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April 2017

TECHNICAL NOTE—REGULATION, SUPERVISION, AND OVERSIGHT OF FINANCIAL MARKET INFRASTRUCTURES—RESPONSIBILITIES AND EUROCCP FINANCIAL AND OPERATIONAL RISK MANAGEMENT

This Technical Note on Regulation, Supervision, and Oversight of Financial Market Infrastructures—Responsibilities and EUROCCP Financial and Operational Risk Management for the Kingdom of the Netherlands—Netherlands was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in April 2017.

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REGULATION, SUPERVISION, AND OVERSIGHT OF FINANCIAL MARKET INFRASTRUCTURES—RESPONSIBILITIES AND EUROCCP FINANCIAL AND OPERATIONAL RISK MANAGEMENT

Prepared By
Monetary and Capital Markets Department

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

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Glossary

AFM	Netherlands Authority for the Financial Markets
CCP	Central Counterparty
CLS	Continuous Linked Settlement
CMG	Crisis Management Group
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CSD	Central Securities Depository
CSDR	Central Securities Depository Regulation
CSP	Critical Service Provider
DNB	De Nederlandsche Bank (The Netherlands Bank)
DvP	Delivery-versus-payment
ECB	European Central Bank
EMIR	European Market Infrastructure Regulation
ESES	Euroclear Settlement of Euronext-zone Securities
ESMA	European Securities and Markets Authority
EU	European Union
EuroCCP	European Central Counterparty N.V.
FMI	Financial Market Infrastructure
FSAP	Financial Sector Assessment Program
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
Key Attributes	Key Attributes for Effective Resolution Regimes for Financial Institutions
NBB	National Bank of Belgium
NCA	National Competent Authority
PFMI	CPSS-IOSCO Principles for Financial Market Infrastructures
SIPS Regulation	Regulation on Systemically Important Payment Systems
SSS	Securities Settlement System
T2S	Target2Securities
WFT	'Wet op het Financieel Toezicht,' Act of Financial Supervision
WGE	'Wet Giraal Effectenverkeer,' Dutch Securities Giro Act
WNT	'Wet Normering Topinkomens,' Law on Standards for Remuneration for Senior Officials in the Public and Semi-Public Sector

EXECUTIVE SUMMARY

The supervision of financial market infrastructures (FMIs) in the Netherlands has been significantly strengthened in recent years. The European Market Infrastructure Regulation (EMIR) introduced legally binding requirements for central counterparties (CCPs) located in the Netherlands. The Dutch authorities have also adopted the Committee on Payments and Market Infrastructures (CPMI)-International Organization of Securities Commissions (IOSCO) Principles for Financial Market Infrastructures (PFMI) in their oversight and supervision of central securities depositories (CSDs)/securities settlement systems (SSSs) and systemically important payment systems.

Significant progress has been made to ensure that FMIs across the European Union (EU), including in the Netherlands, are subject to a common regulatory framework that implements the PFMI. In combination with the Eurosystem's Oversight Framework for FMIs, EMIR implements regulatory frameworks for CCPs and trade repositories that are consistent with the PFMI. Once it comes into effect, the EU's Central Securities Depositories Regulation (CSDR) is expected to do the same for CSDs/SSSs. The CSDR will establish a clear statutory basis and enhance the transparency of policies with respect to CSDs/SSSs within the Netherlands. Within the Euro area, systemically important payment systems are subject to the Eurosystem's Regulation on Systemically Important Payment Systems (SIPS Regulation), which implemented the PFMI.

The Dutch authorities should ensure that Dutch FMIs observe all of the requirements in the PFMI, including those not covered by EMIR. In particular, the Netherlands Authority for the Financial Markets (AFM) and the Netherlands Bank (DNB) should ensure that Dutch CCPs develop comprehensive recovery plans ahead of the legally binding requirements that are expected to be introduced at the EU level. The AFM and the DNB should also continue to ensure that all Dutch FMIs comply with the PFMI disclosure requirements on an ongoing basis.

The Dutch authorities cooperate effectively with each other and relevant foreign authorities in their regulation, supervision and oversight of FMIs. Most FMIs in the Netherlands are jointly regulated, supervised and overseen by the AFM and DNB. While the AFM and the DNB have different objectives and responsibilities, they work together closely to ensure a consistent approach. To enhance the coordination, the AFM and DNB should share their respective annual supervisory plans. The Dutch authorities participate in multilateral cooperation arrangements with relevant foreign authorities on the regulation, supervision and oversight of specific FMIs, which is an efficient approach when a significant number of authorities are involved.

The DNB should review the allocation of resources across different FMIs to ensure that it reflects the relative risks the DNB faces. The European Central Counterparty N.V. (EuroCCP) is highly interconnected, and its failure would have significant financial stability consequences for European financial markets as a whole. Given the importance of EuroCCP, relatively more staff resources and time should be devoted to EuroCCP. In the event that the DNB is assigned the resolution authority responsibilities for EuroCCP, it will need further resources to fulfill this role. **The Netherlands does not currently have a resolution regime for FMIs.** EU legislation on CCP recovery and resolution is expected to be proposed in late 2016. As a result, crisis management arrangements between Dutch authorities currently focus on operational incidents. Once a CCP resolution regime is in place, the Dutch authority that is given the responsibility for resolution of CCPs (the working assumption is that it will be the DNB) should establish crisis management groups (CMGs) for the Dutch CCPs.

Although the financial risk management of EuroCCP is generally robust, the stress testing methodology and the review of its margin model should be strengthened. EuroCCP monitors risks from new trades, price movements and settlement of trades in real-time; it also reviews its margin and stress testing models on a monthly basis. This monthly review process should be strengthened. In particular, EuroCCP should enhance its reverse stress tests to consider a wider set of market price scenarios and combinations of participant defaults that would exhaust its financial resources. EuroCCP should also enhance and expand the scenarios it uses in its daily stress testing.

EuroCCP should also prioritize recruiting a third Management Board member to ensure its Management Board is fully effective. The current dependence on a Management Board of two is mitigated by the fact that decisions are generally made by consensus and the Management Board is supported in its review of issues by the Management Team. A further mitigant is that the Supervisory Board takes an active role in all aspects of EuroCCP's operations.

There is also scope for EuroCCP to minimize its exposure to clearing participants that currently play multiple roles. In some cases, clearing participants also act as liquidity providers, investment counterparties, settlement banks, and settlement agents. To minimize this, EuroCCP should use its account at the DNB to receive cash margins denominated in euros. EuroCCP should also secure direct access to the main CSDs/SSSs it uses, which would eliminate its dependence on settlement agents to be able to settle trades in securities held in these CSDs/SSSs.

The Dutch authorities should review the legal segregation of cash collateral from securities positions. While EuroCCP offers administrative segregation of client margin, there might be legal uncertainty regarding the segregation of cash collateral for securities positions provided from a client via its clearing participant on a transfer of title basis. As a result, if a clearing participant defaults, the position of its clients vis-à-vis the administrator for the estate of the clearing participant could be unclear.

