

Attachment 2: Assessment of Chicago Mercantile Exchange Inc. against the Financial Stability Standards for Central Counterparties

September 2014

The Chicago Mercantile Exchange Inc. (CME) has applied for a licence to operate a clearing and settlement (CS) facility in Australia. Accordingly, under the *Corporations Act 2001*, CME is required to comply with the *Financial Stability Standards for Central Counterparties* (CCP Standards). The Reserve Bank of Australia (the Bank) has identified several areas in which it expects CME to conduct further work to ensure that it fully observes the CCP Standards, should a licence be granted.

Some of these expectations arise from the Council of Financial Regulators' (CFR) policy *Ensuring Appropriate Influence for Australian Regulators over Cross-border Clearing and Settlement Facilities* (the CFR influence policy), which is embedded in the CCP Standards. The Bank does not expect that CME will be systemically important to Australia or have a strong connection to the Australian financial system in the near to medium term. Therefore, at least initially, CME would be subject only to the foundational requirements of the CFR influence policy.

The Bank has developed a set of expectations related to CME's provision of services to the Australian market, which ensure CME's operational and governance arrangements promote stability in the Australian financial system. The Bank's other expectations relate to CME's observance of the CCP Standards more broadly, and reflect areas where the Bank considers that CME should make changes to its policies, or progress as a matter of priority, work that is already ongoing.

The Bank's expectations are reflected in a set of regulatory priorities, summarised below.

The Reserve Bank of Australia's Regulatory Priorities for CME

Standard	Recommendation	Comments
<i>Regulatory Priorities Specifically Related to CME's Provision of Services to the Australian Market</i>		
2. Governance	The Bank expects CME to ensure that Australian representation in governance arrangements appropriately reflects the scale and nature of Australian participation.	CME has in place governance arrangements to take account of the interests of clearing participants. The Bank will engage with CME to assess the adequacy of those arrangements or consider whether other arrangements to accommodate Australian interests would be appropriate.
5. Collateral 6. Margin	The Bank expects CME to ensure that local market practices are accommodated, including considering accepting Australian government bonds as initial margin in the event that direct Australian-based participation in CME becomes material.	CME has indicated that it will investigate the acceptance of Australian government bonds as initial margin during the second half of 2014. The Bank will review CME's progress by year end. In addition, the Bank will engage with CME to understand the potential impact of the timing of routine margin calls for non-USD currencies (which currently fall outside Australian business hours) on Australian participants and on CME's exposures, and whether any changes are necessary.
12. Participant default rules and procedures	The Bank expects CME to ensure that there is appropriate representation of Australian membership and regulators in default management.	The Bank will engage with CME and the Commodity and Futures Trading Commission (CFTC) on how it is envisaged that the default of an Australian-based participant, or any participant with a large Australian dollar-denominated portfolio, would be managed. It is expected that such dialogue will clarify the roles of Australian-based participants in this process and the nature of cooperation with the Australian regulators.
16. Operational risk	The Bank expects CME to provide adequate operational support arrangements to Australian participants, particularly during Australian market hours.	CME has informed the Bank that, in the first instance, operational assistance to Australian participants would be provided from Chicago, with support also available from CME's London office. CME will also work with Australian participants to meet their training needs. The Bank will monitor these arrangements to establish whether they appropriately meet Australian participants' needs and adequately mitigate operational risks associated with their participation.
<i>Other Regulatory Priorities</i>		
3. Framework for the comprehensive management of risks 14. General business risk	CME should implement an appropriate recovery and wind-down plan. The Bank will expect to conduct a review of these plans once this work has been completed.	CME has informed the Bank that it is in the process of developing a recovery and wind-down plan. The CFTC has granted CME an extension to finalise its recovery and wind-down plan by 31 December 2014. This will enable CME to take into account Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) guidelines on recovery, which are expected to be finalised in the second half of 2014. One aspect the Bank expects CME to address in its recovery plan is how it plans to raise additional equity if required.
4. Credit risk 6. Margin	The Bank expects CME to finalise and implement its model testing and validation, specifically for its margin, haircut and stress-testing models.	CME has informed the Bank that it will develop its model testing and validation processes during the second half of 2014. The Bank also expects to engage with CME on the results of its model validation and testing.
5. Collateral	CME has recently made changes to its collateral policy to reduce the scope of its acceptance of letters of credit as collateral. The Bank will monitor these arrangements, including through the provision of data from CME on the use of letters of credit as collateral.	

Standard	Recommendation	Comments
7. Liquidity risk	The Bank expects CME to continue to enhance its liquidity risk framework, and will continue to engage with CME as it develops its formal framework.	CME recently implemented a formal framework to manage and monitor liquidity risk, effective from the December quarter of 2013.
15. Custody and investment risks	CME should continue to manage counterparty concentration risk in the investment of its treasury investment portfolio.	<p>CME currently invests the bulk of its cash collateral on an unsecured basis with a relatively small number of commercial bank counterparties.</p> <p>CME has informed the Bank that it is working to diversify the number of counterparties for its investment of cash collateral and to make such investments on a secured basis. The Bank will continue to monitor CME's planned diversification program.</p>
19. FMI links	<p>CME currently accepts letters of credit to cover exposures across its link with Singapore Exchange Limited (SGX). The Bank will monitor these arrangements, with a view to revisiting this issue in 12 months or if there is a material increase in exposures across the link.</p> <p>The Bank expects that CME will not permit letters of credit as acceptable collateral for any future links.</p> <p>At the same time, the Bank will engage with CME on other aspects of its risk management of links, including the extent to which stressed market conditions are taken into account when calibrating collateral requirements for exposures to linked CCPs.</p>	As well as the link with SGX, CME maintains two cross-margining agreements with the Fixed Income Clearing Corporation (FICC) and Options Clearing Corporation (OCC). The SGX link is the only link that is potentially of direct relevance to Australian clearing participants. The Bank expects to be notified by CME of any material increase in exposures.

