to borrow them. According to a number of market participants, limiting securities lending, which seems to have no equivalence in other EU countries, can have a direct impact on settlement efficiency as funds hold significant amounts of securities that could be made available to counterparties needing to borrow to settle their obligations timely.

Recommendations

51. The two key domestic authorities are encouraged to further enhance their cooperation framework to ensure the adequate achievement of their responsibilities, by formalizing the cooperation agreement between the CNMV and BdE for the purpose of carrying out their oversight duties. This would document and further reinforce the good cooperation existing between the two authorities.

52. The CNMV should be granted full autonomy over its recruitment and retention processes and should align resources and recruitment, including the hiring of experts, to its expected workload. International standards require budgetary processes that do not undermine autonomy and the adequacy of resources. Consequently, we recommend that the CNMV should estimate current and projected future workload, ensure alignment of resources to these, and have full autonomy over its recruitment and retention process.

53. The CNMV should ensure that, where necessary, steps are taken by market participants to adjust their IT systems and find relevant alternative sources of data once the PTI is decommissioned.

54. Enhance preparedness for implementation of new regulatory initiatives, including an outreach strategy to market participants, increase number of staff for new functions, and adjust the internal procedures to new requirements and new governance structures where needed.

55. Internal supervisory and oversight practices for CSDs should be further documented. For example, an internal manual, for example would help the ongoing work in case people join or team members rotate functions.

56. The CNMV is encouraged to continue working towards improving settlement efficiency rates. Facilitating access to securities lending and borrowing could improve settlement rates in Spain according to a number of market participants. In this regard, the CNMV could give consideration to a cost-benefits analysis of removing regulatory restrictions that limit securities lending in Spain.

BMEC MARGIN PRACTICES

A. Description and Findings

General Description of the Margin Structure

57. There are five components to the CCP loss absorption waterfall, i.e., Variation Margin (VM), Initial Margin (IM), individual members' additional and extraordinary margins, BMEC "skin-in-the-game", and members' contributions to the BMEC default fund (DF).[32] Margins are requested to ensure that a member can cover the settlements resulting from its trading activity. VM covers mark-to-market of net positions in each segment. IM covers the potential future exposure from each account's position, i.e., the risk from each account's position. The IM calculation is included in the procedure for margin calculation circulars, available on the BMEC website.[33] Additional margin—so-called "individual funds" at BMEC—and extraordinary margin collected from CMs, cover the risk arising from counterparty's exposures in extraordinary situations such as extreme market volatility. BMEC "skin-in-the-game" is the CCP's own equity funds committed to covering losses under different scenarios. Finally, DF contributions by CMs are designed to cover the risk arising in the event of a default by a CM, when the IM is insufficient.

58. All margin calculations are performed per segment for each of the six segments wherein BMEC clears financial instruments: financial derivatives, foreign exchange (FX) contracts, energy derivatives, interest rate derivatives (including interest rate swaps (IRS), forward rate agreements (FRA) and overnight interest swaps (OIS)), cash equities, fixed income (repos), and the newly approved segment of instruments linked to crypto assets (futures on Bitcoin and Ethereum), for which there are no open positions yet. Besides margin calculations, stress tests, back testing,[34] sensitivity analysis,[35] and fire drills are also performed segment-wise.

[32] More information can be found on this link: Margins | BMEClearing.

[33] All circulars are available through: Circulars | BMEClearing, as an example, here is the circular for the Procedure for Margin Calculation for Financial Derivatives.

[34] Per Principle 6 of the PFMIs, a CCP should back test its margin coverage using participant positions from each day in order to evaluate whether there are any exceptions to its IM coverage. Back testing is an ex-post comparison of observed outcomes with the outputs of the margin models.

[35] A CCP should also conduct sensitivity analysis to assess the coverage of the margin methodology under various market conditions using historical data from realized stressed market conditions and hypothetical data for unrealized stressed market conditions. Sensitivity analysis should also be used to determine the impact of varying important model parameters. Sensitivity analysis is an effective tool to explore hidden shortcomings that cannot be discovered through back testing.

Initial Margin, Variation Margin, Intraday Margin Calls, and the Default Fund

Initial Margin

59. The IM model is based on the following underpinnings, and follows the same assumptions used to calculate intraday and the end-of-day margin requirements.

- Portfolio risk must be measured at the account level.
- Correlated instruments can be offset, subject to restrictions for the margins to remain prudent.
- The objective of the model is to take account of any potential future change in prices and any potential future change in volatility for options.
- The worst result obtained is the estimate of exposure.

60. Table 2 summarizes the core parameters of the IM models used in each segment.[36] For the interest rate derivatives (IRD) and fixed income segments, BMEC applies a more rigorous confidence level than EMIR requires. According to EMIR, confidence intervals for the calculation of IM should be of 99.5 percent for OTC derivatives and 99 percent for other financial instruments. In addition, the CNMV regularly checks the lookback period for all segments and considers it conservative; moreover, the FSAP team was provided with ample evidence sustaining CNMV's assessment.

Table 2. Spain: Margin Requirements

Segment / Products	Margin Model	Confidence Interval (percent)	MPOR	Review Frequency
Financial Derivatives				
Equity & Ibex 35	MEFFCOM2	99.0	2	Minimum a monthly review
FX	HVaR	99.0	2	Daily scenario review
Energy				
Electricity	MEFFCOM2	99.0	2	Minimum a monthly review
Gas	MEFFCOM2	99.5	5	Minimum a monthly review
Fixed-Income Securities	MEFFCOM2	99.9	2	Minimum a monthly review
Equities	MEFFCOM2	99.0	2	Minimum a monthly review
IRD (OTC derivatives)	HVaR	99.65	5	Daily scenario review

Variation Margin and Intraday Margin Calls

61. The CNMV in its supervisory capacity, conveyed its view that BMEC's VM models are aligned with EMIR, applicable regulation, and with the PFMIs. The CCP has two VM models; for

[36] The segment for products linked to crypto assets is not included in the table, as no positions are open today.

futures and IRDs, VM is settled daily, and for instruments such as gas derivatives or repos, VM is a component of IM. VM is collected and paid out to reflect current exposures resulting from changes in market prices. To calculate VM, open positions are marked to current market prices and funds are typically collected from (or paid to) a counterparty to settle any gains (or losses) on the positions. The regular collection of VM strictly limits growth in the CCP's unmargined exposure. The CCP should net any gains against any losses and require frequent (at least daily) settlement of gains and losses.

62. BMEC can request from its members additional margin through intra-day margin calls, when they exceed the Intraday Risk Limit (IRL), and CMs need to post it within 60 minutes. The IRL is the maximum amount that a CM may owe BMEC at any time during the trading session (for all concepts). The IRL is determined by the solvency limit assigned by the CCP to each CM, which is equal to a percentage of a CM's shareholders' equity, with the maximum amount inversely proportional to the CM's credit rating (or equivalent) and depending on whether it is calculated intra-day or end-of-day.[37] The CNMV recommended some adjustments to the methodology to assign ratings to CM's creditworthiness in 2021. At the end of each trading session, the CCP performs an IRL stress test to simulate the risk of each CM in the event that, during the following trading session, prices exceed the parameters pre-defined by the CCP. If the CM exceeds its IRL, BMEC will request additional funds through a margin call. BMEC is in the process of importing the SIX internal scoring model that will take into account more diversified sources of data. While this enhancement is yet to be implemented, collaboration between the CNMV and FINMA might be helpful, as the model is already being used by the Swiss FMIs. Nevertheless, the CNMV, as direct supervisor of BMEC, will need to perform its independent and thorough assessment of the model.

63. BMEC can make intra-day margin calls to request extraordinary margins in cases of extreme volatility. The CCP can request extraordinary margins for each segment—either individually, or generally from all CMs. If a CM's Intra-day Risk exceeds its IRL during a trading session, BMEC will ask the member to supply additional funds, for the intra-day risk not to exceed 80 percent of the new IRL. In the event of extraordinary price fluctuations, when intra-day price movements reach the margin call levels, BMEC would require extraordinary margins. These margin call levels are defined as follows:

- 80 percent of the IM level for Derivatives, Equities, Energy and Fixed Income segments.
- 60 percent of the IM level for FX products.
- 50 percent of the IM level for IRDs.

64. Participants can post margin using different means. No later than 60 minutes after the CCP's notice, margin can be posted by means of different platforms or CSDs (TARGET2, IC, Euroclear, Clearstream, SIX SIS). If within a period of 90 days a CM exceeds its end-of-day risk limit twice, the

[37] More detailed information can be found on the BMEC circular on Intraday risk limit.

CCP will request an Individual fund to cover the overnight risk, which will be in force at the end of the session and for at least the following 30 days.

65. The methodology used to calculate IM parameters also incorporates some additional criteria, depending on the segment, and some add-ons to cover for specific risks. The details can be found in Annex 1 under section on IM parameters and add-ons.

Default Fund

66. BMEC runs daily stress tests to size the DF. In addition to margins, CMs contribute to the CCP default fund as an extra layer of protection, on top of margins, to be used when the losses are larger than the margins deposited by a defaulting member. The DF is calculated by segment and should cover the maximum combined daily risk from the two largest CMs in each segment (Cover 2) under the same stress scenario, plus an additional buffer of 10 percent (20 percent in the case of the Financial Derivatives segment). More information is in the section below dedicated to Stress test, back test and sensitivity analysis.