Table 1. Netherlands: Key Recommendations

Recommendations	Timeframe[1]	Authorities Responsible for Implementation
The Dutch authorities should continue to ensure that all Dutch FMIs comply with the requirement to publish regular self-assessments against the PFMI, and that CCPs comply with the quarterly quantitative disclosures requirements (para. 22).	I	AFM, DNB
The Dutch authorities should continue to follow-up regularly with EuroCCP to ensure it meets the agreed deadlines to address the recommendations from the authorities' assessment of EuroCCP against the PFMI (para. 23).	I	AFM, DNB
The Dutch authorities should confirm that Dutch CCPs are complying with all the PFMIs, including requirements not covered by EMIR, on an ongoing basis (para. 24).	I	AFM, DNB
The DNB should ensure Dutch CCPs develop comprehensive recovery plans ahead of the introduction of the regulatory requirement for CCPs to do so (para. 25).	I	DNB
The Dutch authorities should formally incorporate oversight of critical service providers in their supervisory framework (para. 27).	NT	AFM, DNB
The DNB should continue to augment its resources devoted to EuroCCP (para. 31).	I	DNB
The authorities should consider an exemption to the AFM and the DNB from the proposed cap on salaries in the public and semi-public sector, since it would undermine their ability to attract and retain FMI expertise (para. 32).	NT	MoF
The AFM and the DNB should share their respective annual supervisory plans to enhance coordination (para. 35).	I	AFM, DNB
The Dutch authority that is given the responsibility should establish CMGs for the Dutch CCPs (para. 37).	NT	Dutch FMI Resolution authority

Table 2. Netherlands: Key Recommendations (concluded)

Recommendations on Risk Management of EuroCCP		
EuroCCP should fill the long-running vacant position on its Management Board as a priority to ensure it is fully effective (para. 41).	I	EuroCCP
EuroCCP should further minimize the risk from holding margin receipts in commercial bank money intraday by using its account at the DNB to receive cash margins denominated in euros (para. 45).	I	EuroCCP
EuroCCP should secure direct access to the main CSDs/SSSs it uses (para. 46).	I	EuroCCP
EuroCCP should strengthen its stress testing methodology by considering price movements during the closeout period, including intraday, when developing its historical scenarios and introduce sectoral scenarios (paras. 48 and 49).	I	EuroCCP
Through its stress testing, EuroCCP should confirm that it has sufficient liquid resources to settle all payment obligations in each of the currencies that it settles with a high degree of confidence (para. 51).	I	EuroCCP
EuroCCP should strengthen its review of its stress testing methodology by extending its reverse stress testing approach and conducting sensitivity analysis to examine the parameters and assumptions in its stress test model (para. 52).	I	EuroCCP
The Dutch authorities should review the legal segregation of cash collateral for securities positions (para. 56).	NT	AFM, DNB, MoF
EuroCCP should strengthen its review of its margin model by increasing the attention on and scope of its sensitivity analysis (para. 58).	I	EuroCCP
EuroCCP should develop a comprehensive recovery plan that ensures that non-default losses are fully addressed (para. 61).	NT	EuroCCP
EuroCCP should specifically address cyber security in its operational risk management framework in line with the CPMI-IOSCO Guidance on Cyber Resilience of Financial Market Infrastructures (para. 64).	NT	EuroCCP
[1] I (immediate): within one year; NT (near term): one–three years.		

INTRODUCTION[1]

1. **Well-functioning FMIs can vastly improve the efficiency, transparency and safety of the financial system.** FMIs provide the central infrastructure (comprised of rules, risk management frameworks and operational systems) that facilitates the clearing, settlement, and recording of monetary and other financial transactions. However, if not properly managed, FMIs can pose significant risks to the financial system and be a potential source of contagion, particularly in periods of market stress.

2. **The presumption is that almost all FMIs are systemically important, at least in the jurisdiction where they are located, typically because of their critical roles in the markets they serve.** Consequently, a systemically important FMI is required to develop a comprehensive and effective recovery plan that when faced with a threat to its viability and financial strength it can continue to provide its critical services without requiring the use of resolution powers by authorities. Nevertheless, there should be an effective resolution regime for FMIs should the recovery plan fail to return the FMI to viability, or the relevant authority determines that recovery measures are not reasonably likely to return the FMI to viability or would otherwise be likely to compromise financial stability.

3. **The main objective of this note is to assess the oversight and supervision of FMIs in the Netherlands, with a special focus on EuroCCP.** For that purpose, this note contains an assessment of the regulation, supervision and oversight of FMIs by the relevant Dutch authorities, as regulation, supervision and oversight are essential tools in promoting and maintaining financial stability. In addition, the financial and operational risk management of EuroCCP is reviewed, including the robustness of its governance arrangements, stress testing, margin methodologies, liquidity management, and recovery and wind-down planning. Finally, the note contains an update on implementation of the FMI Annex to the Key Attributes for Effective Resolution Regimes for Financial Institutions (Key Attributes) in the Netherlands.

4. **Recommendations in this note are based on the international agreed standards for FMIs, i.e., the CPSS-IOSCO PFMI.** The analysis of the supervision of FMIs takes the five responsibilities for authorities of the PFMI as reference (Box 1). In addition, Principles 2, 4, 6, 7, and 17 of the PFMI, along with the October 2014 Report on the Recovery of Financial Market Infrastructures, are used to assess EuroCCP. The note does not contain an assessment of the other PFMI principles, although some high-level findings on collateral, custody and investment, segregation, default management, and linked FMIs are included.

[1] The Technical Note was prepared by Jennifer Hancock, Reserve Bank of Australia and Consultant for the IMF. Her analysis was based on publicly available information; background documentation provided by the Dutch authorities; and self-assessments; as well as discussions with AFM, DNB, EuroCCP, banks, other relevant market participants, FMI operators, and authorities.

Box 1. PFMI Responsibility A-E

Responsibility A: Regulation, supervision, and oversight of FMIs
FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.

Responsibility B: Regulatory, supervisory, and oversight powers and resources
Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

Responsibility C: Disclosure of policies with respect to FMIs
Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.

Responsibility D: Application of the principles for FMIs
Central banks, market regulators, and other relevant authorities should adopt the Committee on Payment and Settlement Systems (CPSS)-IOSCO Principles for FMIs and apply them consistently.

Responsibility E: Cooperation with other authorities
Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

Source: CPSS IOSCO Principles for Financial Market Infrastructures, April 2012.

5. **The Dutch authorities have largely addressed the FMI related recommendations from the 2004 Financial Sector Assessment Program (FSAP).** Following the launch of the Euroclear Settlement of Euronext-zone Securities platform, the proportion of transactions not settled on a delivery-versus-payment (DvP) basis has been reduced from 30 to 10 percent. The extent of DvP settlement will be further enhanced by Euroclear Nederland's planned migration to the Target2Securities (T2S) platform, which facilitates DvP settlement by using cross-border links, in September 2016. Consistent with the 2004 recommendation, investment firms and supervised non-European Economic Area credit institutions are eligible for admission as participants to Euroclear Netherlands.

6. **Both the 2004 Netherlands FSAP and the 2013 IMF Assessment of Euroclear Bank and the Euroclear Settlement of Euronext-zone Securities (ESES) CSDs/SSSs recommended enhanced transparency around the Oversight Framework for Clearing and Settlement.** The IMF recognizes that this is related to a lack of a statutory basis for supervision of CSDs/SSSs. This is expected to be resolved once the Central Securities Depository Regulation (CSDR) comes into effect in the second half of 2016. The CSDR will also harmonize the approach to implementing the PFMI for CSDs/SSSs across the EU.

7. **CPMI and IOSCO implementation monitoring has found that the Netherlands have final implementation measures for the Principles in place for all types of FMIs and the relevant responsibilities for authorities.** CPMI and IOSCO also concluded that CCPs overseen by

the AFM and the DNB are subject to a regulatory framework that is complete and consistent with the PFMI Principles and that the Dutch Authorities observe all relevant PFMI Responsibilities. The findings for the Netherlands from CPMI and IOSCO's implementation monitoring exercises are summarized in Appendix I.

FINANCIAL MARKET INFRASTRUCTURES IN THE NETHERLANDS

A. Overview of FMIs in the Netherlands

8. **There are two CCPs and one CSD/SSS domiciled in the Netherlands.** The two CCPs are EuroCCP and ICE Clear Netherlands B.V. Euroclear Netherlands, part of the Euroclear Group, is the Dutch CSD/SSS. The Dutch component of the European TARGET2 system is considered to be an integral component of TARGET2. There are currently no trade repositories in the Netherlands. Appendix II illustrates the FMI landscape in the Netherlands.

9. **EuroCCP centrally clears equity transactions traded at 16 different trading venues across 19 different markets.** Statistics on EuroCCP's activity are set out in Appendix III. EuroCCP has 47 active clearing participants, which have headquarters spread across 14 jurisdictions across Asia, Europe, and North America. In 2015 EuroCCP cleared an average of 6.8 million trade sides per day, of which 1.3 million were cleared over a link with one of two other CCPs. The majority of these transactions were sourced from France, Germany, Sweden, and the United Kingdom.

10. **EuroCCP was formed in December 2013 as a result of a merger between European Multilateral Clearing Facility N.V. and European Central Counterparty Limited.** EuroCCP Staff are located in Amsterdam, London and Stockholm, with operations located across two sites in the Netherlands. EuroCCP received regulatory authorization under EMIR in April 2014.