The CCP Standards are made up of 21 headline standards, each of which is accompanied by a number of more detailed sub-standards. In assessing whether a facility has met each of the CCP Standards, the Reserve Bank takes into account associated guidance.¹ The following provides details of how CME observes each of the CCP Standards (including sub-standards).

Standard 1: Legal basis

A central counterparty should have a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

1.1 A central counterparty should be a legal entity which is separate from other entities that may expose it to risks unrelated to those arising from its function as a central counterparty.

CME is a wholly owned subsidiary of CME Group Inc. (CME Group), and is organised under the laws of Delaware in the United States of America (US). CME Group is a publicly traded company listed on the NASDAQ Global Select Market.

CME has numerous operating divisions which are part of the same legal entity, including the CME Clearing Division, which provides central counterparty (CCP) services. CME also provides exchange and exchange-related services (for futures and options on futures) in its role as a Designated Contract Market (DCM), and operates a Swap Data Repository (SDR) (trade repository, registered with the Commodity and Futures Trading Commission (CFTC)) and a Swap Execution Facility (SEF) (a trading platform for over-the-counter (OTC) products provisionally registered with the CFTC).

In its role as a CCP, CME clears a number of exchange-traded derivatives and OTC derivatives. CME provides clearing services to each of the four CME Group derivatives exchanges, and two external exchanges.² In OTC markets, CME offers CCP services for interest rate swaps (IRS) and credit default swaps (CDS), as well as certain commodity and foreign exchange products.

CME has adopted policies and procedures to address conflicts of interest arising between its functional areas (see CCP Standard 2.9). Additionally, CME has separated its CME Clearing Division – and established Risk Committees to oversee the Clearing Division (see CCP Standard 2.2) – to ensure that CME’s DCM activities do not compromise its CCP activities. CME is subject to CFTC regulatory requirements to separately maintain sufficient financial resources for each of its Derivatives Clearing Organization (DCO), DCM, SEF and SDR operations. The minimum financial resource requirements are additive in that each of CME’s DCO, DCM, SEF and SDR operations are independently required to maintain sufficient operating capital to address its operating costs for a rolling one-year period (see CCP Standard 14.1).

CME Group also offers CCP services through CME Clearing Europe, a wholly owned subsidiary of CME Group. CME and CME Clearing Europe are legally separate entities; each CCP is separately capitalised and operates its own Guaranty Funds.

¹ The guidance is available at <<http://www.rba.gov.au/payments-system/clearing-settlement/standards/central-counterparties/2012/index.html>>.

² The four CME Group exchanges are: CME, Chicago Board of Trade, New York Mercantile Exchange and its subsidiary, Commodity Exchange. CME also clears commodity futures traded on the Dubai Mercantile Exchange Limited, in which CME Group owns a majority stake (Dubai Mercantile Exchange trades are cleared under New York Mercantile Exchange rules) and swap futures in interest rate products for Eris Exchange, a US-based futures exchange (Eris Exchange trades are cleared under CME rules).

A wholly owned and separately capitalised subsidiary of CME, GFX Corporation, provides 24-hour market-making services in a number of currency futures contracts, as well as certain interest rate and equity index products as needed.

1.2 The legal basis should provide a high degree of certainty for each material aspect of a central counterparty's activities in all relevant jurisdictions.

Legal basis

CME novates contracts accepted for clearing and nets obligations across each participant's open contracts. These activities require a high degree of legal certainty to ensure they will be effective, even in a default scenario. Key components of the legal basis under which CME operates are:

- *CCP authorisation, regulation and supervision.* CME is regulated by the CFTC as a DCM; SEF; SDR; and DCO in its role as a CCP. These designations arise from the *Commodity Exchange Act 1936* (CEA). CME has also been designated a Systemically Important Derivatives Clearing Organization (SIDCO) by the Financial Stability Oversight Council, under Title VIII of the *Dodd Frank Wall Street Reform and Consumer Protection Act 2010* (Dodd-Frank Act); this designation gives the Board of Governors of the Federal Reserve System a role in CME's oversight. CME is also deemed registered with the Securities and Exchange Commission (SEC), in relation to its plans to clear security-based swaps.

The CEA has established the DCO Core Principles. These are high-level, stability-related principles that a DCO must adhere to. The DCO Core Principles are implemented at a more detailed level through CFTC regulations.³ Title VIII of the Dodd-Frank Act also enables the CFTC to write additional regulations for SIDCOs. The CFTC has set out these additional requirements in the CFTC regulations (part 39, subpart C), which became effective on 31 December 2013.