BMEC's Margin Models

67. BMEC uses two different kinds of margin models for different segments. The first model used by BMEC is a proprietary model for IM calculation (MEFFCOM2) that is similar to SPAN® and evaluates the worst possible loss of a portfolio under several theoretical scenarios with add-ons for concentration risks and large positions.[38] This model, which is used for IM calculation in the derivatives (except rolling FX contracts), cash equities, energy, and fixed income segments, allows offsetting risks bilaterally across different financial instruments when the two instruments have an average correlation of at least 70 percent. The second model BMEC uses in parallel, is a Historical Value at Risk (HVaR) model that it has developed, augmented with an expected shortfall add-on, for the calculation of IM in the IRD segment as well as for the new rolling FX contracts in the financial derivatives segment.[39]

68. BMEC plans to obtain authorizations to progressively migrate from the MEFFCOM2 to the HVaR model for the calculation of IM in all segments.[40] The new HVaR model allows the CCP to optimize margins by generating increased netting of counterparties' exposures while complying with EMIR requirements. The CNMV, which is familiar with the HVaR model, given its current application in two segments, closely monitors the tests for the progressive transition, with regular meetings with the CCP and documentation analysis. Transiting to the HVaR margin model will also facilitate the implementation of recommendations issued by the CNMV for BMEC to introduce

[38] MEFFCOM2 is similar to a SPAN model, an industry standard.

[39] More detailed information on the calculation of IM using MEFFCOM2 and HVaR can be found in the BMEC circular "Procedure for Margin Calculation".

[40] Under EMIR, significant changes in the margin model need to be authorized by the CNMV and the CoS.

improvements to the margin model with respect to accounting for concentrated positions and wrong way risk.

69. Margins are managed under the principles of "cross default" and "no contamination" between segments. This means that if a member defaults, it does so in all segments and the cost of the overall close-out must be covered by the member's individual guarantees, regardless of the segment the default corresponds to; and if a member is only active in one segment, it will not be exposed to potential losses because of the default of another clearing member in another segment.

70. The CCP margin methodology is documented, and a description of the models is available on the BMEC website.[41] Margin parameters are published and updated on a monthly basis through these circulars. In discussion with several CMs, they confirmed that they have access to all the information needed to reproduce the CCP's margins calculations. The bigger entities have in-house tools to replicate the calculations, while smaller CMs rely more on the CCP's calculation and only use reference thresholds to spot if a calculation is inconsistent. In addition, the CCP provides a simulation tool and shares all relevant information through the end-of-day files sent by the CCP's operations department. These files include reports that are common to all members and individual reports on each member's positions with the relevant margin parameters and breakdowns.

71. Independent validators annually review the models and parameters adopted by the CCP to calculate its margin requirements. A pool of independent external validators annually reviews all models, assumptions, procedures, and parameters used by BMEC, including models used to estimate prices when they are not available. In the past annual reviews (2021), the CNMV recommended a rotation of the validators in such a way that, each year, experts from the pool assess a different segment. Following this recommendation, the CCP appointed last year a new validator for the energy segment and the review provided some useful insights.

Anti-Procyclicality Measures (APC)

72. BMEC's margin models include APC measures that are integrated into the calibration process for margin parameters. Procyclicality refers to the changes in risk-management requirements or practices that are positively correlated with business or credit cycle fluctuations and that may cause or exacerbate financial instability.[42] BMEC assesses the efficiency of its APC margin measures for its most relevant products within each segment.[43] The APC measures are tested

[41] A general description of the models can be found on MEFFCOM2 | BME Clearinglearing and HVAR | BME Clearinglearing Additional details on specific calibrations are documented in the Public Circulars available on the website Circulars | BME Clearinglearing.

[42] Definition included in the PFMIs, Annex H Glossary.

[43] A product is deemed relevant if its corresponding IM required is higher than the percentage threshold, established at 0.05 percent, of the total IM required for all products in the segment; for instance, the threshold for crypto products is set at 2 percent of the total IM.

monthly, and the risk appetite for procyclicality of margins is established by the CCP's Executive Committee.

73. BMEC uses a combination of the options available under EU-regulation to limit procyclicality, depending on the type of instrument. Detailed information on the options available can be found in Annex 1 under the section on APC measures.

74. BMEC APC measures performed satisfactorily in the ESMA stress test. Based on discussions with ESMA, the FSAP inferred that BMEC performed above average on the APC measures in the EU-wide stress test ESMA organizes.

Wrong-way Risk

75. BMEC has measures in place to monitor specific wrong-way risk, albeit these are not included as parameters in the margin model. Specific wrong-way risk arises where an exposure to a counterparty is highly likely to increase because the creditworthiness of that counterparty is deteriorating. The CCP addresses wrong-way risk including in its methodology dependency estimates between CM's counterparty risk and the market risk of their portfolios, and additional margins are requested to cover these risks. However, in 2021, the CNMV requested BMEC to introduce in their model an element sensitive to wrong-way risk in the IM model. The recommendation is to avoid ex post adjustments that could result in procyclical effects. As mentioned, this enhancement was implemented in the HVaR model, but it is not yet implemented in all segments.

Portfolio Margining

76. BMEC allows offsets or reductions in required margin across products with a similar risk profile that it clears (portfolio margining) but it does not allow offsets between products cleared in different segments. The model allows portfolio margining across instruments within the same group (i.e., futures and options with the same underlying and several expiration periods), and across instrument groups whose market risks are sufficiently correlated. No portfolio margining is made across assets cleared in different segments. At BMEC, offsets can be performed up to a maximum of 70 percent, depending on the product. The sample used to calculate correlations exceeds one year and encompasses periods of stress. Also, BMEC does not allow offsets between products cleared in other CCPs.

77. Offsetting only occurs across highly correlated instruments (a correlation of minimum 70 percent), when the correlation is stable in times of stress, and the parameters are tested monthly. Monthly, BMEC's correlation parameters are reviewed, and all offsetable underlying need to pass a test to assure that correlation remains stable and does not become negative in stressed periods. BMEC's risk model allows, depending on the results, to separate different maturities in different tranches. The CNMV considers that the offset parameters and level of correlation used are conservative, especially for the segments to clear equity and sovereign bonds. The CNMV relies on the numbers provided by the CCP and occasionally, performs checks. When a new asset is introduced, correlation checks are performed more thoroughly.

Credit Exposures Resulting from the Default of an Issuer

78. The margin model includes adjustments to cover for counterparty credit risk arising from the default of the issuers of the securities cleared by the CCP or their underlying. Credit risk is covered in different ways depending on the segment:

- For **fixed Income (Repos)**: sovereign credit default risk is included in the yield volatility that is used to calculate margin parameters. In addition, BMEC considers credit risk in the price fluctuation parameters, to account for flight-to-quality or stressed periods. The CCP uses a reference euro-area basket to compare the current returns observed on each sovereign bond it clears (without including the relevant sovereign bond in the basket, to avoid bias in the calculation). If the yield spread is higher than the return of the reference basket over two consecutive days, the standard two-days close-out period and the margin percentages of such sovereign bond will be increased, only for the bond buyer positions, i.e., the borrower leg in the repo transaction.[44] Figure 2 illustrates how the margin and close-out periods would increase:

Figure 2. Spain: Increase of Margin Percentages for Long Positions

Increase of margin percentage depending on yield spreads

Spread	Close-Out period (days)	Increase of Margin Percentage for Long Positions (percent)
Lower than 350 basis points	2	0
Between 350 and 400 basis points	3	22
Between 400 and 425 basis points	4	41
Between 425 and 450 basis points	5	58
Between 450 and 475 basis points	6	73
Between 475 and 500 basis points	7	87
Between 500 and 525 basis points	8	100
Between 525 and 550 basis points	9	112
Higher than 550 basis points	10	124

- For **IRDs**, the margin required of each member is multiplied by a factor determined by the internal solvency score assigned by the CCP (Figure 3).

[44] More information on close-out periods can be found in the subsection below on Close-out and sample periods.

Figure 3. Spain: Credit Quality Multipliers

Credit Quality Multipliers

Creditworthiness	Multiplier
S1 – S6	1
S7 (A- equivalent)	1.25
S8 (BBB equivalent)	1.50
S9 (BB+ equivalent)	1.80

- For **Financial Derivatives and Equities**, BMEC monitors on a real-time basis the solvency of the issuers of the equities registered in the CCP. In the event of a near-to-insolvency situation, BMEC would increase the IM percentage accordingly. Under stressed circumstances, BMEC could increase margins reaching a level close to 100 percent. This would happen if the price of a security suffers two consecutive falls in price (e.g., Lehman Brothers' shares' fall after its bankruptcy), combined with press articles questioning the issuer's solvency.
- For **energy contracts** there is no issuer and the CCP is not exposed to the risk of an issuer defaulting.

Liquidity Risk Management

79. BMEC has a liquidity risk management framework to monitor its liquidity risk on an ongoing basis, including daily liquidity stress testing. BMEC quantifies the status of its liquid resources, and its potential liquidity needs under various scenarios on a daily basis. This includes *regular circumstances*, where the CCP considers the payments forecast at the next multilateral settlement and the margin required in each segment; and *stressed circumstances*, where the CCP considers the cost of closing-out a member's defaulting position and the liquidity needs due to a cash failure in the Equities and the Fixed Income securities' segments. The CNMV noted to the FSAP team, its view that BMEC follows a conservative margin calibration, supported by the fact that around 60 percent to 70 percent of the margins received are cash and that liquidity stress tests reveal a significant surplus of available liquidity resources, in comparison to the liquidity requirements under EMIR.

80. The CCP requires an aggregated 50 percent of cash collateral. BMEC applies a stringent system in relation to cash collateral The calculation of cash levels is done at an aggregated level (including all members) and, if the aggregated percentage of cash collateral falls below 50 percent, the CCP's Risk Department staff contacts the members whose percentage of cash collateral is below 30 percent, to request an adjustment. According to the CNMV, historically, the average of cash collateral at BMEC ranged between 60 percent and 70 percent. The percentage of cash collateral is monitored daily.

Sources of Price Data and Price Estimations

81. The sources of price data for the CCP margin model are well-recognized data vendors or data directly gathered from exchanges. BMEC communicates through MEFF terminals the same end-of-day information to all participants, including final reference prices of all underlying and rate curves. The sources of price data for derivatives vary depending on the asset class and the contract. The same sources of price data are used for end-of-day and intra-day margin calculations. Once the closing price is official, it is the price used to calculate exposures and margin (except for the case of Financial Derivative IBEX 35 contracts, which use the average bid-ask until the end-of-day calculations). When pricing data is unavailable or deemed unreliable, the CCP employs a methodology to estimate prices for the purpose of calculating margin requirements. This methodology is documented and reviewed by the CNMV as part of their duty to produce a review and evaluation report. Further details on the methodology can be found in Annex 1 under Sources of Price Data and Price Estimations.