11. **EuroCCP is owned in equal shares by ABN AMRO Clearing Bank, BATS Chi-X Europe, NASDAQ, and The Depository Trust & Clearing Corporation.** EuroCCP has a two-tier board structure: a Supervisory Board consisting of representatives from the four shareholders and two independent directors; and a Management Board chaired by the CEO. EuroCCP's governance structure also includes a Risk Committee, which advises EuroCCP on risk issues, comprised of four representatives from clearing participants, three clients of clearing participants and the two independent directors, one of which chairs the Committee.

12. **EuroCCP also operates a number of forums that facilitate stakeholder feedback regarding their requirements and priorities with respect to EuroCCP.** There is an Advisory Board, with representatives from 11 clearing participants and observers from the three largest trading platforms cleared by EuroCCP. The Nordic Advisory Council has representatives from seven clearing participants headquartered in the Nordics and a representative from the Nordic Securities Association is a vehicle for feedback from these participants. Finally, trading platforms that link to EuroCCP to clear transactions provide feedback through the Platform Advisory Council.

13. Several FMIs located outside of the Netherlands are relevant for the Dutch financial system. The Euro Banking Association Clearing operates a number of different payment systems, including two—EURO1 and STEP2—that the Eurosystem has identified systemically important. EURO1 is an EU-wide large value payment system. STEP2 is a Pan-European automated clearing house for bulk payments in euros. EuroCCP has interoperable links with LCH.Clearnet Ltd, which is based in the United Kingdom, and Six x-clear AG, which is based in Switzerland. LCH.Clearnet SA is a CCP that clears securities and derivatives trades executed on Euronext Amsterdam. Continued Linked Settlement (CLS) is a United States-based settlement system for foreign exchange transactions. Appendix II illustrates the role of the various FMIs in the Netherlands.

B. Overview of the Supervisory and Oversight Framework

14. In the Netherlands, FMIs are subject to regulation, supervision and oversight under both national and EU law or Eurosystem regulation. CCPs are subject to EMIR and its associated technical standards. Supervision of CSDs/SSSs is currently based upon the Securities Giro Act 1977 and the Oversight Framework for Clearing and Settlement, which is tied to the licensing of the regulated market. The EU-wide CSDR is in the process of being implemented, which will establish a clear statutory basis for supervision of CSDs/SSSs within the Netherlands. Within the Euro area, systemically important payment systems are subject to the Eurosystem's SIPS Regulation. The DNB, as a member of the Eurosystem, pursues its oversight responsibilities according to the policies defined by the Eurosystem. Trade repositories are subject to EMIR and its associated technical standards. The European Securities and Markets Authority (ESMA) is the sole supervisor of trade repositories established in the EU. The responsibilities of the Dutch authorities and the applicable law are set out in Appendix IV.

15. CCPs and CSDs/SSSs are jointly regulated, supervised and overseen by the AFM and the DNB. The AFM's supervision focuses on the behavior of market participants that could undermine financial stability and the transparency of systemic risks. The DNB's objective is to prevent the systemic risk that may arise out of CCPs and CSDs/SSSs that are relevant for the Netherlands. For CCPs, the division of responsibilities between the two regulators is laid down in Wet op het Financieel Toezicht (Act of Financial Supervision, WFT), with one authority allocated primary responsibility for each EMIR article, although formal consultation with the other regulator is also required for some articles. The DNB is the National Competent Authority (NCA) responsible for licensing and authorizing CCPs, with the AFM given a formal advisory role. The allocation of the other articles reflects the DNB and the AFM's objectives, as detailed in Appendix V. Currently, under the Oversight Framework Clearing and Settlement, the AFM and the DNB cooperate on almost all aspects of CSD/SSS oversight. However, under the CSDR, which comes into effect in the end of 2016, one authority will be allocated primary responsibility for each CSDR article, although formal consultation with the other regulator will also be required for some articles (Appendix V). The AFM will be the NCA responsible for licensing and authorizing CSDs, with the DNB given a formal advisory role.

16. **As the NCA, the DNB is responsible for chairing the EMIR colleges of CCPs established in the Netherlands.** The composition of these colleges is set out in EMIR and encompasses ESMA, the EU authorities responsible for the linked trading venues, linked CCPs[2] and linked CSDs/SSSs, the supervisors of the three largest clearing participants, and the central banks of issues of the most relevant currencies in which the financial instruments cleared are denominated. The DNB and the AFM also participate in the colleges for LCH.Clearnet Ltd, LCH.Clearnet SA, Eurex Clearing and CME Clearing Europe, while the AFM is a member of the ICE Clear Europe college. The cooperative arrangements for Dutch FMIs are set out in Appendix VI.

17. **The AFM and the DNB also cooperate with non-EU authorities relevant to EuroCCP.** The DNB has invited relevant non-EU authorities to attend the EuroCCP college as observers. The Norges Bank and the Financial Supervisory Authority of Norway have taken up this invitation and the Swiss Financial Market Supervisory Authority is in the process of doing so. In addition, the AFM and the DNB participate in the Interoperability Roundtable, which is an informal group of the regulators of the interoperable CCPs and ESMA set up to work collaboratively on issues regarding the links between the three CCPs.

18. **The AFM and the DNB participate in multilateral cooperative arrangements with the authorities that regulate, supervise or oversee other CSDs/SSSs within the Euroclear Group.** The Belgian, Dutch and French authorities—which are responsible for Euroclear Netherlands, Euroclear Belgium and Euroclear France, respectively—cooperate under the ESES framework. This framework focuses on sharing information on the common aspects of the three CSDs' operations. The AFM and the DNB, together with other relevant authorities, also participate in a cooperative arrangement (the ESA arrangement) that considers the common service provided by Euroclear Bank SA to the CSDs/SSSs in the Euroclear Group (Euroclear Belgium, Euroclear France, Euroclear Finland, Euroclear Nederland, Euroclear Sweden, and Euroclear UK & Ireland). Both of these arrangements are coordinated by the National Bank of Belgium (NBB).

19. **Systemically important payment systems established in the euro area, such as TARGET2 are subject to the SIPS Regulation.** Where a systemically important payment system has a national anchor, the National Central Bank is the competent authority, otherwise, for payment systems such as TARGET2 the European Central Bank (ECB) is the competent authority. Other Eurosystem members, such as the DNB, contribute to payment system oversight on a no prohibition/no compulsion basis. While the operation of TARGET2 is centralized, the legal arrangements and relationships with participants remains decentralized. Therefore, responsibility for oversight of TARGET2 is split between the Eurosystem, which focuses on the shared service provision for the whole euro area, and the DNB, which assesses the domestic legal arrangements, local business continuity measures, links to domestic systems, and the relationship with Dutch participants.

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[2] Including the central bank responsible for oversight of the linked CCP.

20. Under the Dutch Financial Supervision Act, Dutch payment systems that the Eurosystem has not identified as systemically important are required to be licensed and comply with the PFMI. The DNB is the licensing authority for such payment systems, with AFM being allocated either primary or joint responsibility for supervising certain aspects of their operations. Equens SE and CCV, which operate parts of the Dutch payment systems, are currently licensed under this regime. MasterCard Europe, on whose payments system Dutch debit card transactions are processed, is in the process of being licensed. As these payment systems are not considered systemically important, they are outside the scope of this assessment.

ANALYSIS OF SUPERVISION AND OVERSIGHT

A. Regulation, Supervision and Transparency (Responsibilities A, C and D)

21. FMIs in the Netherlands are subject to appropriate regulation, supervision and oversight by the Dutch authorities. EMIR makes all CCPs and trade repositories in the EU subject to a common regulatory framework and implements a common set of rules for CCPs that are based on the PFMI. In combination with the Eurosystem's Oversight Framework for FMIs, EMIR implements a regulatory framework for CCPs that is complete and consistent with the PFMI. The Dutch authorities have also adopted the PFMI in their oversight and supervision of CSDs/SSSs and systemically important payment systems.

22. Going forward, the AFM and the DNB should continue to ensure that all Dutch FMIs fulfil the requirement to publish regular self-assessments against the PFMI. The PFMI require FMIs to publish regular self-assessments against the PFMI. While all Dutch FMIs have recently done so, for some the most recent assessment is the first time they have published a self-assessment. Furthermore, the AFM and the DNB should ensure that all Dutch CCPs comply with the quarterly quantitative disclosure requirements set by CPMI and IOSCO.