- *CME Rulebook.* The CME Group Exchanges' operations are governed by three rulebooks, comprising the rules of each exchange, including their clearing arrangements. The rulebooks are: the CME Rulebook; the Chicago Board of Trade (CBOT) Rulebook; and the New York Mercantile Exchange (NYMEX) Rulebook. Rules for Commodity Exchange (COMEX) contracts are included in the NYMEX Rulebook. Futures contracts are governed by the rulebook of the exchange on which they are listed, reflecting the historical structure of the CME Group Exchanges. OTC contracts are governed by the CME Rulebook. CME has sought to harmonise the exchange rulebooks, including section numbers, aside from contract-specific terms. Remaining differences are listed on the CME website. CME has stated that its clearing rules are materially identical across the exchange rulebooks, aside from clearing fees.

All direct clearing participants must enter into an 'Attestation, Authorization and Agreement for Membership' with CME. The agreement is a contract between CME and direct clearing participants that requires the clearing participants to comply with all rules (as defined in the CME Rulebook), which includes CME's Certificate of Incorporation, CME's bylaws, the three exchange rulebooks, all interpretations, orders, resolutions, advisories, notices, manuals and similar directives, and all subsequent amendments. This agreement contains provisions stating that it, and the CME Rulebook, is governed under the laws of Illinois. CME has provided the Bank with legal opinions regarding the enforceability of the CME Rulebook in the US. Before admitting foreign clearing participants, CME has confirmed that it seeks legal opinions to confirm the enforceability of the CME Rulebook and the effectiveness of the choice of law provisions in the foreign jurisdiction (see CCP Standard 1.6).

³ United States Code of Federal Regulations, title 17, part 39.

CME relies upon contractual arrangements with settlement banks and custodians that are – as with clearing participants – governed by US law. All of CME’s settlement banks and all but three of CME’s custodian banks are located in the US. CME’s practice is to obtain opinion from local counsel prior to using non-US custodian banks (see CCP Standard 1.6).

- *Novation and netting arrangements.* CME’s novation and netting arrangements are established under the CME Rulebook and are protected by a number of ‘safe harbours’ contained within US bankruptcy law (see CCP Standard 1.5). In addition, should the Minister approve CME as a ‘netting market’ under the *Payment Systems and Netting Act 1998* (PSNA), areas of CME’s rules relating to novation and netting (among other areas) would gain the protection provided under Part 5 as ‘market netting contracts’. The PSNA covers several areas relevant to CCPs, including the CCP’s rights to access a defaulting participant’s collateral as well as terminate and net off the CCP’s obligations with respect to an insolvent participant. CME has applied to the Minister to be a netting market for the purposes of the PSNA in conjunction with its application for a CS facility licence.

The Clearing House Risk Committee (CHRC), or other Risk Committee as appropriate (see CCP Standard 2.6), reviews substantial matters related to legal risk, including the admission of clearing participants, settlement banks and custodian banks. Components of CME’s analysis may also be reviewed by the CFTC.

CME’s Chief Compliance Officer (CCO) annually assesses the extent to which it complies with DCO Core Principle R – Legal Risk; this assessment is lodged with the CFTC.

Rights and interests

The rights and interests of CME, its direct participants and its direct participants’ customers in clearing positions and associated collateral are defined in the CME Rulebook and governed by US law.

CME takes collateral by way of a first priority security interest, in accordance with the relevant provisions in the CME Rulebook. In order to do so, participants transfer collateral – both cash and securities – into accounts owned and controlled by CME at permitted depositories, as set forth in CFTC regulations, that are US-based or have a branch in the US (see CCP Standard 15). Participants retain the title to these assets and grant CME a first priority security interest in the collateral, in accordance with the CME Rulebook. Under the CME Rulebook, participants must ensure that assets provided as collateral are unencumbered. CME has stated that assets are transferred to accounts under CME’s control in order to perfect the security interest by control, in accordance with the Illinois Uniform Commercial Code or the New York Uniform Commercial Code, as applicable. CME has provided the Bank with legal opinions regarding the efficacy and priority of the security interest granted by participants to CME with respect to their collateral comprising cash or securities.

CME also takes physical gold as collateral by title transfer at its three UK-based custodians (these custodians are not used for any other type of collateral). CME has stated that it takes only a small amount of collateral in this manner and participants are subject to limits on how much physical gold they can use as collateral (see CCP Standard 5). CME has stated that, prior to setting up these arrangements, it engaged external counsel to ensure the enforceability and efficacy of these arrangements. CME also accepts letters of credit in limited circumstances (see CCP Standard 5).

CME has stated that under US bankruptcy law, a DCO can immediately realise the collateral it holds to guarantee performance of a defaulting clearing participant’s obligations. The rules governing CME’s actions and rights in the event of clearing participant default are set out in the CME Rulebook (see CCP Standard 12).

1.3 A central counterparty should have rules, procedures and contracts that are clear, understandable and consistent with relevant laws and regulations.

The CME Rulebook governs the rights and responsibilities of CME and its participants. The CME Rulebook is available on the CME Group website. In addition, CME privately provides clearing participants with procedures that detail relevant features of CME's operations.