Close-Out and Sample Periods[45]

82. The CNMV and BMEC provided evidence supporting that BMEC is compliant with regulatory requirements, and the PFMI principle in respect of close-out period determination. In line with EMIR, the close-out periods for different segments are two days for Financial Derivatives, Energy (only for Electricity), Cash Equities and Fixed Income segments; and five days for the Energy (only for Natural Gas contracts) and IRDs segments. These periods are used to calculate the IM at the account level.

83. For concentrated positions, BMEC margin models include add-ons for extended close-out periods that increase IM.[46] When the number of contracts held in a particular instrument is above the average daily volume (ADV) for that instrument, the IM is increased to cover for a longer period before the position would be liquidated. The concentration adjustment applies to equity, IRS, financial derivatives, fixed income, and energy segments. The methodology to determine add-ons for large positions depends on the different segments. See Annex 1 under the section on Close-out and Sample Periods for details on the increase of margin percentage for large positions. Based on discussions with ESMA clarified, the FSAP considers that BMEC had an above average performance with respect to concentration risk in the EU-wide stress test performed by ESMA.

84. Sample periods for historical data in the margin model consider different factors depending on the segment. In general terms, the CCP should use at least a 12-month lookback

[45] The close-out period refers to the estimated number of days needed to liquidate positions in case of the default of a participant. See https://www.bmeclearing.es/ing/Risk-Management/Backtesting for more details.

[46] Add-ons refer to additional margins that are used to account for specific risks that are not covered by the standard IM requirement. They aim at ensuring that the resulting margin requirements are at least as high as those that would be obtained by using minimum EMIR requirements.

period for the calculation of historical volatility. BMEC amply fulfils this requirement, with lookback periods going up to 13 years.

Fire Drills

85. BMEC performs at least one annual fire drill per segment, which simulates the default of a CM. The process starts when the CCP chooses a hypothetical portfolio being representative of the portfolios of its CMs, with at least 15 percent of the overall IM in that segment. Depending on the complexity of the defaulter's portfolio, the CCP may opt for closing-out the portfolio in the open market, or alternatively, for hedging the portfolio and to organize a subsequent closing auction. All members of a segment are invited to the auction.

86. The purpose is to test BMEC's procedures, hedging strategy, and communication channels with CMs, as well as CMs' capacity to provide realistic auction quotes in real time. For a defaulting portfolio that can be quickly closed out, the CCP can directly organize the closing auction (without a prior hedging auction). In both cases, the CCP manages to close the market risk of the portfolio a few hours after the declaration of default, to return to a matched portfolio.[47] In addition, BMEC participated in the international fire drill scheduled for November 2023. The purpose of the international fire drill is to test if a CM can calculate and provide quotes to different CCPs simultaneously, and it is also a good exercise for authorities in terms of coordination. The CNMV and ESMA are involved in this process.

87. Fire drills are voluntary for all segments except for IRDs. In the case of the IRD segment, there is a consultative group of members of BMEC (with a diversified representation in terms of size, exposure, and type of clients) to provide advice on how to manage the default process. The group also discusses the hedging strategy performed by the CCP. CMs' participation in all fire-drill exercises is significant.

88. Overall, the CNMV considers BMEC fire drill exercises satisfactory and EMIR compliant. In 2022, the CNMV requested to participate in one of BMEC's fire drills. It found the experience useful in obtaining a better understanding of the exercise and was able to leverage off its participation to ask for some amendments to the process, such as a more detailed documentation of the procedure and an enhanced governance and accountability framework.

89. The CCP shares with its members a calendar at the beginning of the year with the dates for the different fire drills. While fore-knowledge of the fire drill schedule facilitates members' participation, as noted by the CNMV, it also allows them to allocate extra resources ex-ante, which might make the results less realistic.

[47] The CNMV participated as observer in the fire drill of the Financial Derivatives' segment in 2022, and the hedging auction was resolved minutes after noon (default was declared at 9:00am).

Default Management Process

90. BMEC's rulebook describes the default management process that activates if a CM is declared in default by the CCP or by other external bodies (i.e., bankruptcy or insolvency procedures).[48] Here is the list of measures that the CCP may adopt, on behalf and at the expense of the defaulter:

- Suspend the defaulting member or client.
- Immediately restrict the registration of new trades of the defaulter.
- Execute any trades as may be necessary, including trades on financial instruments, for the purpose of reducing unhedged risks, until total coverage thereof.
- Close-out the defaulter's positions, on behalf of the defaulter.
- Transfer to another member, where possible, or otherwise close, the accounts of clients of the defaulting CM.
- Execute, in whole or in part, the collateral posted in its favour by the defaulting member or client.
- Obtain any kind of professional advice or assistance which the member or BMEC may reasonably require in relation to the management of the default, including a mandate to another firm to manage the closing-out of the positions.
- Any other measure required to mitigate the risk to BMEC or its participants resulting from the default, informing the competent authorities thereof.

Stress Test, Back Test, and Sensitivity Analysis

91. BMEC ensures the robustness of its margin models and DF calibration through stress tests and back tests:

- Daily back tests to validate IM coverage and haircuts.
- Daily stress tests to validate the model for determining the DF.
- Daily liquidity stress tests to check that the CCP has sufficient liquid resources.
- Monthly sensitivity analysis, complemented by reverse stress test.

92. BMEC in its daily stress tests uses the most unfavourable situation between the maximum historical fluctuations and hypothetical price scenarios. For these purposes, BMEC uses the same liquidation periods as those used for the IM calculation (up to D+2 for Equities, Financial Derivatives, Electricity and Fixed Income, and up to D+5 for Gas contracts and IRDs). Daily, BMEC monitors that the Cover-2 risk is within its risk appetite and according to regulation.[49] In cases of extreme volatility, BMEC requires extraordinary individual margins to keep that risk within limits.

93. BMEC has established a Risk Appetite Framework by using a series of Key Risk Indicators (KRIs) that serve as an early warning in case the margin coverage deteriorates. The

[48] This is described in article 42 of the BMEC's rulebook.

[49] Cover 2 refers to the maximum combined daily risk from the two largest CMs in each segment.

risk appetite is one of the KRIs that BMEC reports to authorities. The risk appetite is usually below the level set by regulatory requirements. Monitoring the risk appetite allows BMEC and the CNMV to see when margin coverage deteriorates. Some of the KRIs are based on the stress test and back test results, which are sent monthly to BMEC's Executive Committee as well as to the BME's Risk & Continuity Committee and to SIX's Executive Board.[50]

94. BMEC performs back tests daily for all segments, on IM coverage and on the haircut model. The IM back test process compares, for each account, the IM required at the close of a trading session with the largest loss of value that could be incurred by the account position between the close on "T" and "T+1", or between the close on "T" and the number of days included in the time horizon up to the close-out (the MPOR) for each given segment.

95. If the results of the back testing show an insufficient level of coverage, it could mean that the risk parameters are at an inaccurate level or that the model is not performing correctly. BMEC would review the risk model (in normal circumstances this is done monthly), analysing the following parameters:

- Granularity of the margin model.
- Frequency of adjustment of the offsetting parameters.
- Variability, compared to the latest review of price fluctuations.
- Differences in volatility variation between several expiries of the same underlying compared to the latest review.

96. BMEC's Chief Executive Officer (CEO) and/or Chief Risk Officer (CRO) will notify the Board of any proposals raised by the Executive Risk Committee regarding quantitative data, the monthly stress test and back test results.[51] Exceptionally, based on the back test results, the CEO—after informing BMEC's Executive Committee—may decide to increase the margin parameters at the end of a session and with immediate effect where necessary (for example, if coverage falls below the minimum regulatory requirement). This decision will be reported to the CNMV and the Board of BMEC.

97. In cases where the IM model is not performing as expected, the CRO will review the situation immediately and will inform BMEC's Executive Committee to take immediate action. This will happen when there are excesses in the back testing, and in particular, when the fluctuation of an underlying has surpassed its IM interval three times within three consecutive days, or two times within two consecutive days for an amount greater in absolute terms than EUR 1 million each

[50] In addition, back testing results are sent daily to the CCP's Chief Risk Officer, the CMs and to the CNMV, at account level.

[51] According to BMEC's Board of Directors' Regulations, the Executive Committee consists of at least three and not more than five Directors designated by the Board, to which the Board may permanently delegate all or part of its powers. The Chairperson and Secretary of the Board of Directors shall act as Chairperson and Secretary of the Executive Committee.

day if that was not caused by a deficit in the IM interval (either price or volatility) but by a possible model risk situation.

98. BMEC performs sensitivity analysis monthly by selecting portfolios from the CMs most exposed to changes in the risk factors modelled. A portfolio is understood as the total position of a CM without offsetting risks across the various accounts. A sensitivity analysis should assess the coverage of the margin methodology under various market conditions using historical data from realised stressed market conditions and hypothetical data for unrealised stressed market conditions. In general, margin parameters are reviewed monthly by the BMEC's Executive Committee. Under extreme market circumstances, the CCP will conduct this sensitivity analysis immediately. In addition, all risk management controls and models are reviewed once a year.

99. Different aspects are covered in the sensitivity analysis, complemented by reverse stress tests. The sensitivity analysis investigates the correlations and how they would affect the margin of portfolios at monthly frequency. Another important scenario considered in the sensitivity analysis is a wrong-way-risk scenario where a CM defaults and the securities issued by that same CM fall in value by -100 percent. In parallel, BMEC performs liquidity reverse stress tests to determine under which extreme market conditions and default scenarios, the CCP's liquid resources would become insufficient.

100. The CCP in the reverse stress test uses two different ways to analyse the point where financial resources would be exhausted:

- Increasing the number of CMs defaulting at the same time; or
- Stressing the parameters at more extreme levels, considering that the starting point would be that of the sensitivity scenario analysis.