23. The AFM and the DNB have used the self-assessment by EuroCCP and information gathered through their supervisory activities to produce their own assessment of EuroCCP against the PFMI. Under EMIR, the AFM's and the DNB's ongoing supervisory activities include regular monthly reporting and monthly meetings with each CCP, which are supplemented by specific information requests and ad hoc meeting as required. The Dutch authorities have provided their findings from this PFMI assessment to EuroCCP and agreed deadlines by which EuroCCP should address these recommendations. The Dutch authorities should continue to follow-up regularly with EuroCCP to ensure that these deadlines are met.

24. The AFM and the DNB should carry out their plans to annually assess Dutch CCPs against the PFMI requirements that are not covered in EMIR to ensure that Dutch CCPs are complying with the PFMI on an ongoing basis. To the extent that gaps in compliance or further enhancements are identified, the AFM and the DNB should ensure that the relevant CCP addresses such issues in a timely manner. Under EMIR, the AFM and the DNB are required to assess Dutch CCPs against EMIR on an annual basis. The AFM and the DNB plan to conduct a full reassessment of each CCP against all EMIR requirements every two to three years, with an incremental assessment of changes between these full assessments. If the AFM and the DNB identify breaches of EMIR, the relevant CCP must address these breaches by a deadline set by the regulators. The DNB has also conducted a gap analysis between the PFMI and EMIR, and intends to assess Dutch CCPs against the gaps in EMIR it has identified on an annual basis.

25. While EMIR does not require CCPs to have comprehensive recovery plans, the AFM and the DNB are encouraging them to do so through its oversight framework. Legally binding requirements are expected to be introduced at the EU level. Nevertheless, the AFM and the DNB should continue to engage with CCPs to ensure that they develop comprehensive recovery plans even ahead of the EU requirements.

26. The CSDR will establish a clear statutory basis and enhance the transparency of policies with respect to CSDs/SSSs within the Netherlands. Currently, supervision of CSDs/SSSs by the AFM follows from the Wet Giraal Effectenverkeer (Dutch Securities Giro Act, WGE). There is a lack of transparency regarding oversight policies for CSDs/SSSs, which are set out in the nonpublic Oversight Framework Clearing and Settlement. Under the CSDR, CSDs/SSSs established in the Netherlands will require a license issued by the AFM and be subject to the requirements that are publically set out in the CSDR and the associated technical standards.

27. The Dutch authorities should formally incorporate oversight of critical service providers (CSPs) in their supervisory framework. The PFMI include oversight expectations for so-called CSPs (Annex F) and published an assessment methodology in December 2014. Outsourcing is a key issue for Dutch FMIs. As many are reliant on SWIFT, the DNB participates in the NBB's oversight arrangements for SWIFT. In the case of Euroclear Netherlands, key aspects of its operations are outsourced to Euroclear Bank SA, and the NBB applies the same requirements for these services as it does to CSDs/SSSs. The AFM and the DNB have insight into NBB's supervision and oversight through the Euroclear Bank SA cooperative arrangement. In EuroCCP's case, it sources identical services from multiple providers to mitigate its dependency on any individual CSP. In assessing such dependencies EuroCCP uses the requirements on outsourcing set out in EMIR.

28. The DNB has taken a proactive approach to cyber resilience, conducting a thematic review of cyber resilience at the core financial infrastructure in the Netherlands. The review was conducted in the form of a self-assessment based on the National Institute of Standards and Technology's Framework for Improving Critical Infrastructure Cybersecurity, with additional questions drawn from the draft guidance on cyber resilience for FMIs that CPMI and IOSCO consulted on in late 2015. This review has formed the starting point for ongoing oversight of cyber resilience.

B. Powers and Resources (Responsibility B)

29. The legal and regulatory framework provides the AFM and the DNB with sufficient powers to regulate, supervise and oversee FMIs in the Netherlands. For CCPs these powers are vested in the WFT, and include information-gathering powers, the power to impose penalties, remove board members, appoint a caretaker and revoke a CCP's license to operate. For CSDs/SSSs, the WGE gives the AFM powers over the designated central institute (i.e., the securities exchange) with respect to the settlement of securities transactions, which are used to influence the actions of the CSD/SSS used by the securities exchange. In particular, under the terms of the Dutch securities exchange license the CSD/SSS is required to adhere to the Oversight Framework Clearing and Settlement. Under this framework, the AFM and the DNB have power to obtain information and induce change. Once the CSDR is in effect, statutory powers for the AFM and the DNB will mainly flow from this EU Regulation.

30. AFM and the DNB have sufficient resources overall to fulfil their responsibilities regarding the regulation, supervision and oversight of FMIs in the Netherlands. Prior to the implementation of EMIR, AFM and the DNB had shared responsibility for CCPs in the Netherlands. Under EMIR, primary responsibility for each aspect of CCP regulation is allocated to one authority, with formal cooperation required for certain aspects. Given the increase in the DNB's responsibilities for CCPs under EMIR, the DNB conducted a bottom-up assessment of resourcing needs, which resulted in three additional full-time employees in the Oversight Department, bringing the total number of staff overseeing and supervising systemically important FMIs to eight including the Head of Department.[3] In addition to senior management, AFM has five full-time employees working on FMI oversight and supervision, who spend approximately 40 percent of their time on day-to-day supervision of FMIs. The remainder of their time is spent on projects, some of which are related to FMI issues such as a thematic assessment of incident management. The staff responsible for regulation, supervision and oversight of FMIs at the AFM and the DNB generally have an appropriate mix of skills. The recruitment strategy aims to build up staff with a mix of relevant skills and experience, including legal, IT audit, risk management, economics, and econometrics.

31. The DNB should continue to augment its resources devoted to EuroCCP. Following the implementation of EMIR, the DNB's responsibility for CCP regulation has grown significantly, while the AFM's involvement, and therefore resourcing, has diminished. Being the NCA primarily responsible for the regulation of EuroCCP—one of the largest securities CCPs in Europe—comes with significant reputational risk. EuroCCP is highly interconnected, clearing 19 different equities markets, and its failure would have significant financial stability consequences for European financial markets. Given the relative importance of EuroCCP, the FSAP considers that the staff resources devoted to EuroCCP oversight should be further increased from the current two staff members assigned to EuroCCP supervision full time.[4] Furthermore, a broader involvement of the management of the FMI Oversight Department in supervisory meetings with EuroCCP to discuss substantive issues (e.g., EMIR assessment findings) would provide additional depth to cover any unexpected turnover in the staff responsible for FMI regulation, supervision, and oversight. They will build upon steps already taken to enhance oversight, including thematic reviews across all FMIs (e.g., the cyber resilience review) and fortnightly coordination meetings between the Head of the Oversight

[3] In total there are 13 staff in the Oversight Department, but 5 of them work on oversight of retail payments systems, i.e., Equens, CCV and Mastercard Europe.

[4] As discussed in paragraph 34, the DNB also has arrangements in place to draw in expertise from outside the areas responsible for FMI regulation, oversight and supervision.

Department and the two CCP supervision teams. The FSAP considers that management's insights into the operations and relative balance of risks faced by the DNB would be enhanced if they attended the supervisory meetings with EuroCCP on a periodic basis (e.g., quarterly), in addition to the current ad hoc arrangements. This would reduce reliance on the interpretation of front-line supervisors, both in terms of the messages conveyed to and from EuroCCP, being reported back to management.

32. A cap on salaries at the AFM and the DNB in future may make it more difficult for them to attract staff with appropriate skills and experience.[5] As of January 1, 2013, the AFM and the DNB are subject to the Law on Standards for Remuneration for Senior Officials in the Public and Semi-public Sector ('Wet Normering Topinkomens,'/Law on Standards for Remuneration for Senior Officials in the Public and Semi-Public Sector, WNT). The effects of the WNT are not crystalized as yet, because the implementation of the WNT includes a transitional period. This means that actual reduction of remunerations the AFM and the DNB of board members that exceed the WNT maximum, will only take place as of January 1, 2017. In addition, a proposal to extend WNT to all AFM and the DNB staff (referred to as 'WNT-3') is currently out for consultation, which may make it difficult to attract and retain staff with specialized technical skills. Consequently, the MoF should consider exempting the two institutions from the proposed cap.