To ensure that its rules are consistent with relevant laws and regulations and that CME would not be prevented from exercising its rights under its Rulebook, CME has confirmed that it obtains legal opinions regarding its legal regime, including enforceability opinions. It does this for all relevant jurisdictions (see CCP Standard 1.6).

As a SIDCO, CME must lodge for review with the CFTC any rules that may materially affect the nature or level of risks that CME takes on; these rule changes are concurrently lodged with the Board of Governors of the Federal Reserve System. Other rule changes may be lodged voluntarily for CFTC approval or must be lodged with a self-certification that they comply with the CEA. The CFTC publishes all proposed rule changes on its website. CME also lodges rule changes with the SEC, including where the rule changes relate to the clearing of security-based swaps. CME publishes all CFTC and SEC rule filings on its website, as well as advisory notices to participants.

1.4 A central counterparty should be able to articulate the legal basis for its activities to the Reserve Bank and other relevant authorities, participants and, where relevant, participants' customers, in a clear and understandable way.

To ensure the basis for CME's activities is known and understandable, CME publishes the CME Rulebook on its website. Proposed changes to the CME Rulebook are lodged with, and published by, the CFTC (see CCP Standard 1.3), and also placed on the CME Group website. CME circulates advisories regarding certain rule changes and operational procedures to subscribers, and publishes them on the CME Group website.

CME publishes key information about its regulatory status and legal basis as part of its response to the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) *Disclosure Framework for Financial Market Infrastructures*, and describes its approach to meeting the legal basis requirements of the CPSS-IOSCO *Principles for Financial Market Infrastructures* (the Principles). In addition, CME assesses its compliance with DCO Core Principle R – Legal Risk annually as part of its CCO Annual Report, which is lodged with the CFTC.

As part of its CS facility licence application, CME has provided the Bank with certain legal opinions and memoranda regarding CME's legal basis.

1.5 A central counterparty should have rules, procedures and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the central counterparty under such rules and procedures will not be voided, reversed or subject to stays, including in the event that the central counterparty enters into external administration or that one or more of its participants defaults or is suspended.

As discussed in CCP Standard 1.2, all CME direct clearing participants enter into an Attestation, Authorization and Agreement for Membership under which the clearing participant agrees to be bound by the CME Rulebook, and agrees to the exclusive jurisdiction of Illinois courts for actions relating to the enforcement of the CME Rulebook. CME has stated that it analyses the jurisdiction of all non-US-based clearing participants to assess the legal risk presented by these participants and to

ensure the enforceability of CME's rules against such participants, including by obtaining legal opinions (see CCP Standard 1.6). CME has provided the Bank with legal opinions regarding the effectiveness of the Attestation, Authorization and Agreement for Membership and the enforceability of the CME Rulebook against Australian participants.

Measures that contribute to ensuring a high degree of certainty for CME's activities are:

- *Settlement finality.* CME's agreements with its settlement banks set out the conditions under which settlement executed by a settlement bank on behalf of a participant with respect to obligations arising from contracts cleared by CME are final and irrevocable (see CCP Standard 8). CME has no exposure to its settlement banks in the course of settlement because its participants remain liable for the payment until it is received by CME (see CCP Standard 9). Separately, US bankruptcy law contains certain provisions designed to provide 'safe harbours' for DCOs to prevent margin payments from being clawed back by the administrator of an insolvent clearing participant; CME has provided the Bank with legal memoranda regarding the application of these safe harbour provisions to CME and its participants.
- *Assumption of risk.* Under the CME Rulebook, CME takes on counterparty credit risk via novation of the contract, such that CME becomes the buyer to every seller and the seller to every buyer. The CME Rulebook states that, for exchange-traded contracts, trades are novated immediately following the successful matching of trade data submitted by the two clearing participants on the long and short sides of a trade. For block trades, 'Exchange for Related Position' (EFRP) trades and the transfer of trades or customer accounts in exchange-traded products, novation does not occur until payment of the first margin obligation. For OTC products, trades are novated once the trade data are matched from both clearing participants, provided the trade meets necessary conditions and rules for clearing (e.g. the contract terms comply with those that CME will clear). Under CFTC rules, trades must be accepted or rejected for clearing as quickly after submission as would be technologically practicable if fully automated systems were used; CME explicitly imports this provision of the CFTC rules into the CME Rulebook. Swap trades executed on, or subject to the rules of, SEFs or DCMs are novated once the trades are accepted for clearing. Acceptance for clearing must occur within a time limit prescribed by the CFTC.⁴ Backloaded OTC trades are novated once the first margin obligation is discharged.
- *Default of participants.* The rights and obligations of CME and its participants in the event of a clearing participant default are set out in the CME Rulebook (see CCP Standard 12). CME has shared with the Bank legal advice that states that the provisions of the CME Rulebook are protected from the application of certain parts of US insolvency law by 'safe harbour' provisions contained in US insolvency law. These provisions seek to ensure certain netting arrangements and financial counterparties' interests in collateral (including CCPs) are not restricted by insolvency proceedings.