The results of these tests are reported to the CCP's CRO for validation, and then they are disclosed to the EMIR Risk Committee.[52]

Review and Validation

101. Material changes in the margin methodology require authorization and an independent validation. Material changes are implemented upon authorization by the CNMV and ESMA, in consultation with the CoS of BMEC. Further, the CCP must submit a report issued by the independent validator, including a self-assessment of the proposed change. The analysis must indicate how the CCP's margin methodology complies with EMIR considering the proposed change. In terms of procedure, after BMEC requests the change from the CNMV to be communicated to the CoS together with the self-assessment and the independent validations, the CNMV and ESMA will conduct respective risk assessments and issue reports to be shared with the CoS. The college will

[52] The risk committee is prescribed by EMIR and is composed of representatives of the CCP CMs, independent members of the board and representatives of CMs' clients. More information on the organizational structure of BMEC can be found here: Organisational structure | BMEClearing.

then vote to approve or reject the change. If a model change is urgent, validation can be performed after the implementation has been made.

102. Under exceptional circumstances, the CNMV in agreement with ESMA, can approve material changes to the CCP's model before undergoing the full authorization process with the CoS.[53] In November 2021, BMEC identified excesses in its back testing results, meaning that the confidence level could be breached.[54] To address this situation, BMEC decided to introduce a change in the calibration for IM calculation, to make it more conservative. The change was implemented in two and a half months after it was communicated formally to the CNMV. BMEC used a fast-track process that does not require pre-authorization for introducing a change. Instead, this option requires a post-implementation full validation of the change, which in that case culminated in the approval by the ESMA Board of Supervisors in March 2023. From the comments received by BMEC, the FSAP team understand that a further streamlined fast-track process that would allow to implement urgent changes in a couple of weeks would be beneficial, especially, when it tries to render the model more conservative to avoid potential future breaches.

[53] This option is foreseen in EMIR, under article 49.1e.

[54] A breach in the confidence levels may or may not occur, depending on whether these excesses persist and break the confidence level established.

Box 1. Spain: Thematic Review of the Margin Model for the Energy Segment

In 2021 and 2022, the CNMV intensified the supervision of BMEC's margin practices for the energy segment. Energy markets suffered high volatility starting in Q42021, with its peak from February to August 2022. The war in Ukraine added to the extreme fluctuations, especially on electricity and natural gas prices. BMEC clears derivatives contracts on electricity and natural gas.

The CNMV supervisory efforts focused on:

- The risk management measures taken by the CCP to deal with increasing credit exposures and potential liquidity strains.
- The coverage capacity of the margin model.
- The coverage capacity of the DF and the SITG resources
- The concentration risk in the energy segment, from the perspective of CMs and clients.
- The creditworthiness of the most active members.

The conclusions of the CNMV's review present some of the additional measures adopted by BMEC (some of them still in place today) that proved to be effective during the times of extreme volatility. These measures included, inter alia:

- Intra-day stress test calculations with additional requirements to the CM's, depending on the results. Before, stress test was only conducted at the end of the day.
- 50 percent reduction of the credits granted to the CMs in relation to their solvency score.

Implementation of a 50 percent risk appetite level in the Cover-2 ratio, to avoid reaching a breach level. Additional margins are requested if the ratio approaches the 50 percent level.

After the implementation of these measures, there has not been a breach on the DF coverage since December 2022, and the CNMV considers the measures were effective to reduce credit risk exposure, enhancing the intra-day risk management framework.

CMs and clients expressed satisfaction with the management by CNMV and BMEC of the energy market volatility and with BMEC's transparency, despite smaller clients being more affected by the increase in margins. The FSAP team discussed with several members of BMEC to understand how the impact of the energy prices' crisis was managed. Members explained that they had regular contact with the CNMV and with BMEC and that, once the situation was more stable, the CNMV contacted all of them to know about their experience, especially regarding their capacity to respond to a significant number of intra-day margin calls. From the discussions with members, posting additional margin several times per day might have been "uncomfortable" from an operational perspective, but not a problem from a liquidity point of view for the majority of them. One aspect that played an important role in the preparation of the CMs to respond to the intraday margin calls is the fact that at BMEC only financial counterparties (as per EMIR definition) can become CMs. This meant that while the clients of the CMs can be non-financial entities, for instance, an energy firm, the CCP always faces a financial entity with the capacity and systems necessary to respond to intraday margin calls. Regarding the preparedness of the CMs' clients, most of them (big energy firms) were operationally ready to post margins during the day, while some other smaller entities (with one or two people in the back office) faced more challenges to ensure, for instance, that there would always be someone available to respond to these margin calls.

Another additional measure implemented was the introduction of voluntary margins. During March 2022, BMEC proposed to its CMs in the Energy segment the possibility to deposit additional voluntary margins to cover the positions of their clients, to reduce the frequency of potential margin calls and liquidity strains. This measure is still in place today.

B. Strengths, Challenges, and Recommendations

Strengths

103. The CNMV performs rigorous controls on the margin models. The CNMV conducts thorough reviews of BMEC's risk management and CNMV staff have a deep understanding of the specifics of the margin models. The CNMV team and BMEC are in continuous discussion about potential changes and enhancements. In certain aspects, the IM model applies more conservative requirements than EMIR, e.g., longer close-out periods or higher confidence levels for some segments.

104. According to the CNMV's Supervision Department, BMEC complies with EMIR requirements and with the PFMIs, and BMEC has mechanisms in place to test its margin models' robustness. BMEC conducts daily stress tests to validate the model for determining the DF; daily back tests to validate IM coverage and haircuts; daily liquidity stress tests to check that the CCP has sufficient liquid resources; and monthly sensitivity analysis, complemented by reverse stress test. All these results are shared with and supervised by the CNMV.

105. The CNMV takes a proactive role in the supervision of BMEC's margin model. In the past two supervisory cycles, the CNMV conducted several thematic reviews; participated onsite in the 2022 fire drill; conducted a deep-dive assessment of BMEC's crypto-initiative; reviewed APC measures, margin practices in the energy segment, and BMEC's participation requirements.

106. Transparency from BMEC towards authorities and CMs. BMEC provides a significant amount of information to the authorities and to its participants. When discussing with a diverse sample of CMs, all considered BMEC as "transparent". In addition, the CNMV, with all the data it receives, is able to replicate BMEC's calculations and, when a divergence arises, BMEC provides the CNMV with the templates for calculation they use, to facilitate the CNMV's reconciliations.

Challenges

107. Changes to the margin model requested by the CNMV are not always implemented in timely fashion. While some of the CNMV's recommendations are addressed in timely fashion, some others will only be fully implemented in the future. One example are the changes requested by the CNMV on how BMEC accounts for concentration and wrong-way risk in some of the segments, which will only be effective after all clearing segments have transitioned to the HVaR model. Another example regards the thematic review conducted by the CNMV on APC measures, which concluded that some aspects merited strengthening. Although the most important element, regarding the APC framework for consumption and replenishment rules for the APC buffer, has been addressed, other APC aspects signaled by the CNMV in 2021, are yet to be implemented.[55] In

[55] In this specific case, BMEC has already presented to the CNMV the metrics they intend to use for such adjustments. However, BMEC did not implement them, as they await the publication of a forthcoming EU delegated act that might

(continued)

addition, there are best practices recommended by the CNMV, such as the rotation of independent validators of the margin models, that BMEC only applied partially (to the energy segment but not the other segments).

108. Due presumably to a lack of awareness, some international standards in the PFMIs regarding the sensitivity analysis may have been overlooked by BMEC and the CNMV. According to Principle 6 of the PFMIs (see 3.6.15), the results of the sensitivity analysis should be disclosed to CCP members.

109. Certain controls, even if they work well, are not fully documented, standardized, and automated. Specifically, all details in the procedures to manage a default should be properly documented. Other aspects related to the assessment of procyclicality of BMEC's margin requirements or the credit worthiness of CMs should be more standardized.

110. Certain enhancements to the risk management methodology have not been implemented consistently across all segments. Specifically, some enhancements to integrate wrong-way risk into the model, instead of covering it as an add-on or additional feature, apply only to those segments that use the HVaR model.

Recommendations

111. The CNMV should undertake follow-up supervisory action targeted at ensuring implementation of its recommendations in timely fashion. The implementation lags relative to recommendations are long in some cases and the CNMV should consider follow-up corrective supervisory actions in such circumstances. For instance, some of the recommendations arising from the 2021 thematic review of the APC measures, or recommendations from the CNMV, such as the adoption of concentration and wrong-way risk measures as part of BMEC's risk model or the rotation of independent validators, do not yet apply to all segments.

112. The CNMV should encourage BMEC to complete the migration to the new HVaR model, in which BMEC has implemented further enhancements to make the model more robust and efficient.

113. The CNMV should require BMEC to disclose to CMs the results from the sensitivity analysis, as noted in the PFMIs.

114. The CNMV is encouraged to require that all relevant BMEC risk management policies and procedures are adequately documented. This is especially relevant in relation to the procedures for default management, where the procedures, the governance of the process, the lines

impact any adjustments performed. At the same time, it is also noted, that the future is uncertain and there is no clarity on when or if that delegated act will be adopted in the near term.

of responsibility and accountability need to be clearly established, as well as the auction mechanism for all segments.

115. The CNMV should review and ensure that proposed changes to BMEC's margin model resulting from adoption of methodologies and models designed by SIX group are aligned with its own requirements and BMEC's objectives. The CNMV should also ensure that BMEC continues enhancing its internal system to assess CMs' credit worthiness. New systems to be imported from SIX should be thoroughly reviewed by the CNMV in its capacity of direct supervisor.