33. Both the AFM and the DNB have arrangements in place to draw in expertise from outside the areas responsible for FMI regulation, oversight and supervision. For example, the DNB's Oversight Department has drawn on expertise elsewhere within the DNB to assist in assessing whether senior management and board members of CCPs are fit and proper for those roles. The DNB also has arrangements to draw on quantitative experts both from within DNB and externally. Most recently, the DNB used such arrangements to establish a team comprised of the EuroCCP supervisors, a quantitative expert from the DNB's Market Infrastructure Policy Department and an external consultant to assess EuroCCP's margin model. The AFM's arrangements are through the projects, discussed above, that its staff are involved in.

C. Cooperation in Normal and Stress Circumstances (Responsibility E)

34. The Dutch authorities cooperate effectively with each other in their regulation, supervision and oversight of CCPs and CSDs/SSSs. Each FMI that is jointly regulated, supervised and overseen is allocated one or more regulatory contacts within either the AFM or the DNB, who ensures that both regulators receive all information. The Dutch regulators typically meet jointly with

[5] A recommendation on this issue will be finalized in the second FSAP mission in September 2016. The mission's recommendation will incorporate cross-sectoral assessments.

each CCP or CSD/SSS, which ensures consistency of approach across the two authorities. As a result, informal cooperation between the AFM and the DNB goes beyond the formal cooperation specified in EMIR.

35. The AFM and the DNB should share their respective annual supervisory plans to enhance coordination. Currently, senior management at both the AFM and the DNB have their own separate processes for formally signing off on regulatory decisions and advice, including assessments. At the AFM, this involves the Steering Group for Efficient Capital Markets, which is comprised of the management from this department (and is chaired by the Head of Department), as well as representatives from the Strategy, Policy and International Affairs, Account Supervision (who supervise participants), and Expertise Centre (who focus on risk analysis). The Steering Group reviews the relative priority of FMIs and the supervisory plan for individual FMIs on an annual basis; with the relevant Executive Board member receiving all materials and approving decisions of the Steering Group. At the DNB, the annual supervisory plan for FMIs is approved by the Executive Board member responsible for the Oversight Department. This Board member is also informed about the findings from assessments of FMIs, including monthly updates on the proposed deadlines for addressing gaps in compliance. However, there is not currently a process for the AFM and the DNB to share their respective annual supervisory plans. Doing so would enhance coordination and facilitate a better understanding of what the priorities of the other authority are.

36. While crisis management arrangements between Dutch authorities are in place, they currently focus on operational incidents. The Dutch MoF, the AFM and the DNB have established a Triparty CMG market, whose scope encompasses all payments and securities processing of the core financial infrastructure—which includes the Dutch FMIs. This group aims to coordinate the management and mitigation of an incident, including the communication with stakeholders.

37. The Netherlands does not currently have a resolution regime for FMIs. EU legislation on CCP recovery and resolution is expected to be proposed in late 2016. This legislation is expected to be consistent with existing and, as far as possible, forthcoming international guidance in this area. Of particular note, the Financial Stability Board (FSB) is expected to publish further guidance on CCP resolution in late 2016. It is expected that the EU framework will require Member States to designate an FMI resolution authority, but it is still to be determined which Dutch authority would be designated as the FMI resolution authority, and it may differ by type of FMI. The working assumption is that the DNB will be the CCP resolution authority. Once the resolution legislation is in place, the Dutch authorities should implement their plans to establish CMGs for the CCPs for which they are the resolution authority. If the DNB is assigned the resolution authority responsibilities for EuroCCP, it will need further resources to fulfill this role.

38. The DNB has made arrangements to address the technical obstacles to Dutch FMIs accessing emergency central bank liquidity, without committing to the provision of liquidity. One consideration in addressing the technical obstacles is that Dutch CCPs' liquidity needs are denominated in a range of currencies; the DNB has started to make arrangements to address this multicurrency liquidity need. Consistent with the Eurosystem policy, upon approval from the ECB Governing Council, Dutch CCPs are entitled to an intraday credit facility. Both EuroCCP and ICE Clear

Netherlands have such a facility with the DNB, and EuroCCP uses this facility on a daily basis to fund securities settlement at CSDs. While the DNB does not offer a deposit facility for CCPs they can retain balances in their real-time gross settlement account. CCPs can also use their account at the DNB to receive cash margin, but currently neither CCP does so.

39. Cooperation on CCPs with relevant foreign authorities is efficient and effective. For CCPs, the DNB has implemented the EMIR requirements on regulatory colleges. As chair of these colleges, DNB provides sufficiently granular information to members to participate effectively, and is willing to engage more deeply where college members seek further detail. The DNB also provides forward-looking information, which facilitates resource planning by college members. For relevant authorities outside the EU, the DNB facilitates cooperation by inviting them to be observers at the EMIR college. The EMIR college arrangements include an emergency protocol, based on guidelines issued by ESMA. The DNB has built on these guidelines, including by adding specific post-incident information sharing obligations.

40. The CSDR is expected to expand the cooperation arrangements with foreign authorities for CSDs/SSSs. Currently, the AFM and the DNB cooperate closely with the authorities responsible for supervision and oversight of the CSDs/SSSs within the Euroclear Group on the common aspects of their operations, with each authority retain its responsibility for supervision and oversight of the CSD/SSS located in its jurisdiction. The CSDR introduces requirements to establish information sharing arrangements for each individual CSDs/SSSs that go beyond the authorities responsible for CSD/SSS regulation, supervision and oversight. Specifically, under the CSDR, the NCA will need to share information with the EU authorities whose law applies to that CSD/SSS, the central banks of issue of the most relevant currencies in which settlement takes place, and the central bank in whose books the cash leg of an SSS operated by the CSD is settled. However, it is expected that the NCA for each CSD/SSS will retain sole responsibility for supervision and oversight of that CSD/SSS.

ANALYSIS OF THE RISK MANAGEMENT OF EUROCCP

A. Governance (Principle 2)

41. To ensure that the Management Board is fully effective, EuroCCP should prioritize recruiting a third Management Board member. Despite recruitment efforts by EuroCCP, the third Management Board position – which was previously filled by the Chief Operations Officer – has remained vacant for about two years. As a result, the Management Board currently only has two members. This situation is mitigated by the fact that Management Board decisions are generally made by consensus and the Management Board is supported in its review of issues by the Management Team. In addition, the Supervisory Board, which has six members (including two independent members), all with relevant knowledge and experience, takes an active role in all aspects of EuroCCP's operations.

42. EuroCCP has arrangements in place to ensure that the Risk Management, Internal Audit, and Legal and Compliance Departments have sufficient independence. While all three departments have a day-to-day reporting line to the Chief Executive Officer, the Chief Risk Officer, the Head of Legal and Compliance, and the Head of Internal Audit also have a direct reporting line to the independent members of the Supervisory Board (one of whom chairs the Risk Committee and the other the Audit Committee). EuroCCP has also outsourced its Internal Audit function to PricewaterhouseCoopers.

43. EuroCCP's Risk Committee, comprised of participants and chaired by an independent member of the Supervisory Board, advises EuroCCP on any arrangements that may impact the risk management of EuroCCP. Members of the Risk Committee are expected to use their expertise and industry leadership to advise EuroCCP on what is best for the industry and EuroCCP, rather than their own institutions. EuroCCP runs several other forums, such as the Advisory Board, in which participants are able to effectively represent their own institutional views. Risk Committee decisions are generally made by consensus, but if consensus cannot be reached, decisions are made by a simple majority of votes, with the chair holding the casting vote in the event of a tie. While the Risk Committee's role is advisory, in the event that EuroCCP does not follow its advice EuroCCP must provide written reasons and inform the DNB.