These safe harbours apply to counterparties that, among other things, qualify as either 'commodity brokers' or 'financial participants' under 'commodities contracts' or 'master netting agreements'. The definition of a commodity broker is set out in US bankruptcy law and includes

⁴ The CFTC's *Staff Guidance on Swaps Straight-Through Processing*, dated 26 September 2013, establishes a DCO's time-frame for accepting or rejecting cleared swaps competitively executed on, or subject to, the rules of SEFs or DCMs, at no more than 10 seconds after submission. Available at <<http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/stpguidance.pdf>>

DCOs and Futures Commission Merchants (FCMs) (with customers).⁵ CME has provided the Bank with a legal memorandum stating that it automatically qualifies for the safe harbours because of its status as a registered DCO, and is therefore able to rely on these safe harbours to avoid stays associated with insolvency proceedings in managing a participant default. A financial participant is generally defined as any counterparty with in excess of US\$1 billion in notional principal outstanding of swaps, commodities contracts, securities contracts and repurchase agreements (across all counterparties)⁶ or US\$100 million in market value on the same basis.

Commodity contracts, as defined by US bankruptcy law, include futures, options and cleared swaps, any collection of such contracts, or any contracts that are similar to such, and includes any security arrangement or credit enhancement associated with that contract or collection of contracts. A master netting agreement, as defined by US bankruptcy law, is any agreement providing for the exercise of certain rights – including netting, set-off, liquidation and termination – in connection with one or more commodity contracts and other similar financial contracts. CME has stated that the CME Rulebook, the contracts cleared under it, and the Attestation, Authorization and Agreement for Membership fall within these definitions. CME has relied on these safe harbours during past clearing participant defaults.

CME has provided the Bank with legal memoranda regarding the application of these safe harbour provisions to contracts between CME and US- and Australian-based clearing participants.

In addition, should the Minister approve CME as a netting market under the PSNA, areas of CME's rules would be protected as market netting contracts under Part 5 of that Act. These provisions seek to protect a CCP's rules from claims that might otherwise be upheld in insolvency proceedings. The PSNA covers several areas relevant to CCPs, including the CCP's right to access a defaulting participant's collateral as well as terminate and net off the CCP's obligations with respect to an insolvent participant. CME has applied to the Minister to be a netting market for the purposes of the PSNA in conjunction with its application for a CS facility licence and has provided the Bank with legal opinion regarding the application of the PSNA to CME.

- *Winding up.* The CME Rulebook provides close-out netting arrangements in the event of CME's insolvency, to provide participants with a clear and certain termination sum. For OTC IRS products, additional rules governing service termination in the event the IRS default waterfall is exhausted provide an avenue for orderly wind-down of the IRS clearing service without forcing CME into insolvency (see CCP Standard 12.1). Equivalent rules do not currently exist for Base products.⁷

As noted above, the CME Rulebook is governed by US law and CME and its participants benefit from certain safe harbour protections in US bankruptcy law which are designed to ensure the effectiveness of these winding up provisions in the CME Rulebook.

1.6 A central counterparty conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflicts of law across jurisdictions. A central counterparty should provide the Reserve Bank with a legal opinion that demonstrates the

⁵ Registering as an FCM is a prerequisite to offering client clearing of futures cleared at a US DCO and swaps required to be cleared at a DCO; CME does not intend to allow Australian-based participants to offer client clearing at this time.

⁶ Excluding in-house transactions.

⁷ The Base products category encompasses all exchange-traded futures and equivalent block-traded futures, options on those contracts, and certain OTC forwards and commodity swaps.

enforceability of its rules and addresses relevant conflicts of law across the jurisdictions in which it operates. This should be reviewed on a periodic basis or when material changes occur that may have an impact on the opinion, and updated where appropriate.

To manage the legal risk from non-US-based clearing participants, the Attestation, Authorization and Agreement for Membership states that it, and the CME Rulebook, is governed by US law. As at the beginning of August 2014, 59 of CME's 72 direct clearing participants were headquartered in the US.

Similarly, the contracts between CME and its settlement and custodian banks state that they are governed by US law. CME has no non-US-based settlement banks; however, CME uses some foreign branches of US-based settlement banks for certain currencies. CME has informed the Bank that it has been advised by local counsel in the relevant jurisdictions that the local law is not central to the settlement banking arrangement. CME has three UK-based custodian banks that are used to accept physical gold as collateral. CME has confirmed that, before entering into custodial arrangements with these institutions, CME engaged UK counsel and evaluated the UK legal and regulatory regime.

CME states that it evaluates the legal risks presented by non-US-based clearing participants, settlement banks and custodian banks prior to entering into a contractual arrangement, including by obtaining legal opinions on the enforceability of CME's legal and contractual rights and obligations. CME has stated that where it forms the view that the laws of a foreign jurisdiction may present a material legal risk (e.g. by restricting CME's ability to enforce its rules, or limiting access to a clearing participant's collateral in the event of a default) an institution from that jurisdiction would not be admitted as a direct clearing participant. CME has confirmed that it updates these opinions as necessary when there are material changes to either US or foreign laws that may impact CME's legal basis.

In the case of Australian-based participants, CME has provided the Bank with legal opinions on the effectiveness of the choice of law provisions in CME's Attestation, Authorization and Agreement for Membership and the enforceability of the CME Rulebook, including in the event of default.

Standard 2: Governance

A central counterparty should have governance arrangements that are clear and transparent, promote the safety of the central counterparty, and support the stability of the broader financial system, other relevant public interest considerations and the objectives of relevant stakeholders.