CRISIS MANAGEMENT—BMEC AND IC

A. Description and Findings

BME Clearing's Recovery and Resolution Framework

116. In December 2020, a European framework for the recovery and resolution of central counterparties (CCPRRR) was adopted.[56] The objective is to ensure that the critical functions of a failing or likely to fail CCP are preserved, and to maintain financial stability minimizing the cost of a CCP's failure on taxpayers. The European framework requires that each member state designates a national resolution authority (NRA) and provides it with resolution tools and powers to take rapid and effective action upon the failure of a CCP. The CNMV (and more specifically, its Resolution Unit) is the NRA designated in Spain for the resolution of FMIs. The CCPRRR also creates Colleges of Resolution (CoRs) to foster cooperation among authorities. CCPRRR provisions are complemented by Delegated Acts and by ESMA guidelines. The provisions in the CCPRRR related to resolution entered into force on August 12, 2022 and progressively entered into application between February 11, 2021 and February 12, 2023.[57]

[56] Regulation (EU) 2021/23 of the European Parliament and of the Council of 16 December 2020.

[57] The European Commission adopted several Delegated Acts to further complement the resolution framework, and to specify: (i) the factors to assess CCPs' recovery plans; (ii) the methodology for the calculation and maintenance of the additional amount of pre-funded dedicated own resources for CCPs (second-skin-in-the-game); (iv) the conditions for recompense, where a CCP in recovery caused by a non-default event has applied the measures to reduce the value of any gains payable to non-defaulting clearing members set out in the recovery plan, and as a result has not entered into resolution; (v) the content of the written arrangements and procedures for the functioning of the resolution colleges; (vi) the content of the resolution plans; (vii) the methodologies for the valuation in resolution and the conditions under which an independent valuer can be deemed independent from the resolution authority and the CCP; (viii) the conditions under which any compensation under the NCWO should be passed to clients and indirect clients. In addition, there is a pending European Commission delegated act, on the content of business reorganization plans.

In addition, ESMA has issued several complementary guidelines including: Guidelines on the template written arrangements for resolution colleges and Guidelines on the template summary resolution plans. All the guidelines must be adopted by the competent authorities within a period of two months since the publication by ESMA of their translations into Spanish. The CNMV has adopted all guidelines translated into Spanish and also the Guidelines on the template for written agreement for the resolution college before their translation because it was needed for the establishment of the college.

117. Before the publication of the CCPRRR, the CNMV created (in 2015) the Resolution Unit, integrated into its Policy and International Affairs Directorate-General, which is independent from the supervisory functions. The Resolution Unit is responsible for carrying out all resolution planning functions regarding BMEC under the CCPRRR. The unit is hierarchically and functionally separate from the departments that carry out the CCP's supervisory functions. The Unit is staffed with four people, with experience and technical capacity in resolution of financial entities and 1.5 fully dedicated equivalent staff members to BMEC resolution duties.

118. In 2017, BMEC was identified as a systemically important CCP in more than one jurisdiction by the CPMI-IOSCO, and the CNMV extended the scope of the FSB Key Attributes of Effective Resolution Regimes for Financial Institutions to BMEC.[58] Consequently, in 2019, the CNMV approved the creation of BMEC's Crisis Management Group (CMG). Since then, the CNMV has been working on the preparation and resolvability analysis of BMEC following the relevant FSB Guidelines on CCP resolution.[59] In 2021, the BMEC CMG's members signed a confidentiality agreement which included an agreement for cross-border cooperation. As part of this process, the CNMV worked to implement the FSB guidance on available financial resources, evaluating resources available to the CCP when facing different resolution scenarios. This analysis was shared with the CMG and the fmiCBCM group of the FSB.

119. Currently, regarding CCP resolution, the CNMV's is still working on the preparation of the CCP resolution plan. For the CCP's resolvability, the analysis will focus on the identification of critical functions, based on the CCP's business lines, and on the preliminary characterization of possible resolution strategies. Among the activities the CNMV is planning, the CNMV will organize an internal seminar, develop a playbook, perform a resolution drill, and digitalize the processes for obtaining information and managing BMEC's resolution plans. In discussions with the CNMV, the FSAP team was informed of some of the details of the resolution plan, which is not yet finalized. The CNMV is working under resolution scenarios that are diverse and apply increased stresses to achieve very extreme sequences of events. In addition, the FSAP team also discussed with ESMA the status of the resolution planning across CCPs in the EU, and the CNMV seems to be in a good track in its preparatory work when compared with peer authorities.

120. The CNMV is in the process of finalizing the setup of BMEC's CoR, which includes authorities from countries whose areas of competence would be affected by the failure of the CCP, including non-EU authorities. The CNMV has identified the authorities that should be part of

[58] The FSB Key Attributes of Effective Resolution Regimes for Financial Institutions (fsb.org), October 2015, mentions that "The scope of the FSB Key Attributes is extended to FMI in a manner as appropriate to FMIs and their critical role in financial markets. The choice of resolution powers should be guided by the need to maintain continuity of critical FMI functions."

[59] Guidance on Financial Resources to Support CCP Resolution and on the Treatment of CCP Equity in Resolution: Final Report (fsb.org).

the CoR and plans to have the CoR established in January 2024.[60] The CNMV will have to also coordinate with FINMA, member of the college and supervisor of the SIX group, and include them in the CoR in its roles as supervisor of the SIX group (the parent company).[61] The first meeting of the BMEC CoR was expected to take place in Q4 2023. CoRs are involved in preparing the CCP's resolution plan, and more broadly, the college provides a framework for the CNMV and other relevant authorities to perform the following tasks:

- Exchange information relevant for drawing up resolution plans, including for taking into consideration the systemic impact of the implementation of the resolution plan, for the application of preparatory and preventative measures and for resolution.
- Draw up resolution plans.
- Assess the resolvability of CCPs.
- Identify, address, and remove impediments to the resolvability of CCPs.
- Coordinate public communication about resolution plans and strategies.

BMEC's Recovery Plan

121. BMEC submitted a recovery plan to the CNMV in October 2022 and due to several deficiencies, the CNMV acting as the NRA, requested a thorough review and a subsequent revised submission. The plan was submitted to the supervisory college and to the NRA. The NRA reviews the plan, and issues recommendations to the supervisory authority (the CNMV) if an issue is detected in the plan. Several deficiencies were identified, including ten material deficiencies related to the lack of resolution scenarios and detailed procedures. The plan was deemed as non-compliant with the CCPRRR and related guidance. BMEC submitted a revised plan in May 2023 with these deficiencies amended, and it was approved with some additional recommendations by the CNMV in its role as supervisor, the BMEC CoS, and the CNMV in its role as NRA. The additional recommendations, which are not considered material, should be implemented before the next annual review.

122. Recovery plans are reviewed on at least an annual basis, and whenever the CNMV or the Executive Risk Committee considers it relevant. In addition, the plan needs to be reviewed every time there are significant changes to any of the CCP's critical services and in other events prescribed by the CCPRRR. Any update to the plan needs to involve BMEC's CRO, the Chief Operations Officer and the Chief Compliance Officer, and needs to be submitted to BMEC's Executive Committee for its feedback before it is submitted to the BMEC's Board of Directors.[62] If

[60] List of members of the resolution college and their roles under Article 4(2) of CCPRRR. In the case of the BMEC's resolution college, the relevant resolution authorities will be the CNMV (Chair), BdE, FROB (the Spanish Executive Resolution Authority), the ECB, the SRB, the ACPR, the AMF, BaFin, the AFM, with ESMA and the EBA as observers. According to the Article, FINMA must also be part of the college of resolution, in its capacity of supervisor of the parent of BMEC, SIX group.

[61] According to CCPRR Article 4(2)(l) "the competent authority of the parent undertaking, where applicable;" should be part of the college.

[62] The Executive Committee is BMEC's internal committee chaired by the CRO.

BMEC's Board decides to ignore the Executive Committee's advice, it will need to inform the CNMV of the reasons. Significant changes in the recovery plan are submitted to the CNMV, who in turn submits it to the CoS for its approval.

123. BMEC's recovery plan considers a broad range of scenarios, going beyond the default of the two CMs to which the CCP has the largest exposures, under extreme but plausible market conditions. The recovery plan covers several scenarios, including scenarios resulting from default events, non-default events and a combination of both, all of them under severe distress. These scenarios include, for instance, losses from the CCP's investment activities or from operational problems such as severe external threats to its operations due to external disruptions, shocks, or cyber-related incidents.

124. BMEC's recovery plan includes different types of scenarios: default events, non-default events and a combination of both.

125. Default event scenarios:

- Causing **financial losses that propagate through BMECs default waterfall with return to a matched book** (through voluntary market-based tools).
- Causing **financial losses that require the use of mandatory rules-based arrangements to re-establish a matched book**: BMEC clears different asset classes in a total of five different segments, this scenario is divided into two, with different risk factors considered. The first scenario mainly affects the Equities segment, where the three largest CMs default, impacting the financial derivatives and energy segments. The second scenario affects exclusively the energy segment of BMEC, where the outcome of the voluntary auction results insufficient to cover losses.
- Causing **a liquidity shortfall**: This scenario focuses on a default event that causes a liquidity shortfall that exceeds the business-as-usual liquidity management tools that BMEC has in place. The scenario relates to an economic downturn in a specific European country, where some of the main CMs of BMEC are located, and this situation leads to the joint default of several (more than two) CMs, also including some firms belonging to the same company group, and this depletes BMEC's liquid resources.

126. Non-default event scenarios:

- **Preventing BMEC from performing its critical functions**: The most representative event regarding this type of recovery scenario is a critical system outage, affecting critical clearing activities such as trade novation, risk management and collateral management. The outages in the data centers can be derived from several factors such as external events, failures in the data center, manual intervention, etc. This scenario presents incidents that make necessary starting BMEC's critical systems on the secondary Data Processing Center (DPC). However, in order to compound the full recovery scenario, there must be also a failure on the secondary DPC. In discussions with BMEC, they are considering the setup of a third DPC offline.

- Causing **financial losses**: BMEC will define two different scenarios for this fourth type of recovery scenario where a non-default event causes financial losses to either the CCP or the CMs from investment losses and a cyber-crime and treasury fraud scenario.
- Causing **a liquidity shortfall**: This scenario focuses on a collusion of an employee that enables the withdrawal of a huge amount of cash from the BMEC's cash account in TARGET2. The funds are redirected to a third-party's bank account. Consequently, BMEC does not have enough funds to fulfil its obligations, e.g., deliver back collateral to CMs.