B. Credit and Liquidity Risk (Principles 4 and 7)

44. EuroCCP has exposures to clearing participants, liquidity providers, investment counterparties, central banks, commercial settlement banks, and agents and CSDs/SSSs. In some cases, clearing participants also act as liquidity providers, investment counterparties, settlement banks, and settlement agents. When conducting stress tests, if the clearing participant that is assumed to default is also a liquidity provider, it is assumed that this liquidity is no longer available. Other than a clearing participant's role as liquidity provider, EuroCCP manages the risks from different roles separately; though the combination of measures ensures, for the most part, that all risks are covered simultaneously.

45. EuroCCP should further minimize this risk by using its account at the DNB to receive cash margins denominated in euros. While a cash margin is paid into an account at a commercial bank, this uncollateralized exposure is limited to the intraday balance that has yet to be invested. All funds deposited with investment counterparties are collateralized, including a supplementary haircut, and marked to market daily. Under EuroCCP's investment policy, direct investments are restricted to certain European government securities with a remaining tenor of 12 months or less, which it holds in its own name at the relevant CSD.

46. EuroCCP should promptly seek direct access to the ESES CSDs and Clearstream Banking as soon as practicable. EuroCCP's current CSD/SSS arrangements, which include direct access to 10 CSDs/SSSs. Direct access is consistent with EuroCCP's policy, although legal restrictions and operational considerations have meant that, even though EuroCCP clears a significant amount of French and German equities, it is not currently a direct member of the ESES CSDs or Clearstream Banking. EuroCCP intends to join these CSDs as a direct member after they have transitioned to T2S, which is scheduled for September 2016 and February 2017, respectively. Where EuroCCP does not have direct access to a CSD/SSS, it uses a settlement agent. EuroCCP is not directly exposed to the settlement agent from this arrangement, as the settlement agent provides intraday credit to fund the settlement process and the securities are held in a segregated account at the CSD/SSS in EuroCCP's name. Nevertheless, if a settlement agent defaulted EuroCCP would lose access to that CSD/SSS and would be unable to settle transactions involving securities held at that CSD/SSS.

47. Through daily stress testing, EuroCCP ensures that it can cover its exposure to the two clearing participants or linked CCPs with the largest exposure in extreme but plausible scenarios. If stress testing identifies a shortfall, EuroCCP calls for additional default fund contributions the following morning. However, this is an infrequent occurrence because the default fund is resized monthly based on 105 percent of the largest stress test result over the last 12 months. In addition, large or concentrated positions are covered by a large position margin, which is called if the stress test losses in excess of initial margin[6] (using the main two hypothetical scenarios described below) exceeds 45 percent of the default fund. Since EuroCCP monitors margin obligations, including large position margins, on a real-time basis, the stressed losses on intraday positions under these two scenarios are incorporated in EuroCCP's risk management.

48. EuroCCP should strengthen its stress testing methodology by considering price movements during the closeout period, including intraday, when developing its historical scenarios. EuroCCP's historical stress test scenarios are based on the dates over the past 30 years on which the largest three-day moves in relevant equity indices occurred. EuroCCP then uses the actual relative price movements of individual securities, or proxies if no price is available for a particular security. EuroCCP combines these price movements with the most extreme exchange rate movements over the last 30 years to account for foreign exchange risk. While the risk from movements in the value of collateral are not explicitly included in stress tests, the haircuts on collateral are also calibrated to cover the highest volatility over the last 30 years.

49. EuroCCP should also implement its planned additional hypothetical scenarios based on shifts in particular markets or industry sectors that it clears. Work is already underway at EuroCCP to address this recommendation, following a similar recommendation by the Dutch authorities. Consistent with its approach for historical stress tests, EuroCCP should consider foreign exchange risk when developing these scenarios. Currently, EuroCCP runs four hypothetical stress test scenarios. Two scenarios are equivalent-sized parallel market shifts that are higher than seen historically. The other two scenarios target portfolios with less than 50 equities, and they apply an even bigger parallel market shift to account for the lack of diversification in small portfolios. EuroCCP recognizes that parallel market shifts are not likely to occur in practice and therefore is in the process of developing more realistic hypothetical scenarios.

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[6] In calculating stress test losses in excess of initial margin EuroCCP takes a conservative approach in that it uses the lower of initial margin held and initial margin required. In this way EuroCCP only considers collateral that it already has and that cannot be withdrawn (i.e., it is not excess collateral).

50. As a securities CCP, EuroCCP faces additional liquidity requirements from the mismatch in timing between when it pays for securities that the defaulter was due to buy and when it sells the securities. The size of this liquidity risk will differ depending on the settlement model used by individual CSDs/SSSs. Specifically, if a CSD/SSS uses a DvP Model 1 settlement model, settlements will be split into smaller parcels to minimize liquidity, and liquidity can be recycled over the settlement day. EuroCCP also has Equivalent Payment and Delivery Obligation Agreements with certain brokers, under which the broker would take on the settlement obligations of the defaulted participant.

51. Through its stress testing, EuroCCP should confirm that it has sufficient liquid resources to settle all payment obligations in each of the currencies that it settles with a high degree of confidence. While EuroCCP tests the sufficiency of its overall liquid resources using daily stress testing, it does not separately consider its liquidity needs in each relevant currency. To access liquidity in all relevant currencies EuroCCP has a €150 million multicurrency liquidity line, requires collateral to be deposited on its balance sheet and, as discussed above, it can minimize its liquidity needs through payment splitting and recycling liquidity throughout the day.

52. In line with a prior recommendation by the Dutch authorities, EuroCCP should strengthen its review of its stress testing approach. EuroCCP conducts daily reverse stress testing, the results of which it considers as part of its monthly review of its credit and liquidity stress testing approach. EuroCCP's liquidity stress testing has also been externally validated. Currently, EuroCCP's reverse stress tests are limited to identifying the parallel market movements that exhaust EuroCCP's total financial resources. EuroCCP has plans to enhance its reverse stress testing approach to consider a wider set of market price scenarios and combinations of participant defaults that would exhaust its financial resources. EuroCCP should implement these plans and further strengthen its review of its stress testing approach by conducting sensitivity analysis examine how the parameters and assumptions (e.g., holding periods, correlations, historical data periods) affect the outcomes of its stress tests.

C. Margin and Collateral (Principles 5 and 6)

53. EuroCCP monitors risks from new trades, price movements and settlement of trades in real-time. Margin is collected at least daily. The core component of EuroCCP's initial margin model—the Correlation Haircut model—is calibrated to cover 99.7 percent of movements over 3 days based on the exponentially weighted moving average of price movements over the past 250 days. EuroCCP also applies an add-on for liquidity risk and large positions (discussed above). If real-time monitoring identifies a shortfall in margin (initial plus variation margin) of at least €1 million and the shortfall is at least 10 percent of deposited collateral, margin is called intraday. If margin is called intraday, clearing participants must meet the call within 90 minutes.[7] Clearing participants can choose in which currency their margin obligation is denominated, as long as it is a currency that is

[7] The clearing participant has 30 minutes to decide whether to meet the intraday margin call with cash or collateral. Initially another 30 minutes is allowed to meet the call, but the clearing participant can request an additional 30 minutes if necessary.,

acceptable as collateral. However, an FX add-on is applied if the margin obligations stemming from positions in individual securities are denominated in a different currency to that chosen by the clearing participant. EuroCCP also applies an FX haircut on collateral that is not denominated in the same currency as the currency in which the margin obligation is denominated.

54. EuroCCP has adopted a conservative approach to correlations when calculating margin at the portfolio level. Consistent with EMIR, EuroCCP calculates the initial margin that would be required for each individual security within a portfolio if there were no margin offsets and ensures that the initial margin requirement is at least 20 percent of this. In addition, EuroCCP considers the correlation between individual products and applies an interval around this correlation, with a larger interval for lower correlations. It uses this approach to calculate an initial margin requirement that takes into account the potential for correlations to change in stressed markets. EuroCCP then calls margin based on the approach that results in the higher initial margin requirement.

55. To mitigate procyclicality, EuroCCP's margin and collateral haircut models incorporate a volatility floor. The Correlation Haircut model is based on a 250-day exponentially weighted moving average, with a decay factor of 0.94, which means it is very sensitive to recent observations. However, this procyclicality is mitigated by the use of a volatility floor that is based on the maximum 3-day volatility in the relevant proxy over the last 10 years, which prevents margins from falling below a certain level in periods of low volatility. Similarly, the collateral haircuts are based on the higher of the maximum volatility over the last 30 years, which is calibrated at the indices level, and an exponentially weighted moving average based on the last 250 days.