2.1 A central counterparty should have objectives that place a high priority on the safety of the central counterparty and explicitly support the stability of the financial system and other relevant public interest considerations.

The CCP operations of CME are undertaken by CME Clearing Division (see CCP Standard 2.2). The purpose of CME Clearing Division is to offer clearing services while seeking to protect all clearing participants and their customers against the consequences of a default through the management, containment, mitigation and prevention of systemic risk.

CME Clearing Division is overseen by the CHRC, which is tasked with the primary oversight of risk management policy issues. The CHRC's duties include: the administration of CME's financial safeguards; advising CME Clearing Division staff on risk management issues relating to the financial condition of clearing participants; overseeing the default management process in the event of a participant default; and reviewing all rule changes that impact the CCP.

The CHRC is overseen by the CME Board (see CCP Standard 2.2). The CME Board oversees the management of risks at an enterprise level (see CCP Standard 2.3), and is tasked with preserving and protecting CME's enterprise value to achieve its financial, operational and strategic objectives. To manage and promote sound risk management practices to achieve its organisational objectives, CME Group has established an Enterprise Risk Management (ERM) program (see CCP Standard 2.6).

2.2 A central counterparty should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, the Reserve Bank and other relevant authorities, participants and, at a more general level, the public.

Overview of CME

CME is a wholly owned subsidiary of CME Group (see CCP Standard 1.1). To harmonise operations, CME and CME Group share identical membership of their respective Boards; both shall be referred to as 'the Board'. Broadly, the Board is responsible for managing the overall strategy of CME, while the CHRC oversees the general direction of CME's CCP operations (see CCP Standard 2.3).

The Board's procedural and governance arrangements are documented in CME bylaws, CME Group bylaws, and the terms of reference for Board committees. These documents set out the Board's mission, membership, conduct, composition and compensation arrangements. For more information on the composition of the Board, see CCP Standard 2.4.

The Board is aided in its management of CME by the Board-level Executive Committee (see CCP Standard 2.3). The Board also operates seven other Board-level committees to aid in the discharge of its duties: the Audit, Compensation, Finance, Governance, Market Regulation Oversight, Nominating and Strategic Steering committees.

At executive management level, CME has both a Chief Executive Officer (CEO) and an Executive Chairman and President (Chairman). The CEO and Chairman at CME Group level hold the same positions at CME. The CEO is responsible for the day-to-day operations of CME. As a both a director and an executive officer of the Board, the CEO is directly accountable to the Board.

CME Clearing Division

CME's CCP operations are run by CME Clearing Division, one of 14 operational divisions. The day-to-day operations of CME Clearing Division are overseen by the CME Clearing Division President (Clearing President). The Clearing President is appointed by the CEO, with the approval of the Board.

In addition to reporting to the CEO, the Clearing President regularly reports to the three CME Risk Committees and the Market Regulation Oversight Committee.⁸ Each Risk Committee, all of which are non-Board level, is responsible for managing risk in a specific product category: OTC IRS; OTC CDS; and Base products. Each Risk Committee is chaired by at least one member from the Board. Each Risk Committee is required to report to the Board on an ongoing basis. For more information on the Risk Committees, see CCP Standard 2.6.

CME Clearing Division is divided into the following operating departments: the Financial and Regulatory Surveillance Department; the Risk Management Department; the Clearing Operations and Systems Department; the Clearing Solutions Department; and the Clearing House Financial Department.

⁸ The Market Regulation Oversight Committee is responsible for overseeing CME's regulatory responsibilities and reviewing conflict of interest matters brought to its attention by senior management.

The Financial and Regulatory Surveillance Department's responsibilities are twofold. First, one team monitors and assesses capital adequacy, internal controls, risk management policies and back-office operations. Second, the Department's other team is responsible for ensuring clearing participants charge their customers appropriate fees and assessing clearing participation applications before advising the relevant Risk Committee for approval. The Financial and Regulatory Surveillance Department is overseen by the Managing Director (Financial and Regulatory Surveillance), who reports to both the Clearing President and the Market Regulation Oversight Committee.

The Risk Management Department is responsible for monitoring and managing CCP-specific risks in accordance with the CME Clearing Division Risk Management Framework (Risk Management Framework). These responsibilities include: ensuring the adequacy of CME's financial safeguards; monitoring and assessing liquidity risks; and monitoring CME's banking arrangements. The Risk Management Department is overseen by the Chief Risk Officer (CRO), who reports to the Clearing President and the three Risk Committees.

The Clearing Operations and Systems Department manages post-trade operational planning, preparation and implementation of services impacting electronic trading, and the operations area. The Department: processes transfers, give-ups, and allocations and deliveries; produces material for clearing participant reports that detail margin requirements; and sets up other back-end processes related to clearing participant onboarding and product launches. The Department is also responsible for creating and modifying support models for new initiatives across the Department.

The Clearing Solutions Department is responsible, in part, for the overall business analysis of expanding CME Clearing Division services. Other responsibilities of the Department include customer relationship management and development of key product services.

The Clearing House Financial Department manages CME Clearing Division's collateral services, banking relationships, business architecture and compliance officer functions.