127. Combined default and non-default event scenarios:

- Causing **simultaneous default and non-default losses**: This scenario is internally referred to as the *game over* as it presents several events combined that cause both default and non-default losses to BMEC. It mixes a default event in the Financial Derivatives segment, where the three largest CMs default under very adverse market circumstances, together with a non-default losses event in which the two largest CMs (defaulted) are also a counterparty to BMEC in the reverse repo transactions carried out by BMEC for investment purposes. In this recovery scenario BMEC assesses how the different paths of loss propagation are simultaneously handled, for the default and the non-default losses.

128. The CNMV is satisfied with the severity of the scenarios and the indicators included in the recovery plan, which are deemed compliant with the FSB guidance and the CCPRRR. The recovery scenarios cover all relevant types and sources of risk, that may severely affect the financial soundness or operational viability of the CCP and create extreme stress situations, while remaining plausible. As an example, BMEC includes a scenario where a third party providing critical services or another linked FMI fails, even if it is not required by the CCPRRR framework nor the FSB guidance. The CNMV also performs checks on the indicators that should trigger the recovery plan, to ensure those would cover for different situations: early warning indicators for recovery actions, indicators that signal the move from business-as-usual risk management to the recovery phase, and indicators that signal the usage of specific recovery measures.

129. For the purpose of implementing the recovery plan, BMEC holds an amount of eligible capital in highly liquid assets and cash that is well above the minimum requirement. The FSAP team was given evidence that BMEC's total capital is substantially above the applicable regulatory and PFMI requirements. In addition, BMEC also has a provision of capital allocated for the skin-in-the-game (SITG) and for the second SITG (SSITG).[63] Moreover, the CCP needs to have own resources to cover at least a minimum of six months of its gross operational expenses. The CNMV supervises—at least annually, but usually these checks are done on quarterly basis—that the CCP's own resources meet these capital requirements. According to the CNMV, the sum of margins from the

[63] BMEC details in its Circular BMEC's Dedicated Own Resources (Skin in the game) and BMEC's Additional Dedicated Own Resources (Second Skin in the game) how this recovery tool is utilized in line with the process described in this Recovery Plan.

defaulting members, DF contributions and BMEC's equity would be sufficient to cover losses in case any of the scenarios described in the recovery plan materialize.

130. The CCP has identified its 'critical functions' according to the FSB guidance and the CCPRRR. In identifying the critical functions, BMEC considered several aspects such as the expected revenues and expected profitability of each segment, the number of CMs by segment, their country of residence and the market share. This analysis concluded that the critical segments for BMEC are Financial Derivatives and Equities, due to their strategic and economic importance and their relevance to the overall economy. To ensure the viability of the CCP and the continuity of provision of critical functions, BMEC identified several recovery options.

131. The recovery plan considers the links of the CCP with:

- other FMIs;
- CSDs and SSSs (IC, Clearstream Banking Luxembourg, Euroclear Bank SA/NV, and SIX SIS (part of the SIX Group));
- Trading Venues;
- Payment systems and other platforms (such as providers of information and market data, collateral management, securities providers, messaging systems, etc.).

132. The recovery plan considers options for participants to move to an alternative CCP in case it is needed. While the recovery plan includes an analysis of the suitability of transfers to alternative CCPs, discussions with the CNMV highlighted the complexity of the portability process to an alternative arrangement. Ultimately, the portability depends on the existence of other CCPs clearing the same kinds of instruments. Theoretically, at the moment, there are EU CCPs that could be suitable for the portability of most of the products cleared at BMEC—even if that would be a complex procedure. However, there are some products, such as derivatives on IBEX35, that are only cleared at BMEC and for which there is no alternative available. In addition, a transfer would depend on the capacity of CMs to access alternative CCPs. It is noted that an onboarding process for a CM could take up to 12 months. At the same time, it is also noted that a large percentage of contracts have a maturity shorter than six months (the established period for which BMEC has resources to continue functioning) and that would play in favour of the recovery strategy. Hence, preparatory work appears to be paramount. Regarding resolution, it is worth mentioning that it remains to be determined by the CNMV whether it would consider necessary to transfer functions to another CCP to ensure the continuity of critical services in resolution. If the CNMV were to make such a determination, preparatory work would also be needed.

133. The recovery plan also includes an "Emergency separation plan", with preparatory arrangements to facilitate the sale of assets or different business lines within an appropriate timeframe. This emergency plan follows ESMA guidance to CCPs on how to separate assets as stand-alone, to be divested to a third party. It also discusses the steps that are to be taken, from an M&A and separation perspective, to carry out the sale of parts or the entirety of the CCP's business. This is an annex to the recovery plan. Again, this plan entails difficulties linked to the lack of interoperability across CCPs. The success of this plan depends on the capacity of CMs to connect (be on-boarded) to the CCP where the segment is transferred.

134. BMEC includes in the plan resources to cover business risks and losses separated from resources designated to cover participant defaults or other risks covered under the financial resources' principles. BMEC holds at least 25 percent of its gross operational expenses to cover for business risks as of end-March 2023. These resources are different from the CCP's own resources to cover capital requirements for credit risk, counterparty credit risk and market risk. In addition, the CCP's total own resources are by law separated from cash and assets from its clearing members and clients.

135. In a recovery situation, BMEC has the following list of recovery options available. These resources would only apply where regular risk management measures are insufficient: SSITG (CCP own resources), cash calls for additional contributions to the DF, cash calls and VM haircutting for the continuity of services, voluntary margins, non-default losses allocation, tear-up of positions (full or partial), and substitution of pledge collateral by title transfer collateral.[64]

136. BMEC's recovery plan includes several tools to allocate losses caused by a participant's default and liquidity shortfalls. The default waterfall can be segregated into two different stages and establishes the order of priority in the absorption of losses, as defined in BMEC's Rulebook.

- **Default waterfall tools which consume pre-funded resources**: These are the first tools to be implemented in the event of default and, apart from the SSITG, they are not considered recovery tools because they imply the use of already existing members' resources, and would be activated before the recovery situation:
  - **Enforcement of all the IM** held by the defaulting CM to the extent that they have not yet been executed and used to obtain the net balance.
  - **Execution** of (i) the individual funds for each segment and (ii) if any, the extraordinary margins posted by the defaulting CM.
  - **Enforcement of the defaulting CM's pre-funded contribution to the DF** of the segment(s) in which the member operates.
  - **SITG**. BMEC will bear, against its own resources the losses equivalent to the part specifically allocated to the segment(s) in which the default occurred.
  - Enforcement of the non-defaulting members' contributions relating to the segment(s) in which the default caused losses.
  - **SSITG**. The SSITG is an additional layer of capital that exposes the CCP's capital before relying on further contributions from CMs and shall be used before any recovery arrangements. The purpose of the introduction of this SSTIG, in accordance with the European regulation and within the recovery phase, is to cover both the losses arising from the default of one or more CM(s) and the nondefault losses.

[64]In addition, there are other aspects relevant to the continuity of the CCP that are cover in the Business Continuity Plan, such as operational processes and IT services, or insurance policies.

- **Default waterfall tools which consume non-pre-funded resources:**
    - Additional contributions to the **Default Fund-Cash calls**: BMEC will require contributions to support the DF after using the prefunded resources. In case the default of a CM requires the use of the DF, the maximum aggregate amount that the rest of CMs can be asked to replenish shall be twice the amount of their contribution, prior to the declaration of the default, and for a period of 90 calendar days starting on the day of the default.
    - Contribution for the **service continuity-cash calls**: The total maximum amount of the contribution is up to one time the original Default Fund contribution.
    - Contribution for the **service continuity-VM gains haircutting**: Similarly, to the contribution for service continuity-cash calls but the contributions of the non-defaulting CMs are handled through VM gains.
    - **Voluntary margins**: BMEC will request voluntary contributions in order to avoid cessation of the activity in any segment.
    - Remaining free **capital**.
    - In addition, BMEC could decide to use the **tear-up tool**. The objective of this tool is to establish a matched book in case of a significant CM default event after voluntary or market equivalent measures, as brokerage, have failed.

137. Additionally, to cover for liquidity shortfalls under normal business circumstances (not in a recovery), BMEC may temporarily use margins from non-defaulting CMs. This happens under the condition to ensure that the margins are promptly returned to the members in case it is required.

138. Further, in a recovery situation, BMEC could substitute a pledge collateral by transfer of title collateral. When BMEC needs to reinforce its recovery tools to increase liquidity, it can apply a mandatory substitution of pledge collateral and CMs will have to post title transfer instead (which can be rehypothecated). This recovery tool is activated by BMEC when other recovery measures are depleted and no other alternative in terms of liquidity generation capacity is available.

139. BMEC's recovery plan includes several tools to allocate losses not caused by a participant's default. BMEC differentiates two types of losses not caused by a participant default:

- **Non-default losses from investments:** Any loss suffered by BMEC in relation to the investment of the collateral caused by the following reasons:
    - Losses incurred by BMEC arising from a default of the counterparty to the investment transactions, or
    - Loses arising from a default of the issuer of the collateral in which it is invested.

140. The recovery phase waterfall for non-default losses from investments included in the recovery plan establish the order of absorption of losses defined in BMEC's Rulebook:

- SITG.
- Allocation of 80 percent of the investment losses to CMs, up to of EUR 32 million.
- SSITG.

- Allocation of 20 percent of the investment losses to CM, up to EUR 8 million.[65]
- Equity: BMEC shall assume the uncovered losses against its remaining own resources, excluding the regulatory capital and other own resources other than the liquid net assets funded by equity.

- **Other nondefault losses**. Any other loss suffered by BMEC caused by business risk events, operational or legal risk, or force majeure events that prevent BMEC from fulfilling its obligations as a CCP (such as, but not limited to, fire, flood, explosion, fraud, or cyber-attack).