56. The Dutch authorities should review the legal segregation of cash collateral from securities positions. EuroCCP calls margin at the account level, and offers the option of both individual and omnibus client accounts. However, there might be legal uncertainty on the segregation of cash collateral for securities positions provided from a client via its clearing participant on a transfer of title basis. Consequently, EuroCCP's administrative segregation of client margin does not provide legal segregation for cash collateral unless that collateral is provided as a pledge, and EuroCCP restricts the proportion of collateral that can be provided as a pledge. Consequently, if a clearing participant defaults, the position of its clients vis-à-vis the administrator for the estate of the clearing participant might be unclear.

57. To cover exposures to linked CCPs, EuroCCP collects both initial margin and an add-on, known as Co-CCP Equivalent Clearing Fund Add-On (CECFA), which is equivalent to a participant's default-fund contribution from linked CCPs. There are also arrangements in place to collect buffer margin around known peaks in activity to smooth changes in margin requirements. In the event that a linked CCP defaults and this margin proves insufficient, EuroCCP can use the default fund to cover any shortfall. All three linked CCPs use their own risk management methodology to calculate margin obligations, which can result in differences in margin obligations between CCPs.

58. As recommended by the Dutch authorities, EuroCCP should strengthen its review of its margin model. EuroCCP uses daily backtesting and sensitivity analysis to review its margin model on a monthly basis. Sensitivity analysis is used to test the effect of the number of standard deviations assumed in the model, the decay factor used in calculating the exponentially weighted moving average, the minimum volatility assumed, and the correlation assumptions. In backtesting its margin model, EuroCCP compares total margin received at the account level with observed price movements, looking at both the number and size of breaches. EuroCCP should strengthen its review of its margin model by expanding its sensitivity analysis to test the normal distribution and square root of time assumptions.

D. Participant Default Rules (Principle 13)

59. Once a participant default has been declared, the Breach and Default Management Team (BDMT) is responsible for managing the default. The BDMT comprises the Management Board, and representatives from the Risk Management, Relationship Management, Legal and Compliance, and Operations Departments as well as the Corporate Secretary. The first phase involves informing all relevant parties (including the regulators and linked trading platforms) and ensuring that the defaulter, and any related entities that will also be in default, cannot clear any further trades.

60. EuroCCP's BDMT is responsible for determining how to close-out the defaulter's positions. There are four main options, which can be used in combination. EuroCCP can port client positions, close-out via a broker, auction the defaulter's positions, or allow the defaulter to settle outstanding positions. Given legal uncertainty around segregation of cash margin and the fact that the settlement cycle is only two days, porting is unlikely to be an option. As discussed above, EuroCCP has Equivalent Payment and Delivery Obligation Agreements with certain brokers, under which the broker would take on the settlement obligations of the defaulted participant. EuroCCP also has the option of auctioning the portfolio to between three and five selected participants; this option is more likely to be used for larger and more complex portfolios. If Risk Management and Compliance conclude that the defaulting participants can still comply with its settlement obligations, EuroCCP can allow the participant to settle the positions and thereby close-out the exposure.

E. Recovery Planning (Principle 3)

61. EuroCCP is in the process of developing a formal recovery plan. In addition to the default waterfall, and in the case of a participant default, EuroCCP has the power to call for additional contributions from the clearing participants up to the amount of their current contribution to the default fund. However, as this tool is capped, there is no guarantee that it will be sufficient in all cases. For non-default losses, EuroCCP holds double the minimum capital requirement specified in EMIR and has arrangements in place to replenish this capital by issuing additional shares either to existing or new shareholders. However, again, it is not clear that this would be sufficient in all circumstances. The DNB has identified the lack of a comprehensive recovery plan as an issue and is engaging with EuroCCP to address this gap in the near future.

F. Operational Risk (Principle 17)

62. EuroCCP systems operate with dual redundancy across geographically separate data centers with synchronous mirroring to facilitate timely recovery in the event of an incident. The data centers, one of which is located above sea-level and not under a flight path, are provided by two independent suppliers and linked by two separate glass-fiber connections provided by different suppliers. The data centers contain identical technical configurations, with redundancy tested by transferring part or all of the operations between data centers on a regular basis. For personnel, EuroCCP's business continuity arrangements rely on staff accessing the system remotely.

63. EuroCCP's operational risk management framework is designed to mitigate and manage sources of operational risk. The Management Board reviews the operational risk framework annually and participates in quarterly Risk Governance Board meetings, in which risks are identified and implementation of remedial actions are monitored. Systems are monitored in real time and all incidents are logged in an incident management system, with reporting to the responsible manager and the operational risk team, and escalation procedures in place if required. The Chief Technology Officer reviews these logs with the relevant manager and a member of the operational risk team on a monthly basis.

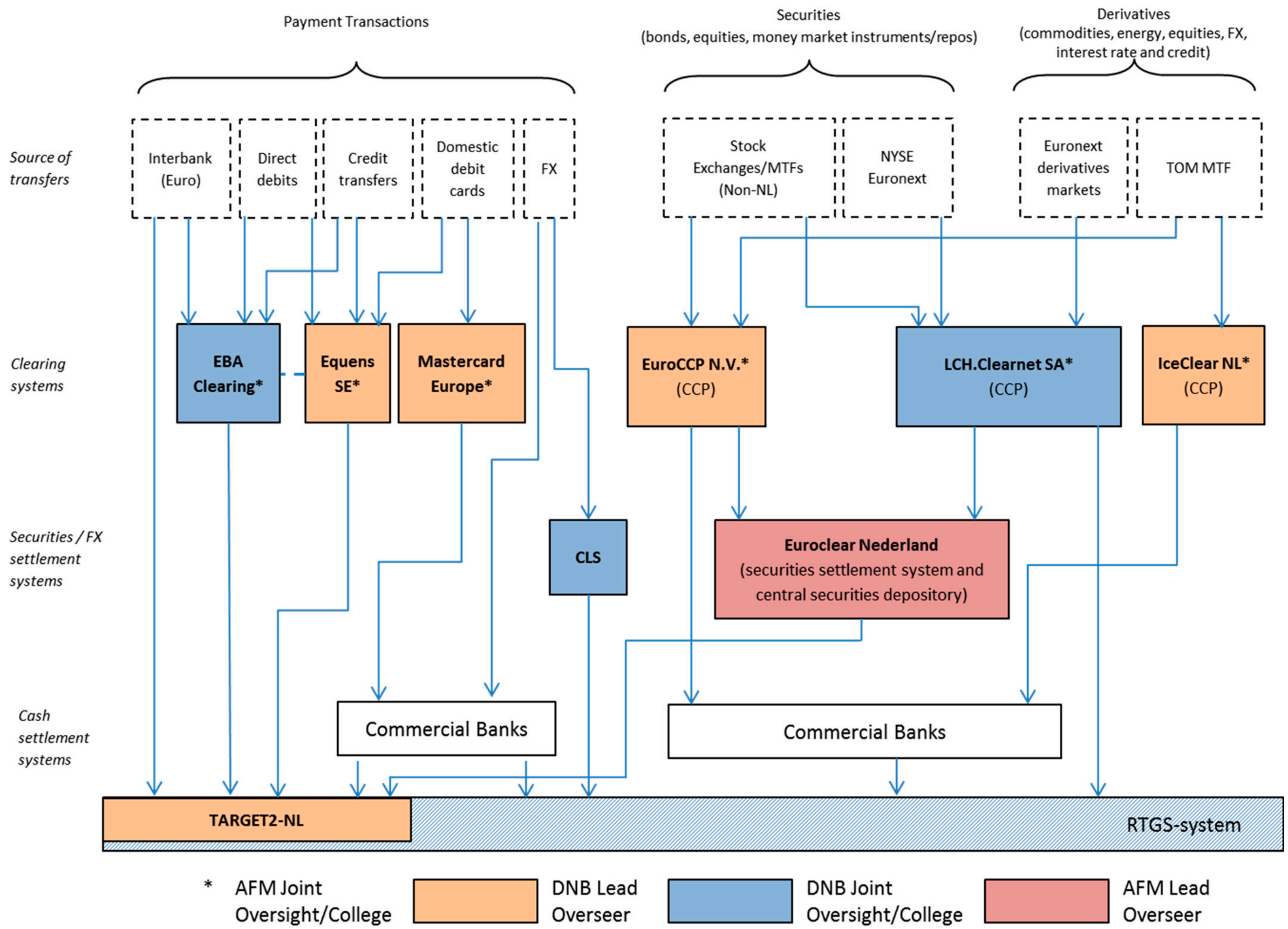
64. EuroCCP should specifically address cyber security in its operational risk management framework in line with the final CPMI-IOSCO Guidance on Cyber Resilience of Financial Market Infrastructures. Currently, EuroCCP's operational risk management framework does not specifically address cyber security. Instead, cyber security is addressed in the context of information security, and business continuity more generally. This was identified in the DNB's thematic review of cyber resilience, and EuroCCP is in the process of responding to the outcome of this review.