Outside of the operational departments, CME Clearing Division has a CCO, who ensures CME continues to meet its regulatory obligations. The CCO conducts annual regulatory self-assessments against: CFTC regulations and the DCO Core Principles; SEC regulations; Federal Reserve Board regulations; and the Principles. The CCO reports to the Market Regulation Oversight Committee, the Clearing President and the Group-level CCO.

Additional governance arrangements

CME Group publishes key corporate governance arrangements, standards, terms of reference and policies on its website. CME's bylaws and certificate of incorporation are included in the publicly available CME Rulebook. In addition to the formal lines of responsibility detailed above, CME Group's Corporate Governance Principles envisage complete and open access between the Board and senior management.

CME Group and, by extension, CME are accountable to shareholders through applicable disclosure requirements and directors' duties. CME Group has two classes of common stock, with its Class A common stock being publicly listed on NASDAQ and its Class B common stock held by members of CME. All CME exchange members, including all CME exchange clearing members, are required by CME to hold Class B stock. Both Class A and Class B common shareholders vote on all matters for which a vote of common shareholders is required by US companies law; each share carries one vote. Class B stock grants additional voting rights beyond Class A stock for matters concerning certain core rights of the members of CME (e.g. trading right protections, certain trading fee protections and participation requirements for exchange-listed products).

2.3 The roles and responsibilities of a central counterparty’s board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address and manage member conflicts of interest. The board should regularly review both its overall performance and the performance of its individual board members.

CME Group’s Corporate Governance Principles define the Board’s roles and responsibilities and set out the Board’s mission statement. Broadly, the Board is responsible for:

- reviewing, approving and monitoring CME Group’s and CME’s strategic, financial and business activities
- reviewing, approving and monitoring CME Group’s and CME’s annual budget
- assessing the major risks and opportunities CME Group and CME face, and reviewing options for addressing them
- selecting the Chairman and CEO, and evaluating their performance
- ensuring CME Group and CME comply with their regulatory responsibilities.

The procedures and rules for the Board’s functioning are set out in CME Group and CME bylaws, which are publicly available on the CME Group website. In addition to provisions in the bylaws and articles of incorporation, CME Group has developed a policy to address potential conflicts of interest. This policy requires directors to disclose potential conflicts of interest and abstain from voting where a conflict could arise. The policy also sets out the procedures the Board would follow to determine if a conflict of interest did exist.

CME Group’s and CME’s general counsel administers and monitors compliance with its Conflict of Interest policy, which is disclosed on the CME Group website.

As noted in CCP Standard 2.2, the Board operates eight Board-level committees to aid in the discharge of its duties. These committees advise the Board on their relevant area and are governed by their respective charters, which are publicly available on the CME Group website. The Audit, Compensation, Governance and Nominating committees are solely composed of directors who meet CME Group’s published independence standards (see CCP Standard 2.4).⁹ In addition, the Market Regulation Oversight Committee is composed of directors who meet the CFTC’s requirements for ‘public’ directors.

In general, CME schedules six regular Board meetings in a year. Special meetings of the Board may be called in accordance with the applicable bylaws. When the Board is not sitting, its authority may be exercised by the Executive Committee, except for matters where approval of the whole Board would be required. The Executive Committee currently has 10 members, including the Chairman and CEO, and the minimum of five CME directors chosen by the Board. The Executive Committee does not meet regularly; the Committee has not met in 2014 to date, while it met twice in 2013 and three times in 2012.

Items presented to the Executive Committee in the past have included approval of banking authorisations, designation of corporate officers and signing authority, and the evaluation of the performance of the CEO. During these meetings, the Executive Committee may also receive updates on certain activities, such as the status of legal proceedings.

⁹ As CME Group is a publicly listed company, these directors must also meet the independence standards required by NASDAQ listing rules.

The Board-level Governance Committee is responsible for overseeing the annual self-assessment of the Board's performance and recommends measures to improve performance based on the results of such evaluation. The Governance Committee consists solely of independent directors. Based on feedback from the most recent annual self-assessment, CME Group is working on developing a formalised emergency succession plan and recommended a reduction in its size to 24, from 29 (see CCP Standard 2.4).

2.4 The board should comprise suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

The Board currently has 24 directors, including the Chairman and CEO. The size of the Board was reduced by five from 29, following a proposal that was adopted at the CME Group 2014 annual meeting. The Governance Committee makes recommendations regarding the size of the Board.

The Board-level Nominating Committee recommends candidates for 'equity' directors. Six directors are elected by Class B shareholders, while the remaining equity directors are elected by the Class A and Class B shareholders voting together. At its 2014 annual meeting, CME Group sought shareholder approval to reduce the number of directors elected by Class B shareholders from six to three; however, the proposal did not receive the required support.

In evaluating candidates for the Board, the Nominating Committee – guided by CME Group's Corporate Governance Principles – review the qualifications and backgrounds of potential equity directors. Broadly, the Corporate Governance Principles require directors to have sufficient expertise, experience, ethics and values. The composition of the Board must also be representative across diverse professional backgrounds and a broad range of expertise. The six directors elected by the Class B shareholders are nominated by separate nominating committees elected by their particular class of Class B shares.