141. The recovery phase waterfall for other non-default losses included in the recovery plan establishes the order of priority in the absorption of losses defined in BMEC's Rulebook:

- SSITG.
- Equity: BMEC shall assume the uncovered losses against its remaining own resources, excluding the regulatory capital and other own resources other than the liquid net assets funded by equity.

142. In addition to these recovery measures, when applicable and necessary, BMEC could access the operational risk insurance policies of SIX which provide coverage for all subsidiaries. This insurance policies cover losses derived from fraud cases, civil liability claims and cyber risk. The exact amount and applicability will be calculated and decided on a case-by-case basis.

Recovery Framework—IC

143. The CNMV reviews IC's recovery plan at an annual frequency. The recovery plan is part of the documentation that IC submits to the CNMV for the annual process of review and evaluation. The CNMV checks that the plan is adequate to ensure the continuity of IC's critical operations. Recovery plans are part of the documentation needed to obtain and maintain CSDR authorization. The BdE, as a relevant authority,[66] participates in the review.

144. In addition to the recovery plan, the CNMV requires IC to have a business continuity policy and a disaster recovery plan. The objective of these plans combined is to ensure the preservation of its services, the timely recovery of operations and the fulfilment of the CSD's obligations in the case of events that pose a significant risk of disrupting operations. IC must allow its participants to continue to operate with certainty and to complete settlement on the scheduled date, including by ensuring that critical IT systems can promptly resume operations from the time of

[65] In the case of the allocation of 80 percent and 20 percent of the investment losses, this would only apply to the CMs that previously agreed to invest their margins (for which they are remunerated by the CCP). These losses would be allocated if the issuer of the bond the CCP invested in defaults, but losses would not be allocated if the investment simply goes in the wrong direction. CMs that do not allow the CCP to invests their margins (and are not remunerated for that), do not contribute to the 80 percent and 20 percent allocation of investment losses.

[66] The BdE acts as the overseer and as representative of the Eurosystem both, as central bank of issue of euro and central bank in which the cash leg of securities transactions are settled.

disruption. The plan may include the setting-up of a second processing site with sufficient resources, capabilities and functionalities and appropriate staffing arrangements.

IC's Recovery Plan

145. The CNMV is satisfied with IC's recovery plan, albeit the mission identified some aspects that could be presented in a clearer manner. The plan includes general information on the revenues of IC with a breakdown for the different services and refers to expected losses in case of materialization of certain events. The plan identifies the triggers that would unleash the implementation of the recovery plan as any losses stemming from any kind of risks that would reduce IC capital under 110 percent. This trigger is reviewed monthly and reported to the Risk Committee.[67] The Risk Committee would analyse the situation and decide whether it gives rise to the activation of the recovery plan and its tools recovery, or if it is sufficient to use ordinary actions to manage the situation. IC's recovery plan includes a description of the recovery tools available.

146. The recovery plan has defined scenarios considering the following situations:

- The failure of significant counterparties.
- Damage to the institution's or group's reputation.
- A severe outflow of liquidity.
- Adverse movements in the prices of assets to which the institution or group is predominantly exposed.
- Severe credit losses.
- Severe operational risk loss.
- The failure of significant counterparties affecting financial stability.
- A decrease in liquidity available in the interbank lending market.
- Increased country risk and generalized capital outflow from a significant country of operation of the institution or the group.
- Adverse movements in the price of assets in one or several markets
- A macroeconomic downturn.

147. The different situations presented in IC's scenarios for recovery are also tested in combination.

148. The recovery plan considers options for participants to move to an alternative CSD in case it is needed. It considers the possibility to transfer securities to alternative licensed CSDs under the CSDR regime. Finding alternative arrangements where to port assets of IC in a recovery situation

[67] The Risk Committee is part of the organizational structure of IC, as prescribed by the CSDR. The Risk Committee responsible for advising the Board of Directors on the IC´s overall current and future risk tolerance and strategy. It is formed by five members. More information on the organizational structure of IC can be found here: Corporate Governance | Iberclear.

is a complex matter and it would benefit from further discussion among peer authorities (supervisors of CSDs) that offer IC's services, to ensure suitability and viability.

149. The Recovery plan considers links with other FMIs. In addition, one of the pre-requirements to establish a link with another FMI is to review that those have appropriate recovery and business continuity tools. IC also has an emergency plan in case of abnormal functioning of linked CSDs systems.

150. According to the recovery plan, IC's tools to replenish its financial resources are capital increases or the sale of part of its investments. The capital increases would be subscribed by its ultimate shareholders (the BME Holding or SIX Group). The sale of non-current investments should not affect the CSD's capacity to provide its critical services. The CNMV verifies the resources available at the BME Group level and the audited financial statements of the companies where IC invests.

151. IC holds separate resources to cover for business risk, amounting EUR 10.4 million as of end of March 2023. The CNMV is satisfied with these resources as it considers IC complies with CSDR requirements.

152. Further, the CNMV considers that IC's chances of being severely affected by a liquidity shortfall are reduced. As the CNMV explained, IC does not hold positions and does not provide banking services. The CNMV also indicated that IC maintains capital requirements in cash or highly liquid financial instruments with minimal market and credit risk. The CNMV verifies that IC's investment policy is conservative and CSDR compliant. The CNMV performs these controls through the review of interim financial statements.

B. Strengths, Challenges, and Recommendations

Strengths—BMEC

153. Reasonable level of preparedness for CCPRRR. The CNMV has applied the FSB Key Attributes for Effective Resolution Regimes for BMEC since BMEC was identified as systemically important in more than one jurisdiction, and the CNMV had setup a CMG for BMEC. This experience provided the CNMV with a good grasp of the FSB framework for recovery and resolution.

154. Rigorous supervision of the Recovery Plan by the CNMV. The CNMV diligently reviews BMEC's recovery plan and, in the first submission, identified a number of deficiencies that were addressed by BMEC. The CNMV is satisfied with the result of those amendments.

155. Severity and diversity of scenarios. The recovery plan covers several scenarios, including scenarios resulting from default events, non-default events and a combination of both, all of them under severe distress. These scenarios include, for instance, losses from the CCP's investment activities or from operational problems such as severe external threats to its operations due to external disruptions, shocks, or cyber-related incidents.

156. Range of recovery options and tools available (for when business as usual risk management is insufficient). These tools and options include: SSITG, cash calls for additional contributions to the DF, cash calls and VM haircutting for the continuity of services, voluntary margins, non-default losses allocation, tear-up of positions, substitution of pledge collateral by title transfer collateral, and insurance.

Challenges—BMEC

157. BMEC is part of a cross-border group, and this requires intensified international cooperation. BMEC is part of SIX group, which is supervised by FINMA, and this implies the need for a close cooperation between the CNMV and FINMA in testing recovery plans for the group entities.

158. Finding alternative arrangements in case BMEC faces a recovery situation entails complexity. While BMEC's recovery plan fulfils international standards and guidelines as well as EMIR and CCPRRR requirements, finding alternative arrangements is an aspect where further work will need to be done to ensure that this recovery option considered by BMEC in its plan could be deployed in timely fashion, where necessary. Portability in an environment that lacks interoperability across different CCPs raises practical challenges. It is worth noting that the onboarding process to a CCP takes on average from 9 to 12 months. This is an issue that is not exclusive to BMEC but to all CCPs that need to comply with such requirement. In addition, transferring critical functions to alternative CCPs to ensure the business continuity in resolution would raise similar practical issues.

159. The authorities in charge of the resolution of the CCP and of CMs are different, and that will require coordination.

160. The CoR is yet to be established. The CCPRRR was adopted recently and the CNMV and its resolution unit are in track with its implementation. From discussions with ESMA the FSAP team was made aware that the timeline designed by the CNMV is adequate and aligns with their peers.

Recommendations—BMEC

161. Joint recovery exercises with FINMA. We encourage the CNMV to coordinate with FINMA to test the recovery plan of BMEC in combination with contingency plans of other entities belonging to the SIX group. The SIX Group organized a joint fire drill exercise where different entities within the group or critical services providers defaulted. The CNMV and FINMA should participate in these exercises in the future.

162. The CNMV should ensure that all tools currently identified in the recovery plan can be deployed in a timely fashion and, in its role as NRA when finalizing the resolution plan, the CNMV should assess whether in resolution it would be necessary to consider the transfer of functions to another CCP to ensure the continuity of critical services. If necessary to ensure continuity of the FMI's legal and technical arrangement, the CCP and resolution authority should (i) identify potential alternative provider, (ii) consider in advance the potential technical and legal barriers to the transfer of activities and seek to address them, and (iii) provide for advance agreement with other FMIs or relevant service providers. These preparatory efforts from BMEC and the NRA may help to advance in aspects such as interoperability and connections across CCPs that can facilitate continuity in case BMEC faces a recovery or resolution situation in the future. More interoperability across SIX FMIs could also be explored. For this purpose, the CNMV is also encouraged to intensify the engagement with peer authorities, supervisors of CCPs that could potentially onboard BMEC's critical functions, as part of a forward-looking exercise. One possible approach could be to raise a discussion on how to ensure alternative arrangements among CCPs' supervisors who might have similar concerns.

163. The CNMV should communicate with CMs to raise awareness about their resolution work, the scope of the CoR, and the coordination in place with the CMs' resolution authorities. While relevant national and international authorities, e.g., FROB, BdE, FINMA, SRB, ECB, ACPR, etc., are all members of the CCP's CMG (and expected to become members of the CoR when it is established), there is room for strengthening key aspects of the communication of financial crisis coordination arrangements to CMs and their clients. In particular, feedback from industry representatives to the mission clarified that there are significant benefits from raising awareness and disseminating information about the level of preparedness and coordination across relevant resolution authorities, including of the CCP and the clearing members. Examples of useful communication on a regular basis, also during peace time, include disseminating information of the meetings of BMEC's CoR, and about the protocols that will be in place for coordination between CMs' resolution authorities (at EU and at national level) and the CoR.