Appendix I. CPMI-IOSCO Implementation Monitoring Assessment Results for the Netherlands

CPMI-IOSCO Implementation Monitoring Level	Assessment Results	Publication
Level 1 - Assess whether a jurisdiction has completed the process of adopting the legislation and other policies that will enable it to implement the principles and responsibilities.	Final implementation measures are in force for the principles and responsibilities for all types of FMIs, apart from trade repositories, for which the responsibilities are implemented at the EU level.	CPMI-IOSCO "Implementation monitoring of PFMIs: Second update to Level 1 assessment report," June 2015
Level 2 - Assess whether the content of new legislation and policies is complete and consistent with the principles.	Certain gaps and inconsistencies were found for the EMIR framework for CCPs. However, when the oversight framework for eight European countries, including the Netherlands, is layered on top of the EMIR framework, it is able to bridge the identified gaps and move to the highest rating 'consistent' for those countries.	CPMI-IOSCO "Implementation monitoring of PFMIs: Level 2 assessment report for central counterparties and trade repositories–EU," February 2015.
Level 2/3 - Assess whether the content of new legislation and policies are complete and consistent with the responsibilities and implemented by the authorities.	The DNB and the AFM were assessed to observe all relevant Responsibilities for CCPs and CSDs/SSSs, as well as the relevant Responsibilities for payment systems (Responsibilities B and E); the remaining Responsibilities are assessed at the EU level and were also assessed as observed).	CPMI-IOSCO "Assessment and review of application of Responsibilities for authorities," November 2015.

Source: CPMI-IOSCO Implementation monitoring publications.

Appendix II. FMI Landscape in the Netherlands



Appendix III. Statistics on EuroCCP's Activity

Netherlands: Transactions Cleared by EuroCCP in 2015

Market	Number (In millions)	Value (In billions of euros)
United Kingdom	458.8	2,602.8
Germany	267.5	1,786.2
France	259.6	1,577.6
Sweden	193.4	1,312.5
Switzerland	81.1	908.4
Netherlands	95.9	597.8
Italy	75.1	560.6
Denmark	71.9	481.8
Spain	87.7	477.6
Finland	72.9	407.1
Belgium	30.8	156.0
Norway	35.1	133.2
Ireland	7.8	48.5
International Depositary Receipt	6.4	25.2
Portugal	7.3	22.0
Austria	7.5	20.3
Poland	0.0	0.0
Czech Republic	-	-
Hungary	-	-
Total	**1,758.8**	**11,117.5**

Appendix IV. Overview of Applicable Laws

Law	Scope	Authority	FMIs
Regulations (EU) No. 648/2012 on over-the-counter derivatives, central counterparties and trade repositories (EMIR).	EMIR, along with the Technical Standards, Guidelines and Recommendations issued by ESMA, set out the legal requirements for CCPs and trade repositories in the EU.	AFM and DNB	EuroCCP ICE Clear Netherlands B.V.
Wet op het financieel toezicht (Act on Financial Supervision, WFT)	Sets of the regulatory responsibilities and powers of the AFM and the DNB with respect to CCPs and payment systems.	AFM and DNB	EuroCCP ICE Clear Netherlands B.V.
Wet Giraal Effectenverkeer (Dutch Securities Giro Act, WGE	Gives the AFM power over the designated central institute (the regulated market) for the settlement of securities transactions. In addition to the WGE, the licensing of the regulated market has been used to require the CSD/SSS for that market to adhere to the Oversight Framework Clearing and Settlement developed by the AFM and the DNB.	AFM and DNB	Euroclear NL
Regulation (EU) No 909/2014 on securities settlement and CSDs (CSDR)	Once the Technical Standards that ESMA is developing are finalized, the CSDR will set out the legal requirements for CSDs/SSSs in the EU.	AFM and DNB	Euroclear NL
ECB/2014/28 Regulation on Oversight Requirements for Systemically Important Payment Systems	Sets out the regulatory requirements for systemically important payment systems established in the EU.	Eurosystem (including DNB)	Target2

Appendix V. Responsibilities of Different Dutch Authorities in Relation to CCPs and CSDs

CCPs

EMIR Article(s)	Description	Primary Authority	Formal consultation required?
Title III, Chapter 1, Articles 14-21	Conditions and procedures for the authorization of a CCP	DNB	Yes, for Articles 14, 15, 17, and 20
Title II, Chapter 4, Article 25	Relations with third countries	DNB	No
Title IV, Chapter 1, Articles 26-35	Organizational requirements	DNB	Yes
Title IV, Chapter 2, Articles 36-39	Conduct of business rules	AFM	No
Title IV, Chapter 3, Articles 40-50	Prudential requirements	DNB	No
Title V, Chapter 1, Articles 51-54	Interoperability arrangements	DNB	Yes

CSDs/SSSs

CSDR Article(s)	Description		Primary Authority	Formal consultation required?
Title II, Articles 3-7, 9	Securities settlement		AFM	No
Title III, Chapter 1, Articles 16-20, 23	Authorization and supervision of CSDs		AFM	Yes, for Articles 16, 19, and 20
Title II, Chapter 2, Articles 26-31	Organizational requirements		AFM	Yes
Title II, Chapter 2, Articles 32-38	Conduct of business rules		AFM	No
Title III, Chapter 2, Articles 39-47	Prudential requirements		DNB	No
Title III, Chapter 3, Article 48	CSD links		AFM	Yes
Title III, Chapter 3, Articles 49-53	Access to and between CSDs		AFM	Yes
Title IV, Articles 54-57, 59-60	Provision of banking-type ancillary services		DNB	No

Appendix VI. Cooperation Agreements of Dutch Authorities with Foreign Authorities

Dutch FMI	Type	Dutch Authorities	Foreign Authorities
EuroCCP	EMIR College	DNB, AFM	BaFin (DE), Banca d'Italia (IT), Bank of England (UK), Bundesbank (DE), Consob (IT), ECB, ESMA, FCA (UK), Finansinspektionen (SE), Finanstilsynet (DK), Finanssivalvonta (FI), FMA (AT), Financial Services and Markets Authority (BE), NBB (BE), Prudential Regulation Authority (UK), Senatsverwaltung für Wirtschaft, Technologie und Forschung (DE), Sveriges Riksbank (SE), Norges Bank (observer), Financial Supervisory Authority of Norway (observer).
EuroCCP	Interoperability Roundtable	DNB, AFM	Bank of England (UK), ESMA, Financial Supervisory Authority of Norway (NO), Norges Bank (NO), Financial Market Supervisory Authority (CH), Swiss National Bank (CH).
ICE Clear Netherlands	EMIR College	DNB, AFM	Financial Conduct Authority (UK), ESMA, ECB.
Euroclear Netherlands	Multilateral Cooperation	DNB, AFM	For ESES: NBB (BE), Financial Services and Markets Authority (BE), Banque de France (FR), Autorité des Marchés Financiers (FR). For ESA: NBB (BE), Financial Services and Markets Authority (BE), Banque de France (FR), Autorité des Marchés Financiers (FR), Bank of England (UK), Financial Conduct Authority (UK), Central Bank of Ireland (IE), Sveriges Riksbank (SE), Swiss National Bank (CH), Financial Market Supervisory Authority (CH), Bank of Finland (FI), and Finanssivalvonta (FI).