Strengths—IC

164. Regular reviews. The recovery plan of IC is annually reviewed and the CNMV staff has a good understanding of its content and of the updates in the information provided from year to year.

Challenges—IC

165. IC is part of a cross-border group, and this requires intensified international cooperation. IC is part of SIX group, which is supervised by FINMA, and this implies the need for a close cooperation between the CNMV and FINMA in testing recovery plans for the group entities.

166. Finding alternative arrangements in case the CSD faces a recovery situation entails complexity. IC's recovery plan fulfills the CSDR requirements, however, portability of assets to an alternative CSD is an aspect where further work will need to be done, to clarify the viability of such portability in an environment that lacks interoperability across different FMIs. This issue is not exclusive to IC, but to all CSDs that need to comply with such requirement.

167. Preparedness for CSDR Refit implementation. The CNMV needs to be prepared for the adoption of new governance structures and new responsibilities that will come under CSDR reviewed text.

Recommendations—IC

168. Joint recovery exercises with FINMA. We encourage the CNMV to coordinate with FINMA to test the recovery plan of IC in combination with contingency plans of other entities belonging to the SIX group. The SIX Group organized a joint fire drill exercise where different entities within the group or critical services providers defaulted. The CNMV and FINMA could participate of these exercises in the future.

169. The CNMV should take further steps to ensure that all tools currently listed in the recovery plan can be deployed in a timely fashion. Preparatory efforts would help to advance on interoperability and connections across CSDs to facilitate transfer of business to alternative CSDs. A higher degree interoperability across SIX FMIs could also be explored. In addition, as part of this forward-looking work, the CNMV could intensify engagement with peer authorities supervising CSDs that offer IC's services to prepare and better coordinate for a hypothetical situation where IC's business should be transferred to an alternative CSDs. This might be especially relevant in the case of IC, compared to BMEC, given that there is no CoR envisaged for the CSD. One possible approach could be to raise a discussion on how to ensure alternative arrangements among CSDs' supervisors who might have similar concerns.

170. The CNMV should encourage IC to improve the narrative of recovery plan. The narrative of the plan is not as clear as desirable. Aspects such as the impact of the different scenarios and the result of combining them should be more clearly presented.

Annex I. IM Parameters and Add-Ons

IM Parameters and Add-Ons

1. **For financial derivative instruments on equity:** BMEC uses the MEFFCOM2 model considering the price interval risk factor as well as the implied volatility factor, and the model takes the worst case. The model is based on specific parameters, such as a confidence level of 99 percent and an offset limit to portfolio margining up to 70 percent (only for highly correlated instruments, see sub-section on Portfolio margining). The model also includes specific add-ons for this segment, **liquidity add-on** and **concentration add-on**. Those are designed to cover for liquidity needs related to the spread risk in case a position is difficult to close-out, and for this, they use time series data calibrated at 99.9 percent; and to cover for concentration risk, for positions with a higher volume than the AVD.

2. **For rolling FX contracts (financial derivative instruments):** BMEC uses the HVaR model calibrated at a confidence level of 99 percent, combined with the expected shortfall calibrated at a 99.28 percent. The model is based on different parameters, including an offset limit to portfolio margining up to 80 percent, an IM floor,[1] an IM buffer to account for an adjustment for calendar bank holidays (in case the settlement occurs later than in two days), and a solvency multiplier according to the internal rating of the participant. The model also includes specific add-ons for this segment, **liquidity add-on** and **concentration add-on**.

3. **For IRDs:** BMEC uses the HVaR model calibrated at a confidence level of 99.65 percent, combined with the expected shortfall calibrated at a 99.82 percent (the model uses the worse result from the two calculations). The model is based on different parameters, and it also applies a multiplicative parameter (from 1 to 1.8) based on the internal score the CCP gives to each CM's credit worthiness. For this segment, the **concentration add-on** applies, and only for this segment it is calculated based on a survey the CCP launches among the segment's CMs, where CMs provide the cost of different IRD's buckets.

4. **For cash equity:** BMEC uses the MEFFCOM2 model with several position balances, one for current trades, one for failed settlements, one for shares held to be delivered, one for corporate instructions (e.g., for payment of dividends), and another for cash. The margin cannot be offset across different balances. For cash securities, the model is based on parameters and VM is considered as part of the IM model (and they offset). The model considers the price interval risk

[1] This floor is to comply with the European regulatory framework, in relation to limits to portfolio margining under the Margin RTS, Article 27.4: "Where portfolio margining covers multiple instruments, the amount of margin reductions shall be no greater than 80 percent of the difference between the sum of the margins for each product calculated on an individual basis and the margin calculated based on a combined estimation of the exposure for the combined portfolio. Where the CCP is not exposed to any potential risk from the margin reduction, it may apply a reduction of up to 100 percent of that difference."

factor and the inter-commodity spread credit risk. For this segment, the **liquidity add-on** and **concentration add-on** apply.

5. For fixed income (repos): BMEC uses the MEFFCOM2 model with five position balances and margin cannot be offset across different balances. The margin parameters are set by tranche. For this segment, the **liquidity add-on** and **concentration add-on** apply and there is a **wrong-way risk add-on**, a risk premium applied to sovereign government bonds if the issuer's risk is higher than a certain threshold.

6. For the energy segment: BMEC uses the MEFFCOM2 model with parameters such as a confidence level of 99.5 percent and a close-out period of five days for future contracts on gas, and a confidence level of 99 percent and a two-day close-out period for futures and forwards on electricity. There is no portfolio margining between gas and electricity contracts, and VM and IM can be offset. The model considers spread risk and the **liquidity add-on,** and the **concentration add-on** apply.

7. For the products linked to crypto assets: BMEC uses a MEFFCOM2 model combined with the expected shortfall. The model incorporates conservative calibrations, as in some cases, those go beyond the minimum EMIR requirements for similar products. The model relies on continuous monitoring of positions for each trading day, and margin calls follow a specific calendar for this segment.

Sources of Price Data and Price Estimations

8. When pricing data is unavailable or deemed unreliable, the CCP employs a methodology to estimate prices for the purpose of calculating margin requirements. This methodology is documented and reviewed by the CNMV as part of their duty to produce a review and evaluation report. The methodology is tailored to the different segments and needs:

- For **financial derivatives**, especially for newly listed securities for which there is no available lookback period, the IM calculation relies on average parameters derived from instruments within the same economic sector that exhibit similar levels of floating capital. The methodology also incorporates a liquidity factor adjustment to the margin requirements, to account for extended close-out periods and for concentrated positions. The holding period adjustment is determined by the frequency with which a position exceeds the average daily trading volume.
- In the **fixed income segment**, for maturity tranches for which time series might not be available, for example for a Spanish 50Y sovereign bond, the CCP would base its estimation on baskets of eligible assets with corresponding maturities. For the specific example, the CCP would leverage the yield changes observed in the 30-year benchmark bond, assuming changes would be similar to those of hypothetical benchmarks with maturities exceeding 30 years. This assumption allows to use the historical volatility of the 30-year benchmark as a basis, amplified by the increased sensitivity.

- When **a new asset class** is introduced, the CCP initially relies on external data sources for estimating the risk factors used in the IM calculations. This is the case for new energy contracts introduced in the past, and for the forthcoming products linked to crypto-assets. Once new products start to be cleared, the data for the purpose of IM calculations gradually transitions to real data sourced directly from trading venues. The CCP monitors the transition process to prevent abrupt jumps in the risk calculations. The CNMV considers that the transition process for new energy products and the framework used for estimating prices worked well in the past. Regarding the new segment on products linked to crypto-assets, the CNMV asked the CCP to introduce some adjustments, i.e., to account for the liquidity factor and to better calibrate the parameters as BMEC initially used as reference data from CME, a CCP that clears similar products in a much deeper market and in bigger volumes than what can be expected in day one. BMEC has adopted a more prudent projection for the new segment. BMEC agreed to collect real spread data and to add a method to capture the liquidity factor more accurately.

Close-out and Sample Periods

Annex I. Table 1. Spain: Increase of Margin Percentage for Large Positions

Equity, F. Derivatives and Fixed Income Segments			Energy Segment			
N times the Daily Average Volume	Close-out Period (days)	Increase of Margin Percentage	N times the Daily Average Volume	Close-out Period (days) for Electricity Products	Close-out Period (days) for Gas Products	Increase of Margin Percentage
Up to 1	2	0	Up to 0.75	2	5	0
Between 1 and 1.5	3	22	Between 0.75 and 1	3	7.5	22
Between 1.5 and 2	4	41	Between 1 and 1.5	4	10	41
Between 2 and 2.5	5	58	Between 1.5 and 2	5	12.5	58
Between 2.5 and 3	6	73	Between 2 and 2.5	6	15	73
Between 3 and 3.5	7	87	Between 2.5 and 3	7	17.5	87
Between 3.5 and 4.5	8	100	Between 3 and 3.5	8	20	100
More than 4.5	9	112	More than 3.5	9	22.5	112

APC Measures

9. According to Article 28 of the Margins RTS, there are different ways to limit procyclicality:

"A CCP shall ensure that its policy for selecting and revising the confidence interval, the liquidation period and the lookback period deliver forward looking, stable and prudent margin requirements that limit procyclicality to the extent that the soundness and financial security of the CCP is not negatively affected. This shall include avoiding when possible disruptive or big step changes in margin requirements and establishing transparent and predictable procedures for adjusting margin requirements in response to changing market conditions. In doing so, the CCP shall employ at least one of the following options:

- applying a margin buffer at least equal to 25 percent of the calculated margins which it allows to be temporarily exhausted in periods when calculated margin requirements are rising significantly;
- assigning at least 25 percent weight to stressed observations in the lookback period calculated in accordance with Article 26;
- ensuring that its margin requirements are not lower than those that would be calculated using volatility estimated over a 10-year historical lookback period.

When a CCP revises the parameters of the margin model in order to better reflect current market conditions, it shall take into account any potential procyclical effects of such revision."
BMEC uses a combination of these three measures depending on the products it clears in the different segments.