CME Group and CME include a number of independent and public directors on their Board (see below). Under CME Group's Corporate Governance Principles, a majority of the Board must be classified as 'independent'. For a director to be classified as independent, the director must meet CME Group's published Independence Standards. These standards require that an independent director: holds no executive office, nor has any immediate family member holding executive office; holds no more than 5 per cent of either Class A or Class B stock, nor has any immediate family member who does; and not provide consulting, legal or financial advisory services to CME or CME's auditors. As a publicly listed company, CME Group's Independence Standards meet NASDAQ's requirements for independent directors. Currently, 75 per cent of CME Group and CME directors are classified as independent.

Public directors must meet requirements defined by the CFTC, which require a director to not have any significant relationship with the exchange. As a DCM, the CFTC requires CME to have public directors to minimise conflicts of interest. CME Group's Corporate Governance Principles consider a director to be a public director based on their lack of relationship with any of the CME Group exchanges and the industry. Currently, 33 per cent of CME Group and CME's directors meet the standard for public directors.

2.5 The roles and responsibilities of management should be clearly specified. A central counterparty's management should have the appropriate experience, mix of skills and integrity necessary to effectively discharge its responsibilities for the operation and risk management of the central counterparty. Compensation arrangements should be

structured in such a way as to promote the soundness and effectiveness of risk management.

CME structure

CME Group's bylaws require the Board to appoint a Chairman, Vice Chairman, CEO, President (not to be confused with the Clearing President), Secretary and Treasurer. Any number of offices may be held by the same person. Beyond those roles, the bylaws grant the Board the flexibility to appoint any leadership structure.

At CME level, the bylaws state that the Board composition will at all times be comprised of the same directors as those of CME Group. The Corporate Governance Principles specify that the day-to-day operations of the company will be run by the Chairman and CEO.

Within CME, senior management are delegated their powers from, and are overseen by, the CEO. The Clearing President is responsible for the day-to-day operations of CME Clearing Division and oversees the operating departments. Other key senior management positions include: CRO; CCO; Managing Director (Clearing Operations and Systems); Managing Director (Clearing Solutions); and Managing Director (Financial and Regulatory Surveillance Department). If necessary, members of senior management can be removed, with or without cause, by a majority vote of the Board.

Members of the senior leadership team (i.e. individuals at the level of Senior Managing Director within CME Group) are recruited for their particular position based upon their skills and expertise. Certain members of the senior leadership team have also been designated by the Board as CME Group's executive officers. Their individual goals and performance are assessed annually by their direct manager as part of the performance management process.

Compensation arrangements

The Board undertakes an annual evaluation of the performance of the Chairman against a set of established goals. The Executive Committee similarly reviews the performance of the CEO and reports its findings to the Board. The Board approves annual strategic/performance goals for the Chairman and CEO. Additionally, the Compensation Committee sets certain performance goals for annual bonus awards and equity performance awards.

The Board has approved the employment contracts for the Chairman and the CEO including their compensation arrangements. Actual compensation determinations are made by the Compensation Committee. Members of the Compensation Committee must meet CME Group's Independence Standards. The Compensation Committee also reviews and approves all compensation arrangements for the executive officers and sets company-wide policies for all employees.

CME Group's compensation arrangements are designed to offer appropriate incentives for creating long-term shareholder value and delivering on financial and strategic goals while discouraging excessive risk-taking. The following are the key elements designed to address compensation risk:

- A mix of fixed and variable compensation arrangements.
- A portion of senior management compensation is composed of long-term equity incentives. Members of the senior leadership team are subject to company stock ownership guidelines based on their level of responsibility.
- Employees at the Managing Director level and above receive a portion of their equity compensation in performance shares to encourage the achievement of long-term performance thresholds.

- The annual cash bonus plan for senior employees and senior management is not paid out in the event that CME Group fails to achieve cash earnings at or above the threshold level of performance.
- CME Group sets maximum guidelines for annual incentives and long-term incentive awards.
- All compensation of senior management is subject to the approval of the Compensation Committee and/or the CEO, which includes the ability to decrease an award for failure to perform or inappropriate risk-taking.
- The compensation arrangements and performance evaluation of staff in certain regulatory and compliance positions are reviewed by the applicable Board-level committee. Staff in these regulatory and compliance positions are subject to the same pay arrangements as staff in other departments.

2.6 The board should establish a clear, documented risk management framework that includes the central counterparty's risk tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision-making in crises and emergencies. Governance arrangements should ensure that the risk management and internal control functions have sufficient authority, independence, resources and access to the board, including through the maintenance of a separate and independent internal audit function.

CME's risk management framework consists of a high-level Risk Management Framework document, which: identifies the range of risks CME faces in its CCP operations; documents the policies and procedures implemented to address each risk; and assigns responsibility for monitoring and managing those risks. This framework has been approved by the Board and is subject to annual review by senior management; significant changes are provided to the CHRC and Board for review.

Risk Committees

A key part of CME's risk governance is collectively the three Risk Committees, which are delegated committees established by CME. The Risk Committees include Board members and have reporting obligations to the Board. Each Risk Committee is responsible for overseeing one of three product categories into which CME groups its products. The Risk Committees are: the CHRC for Base products; the Interest Rate Swaps Risk Committee (IRSRC) for OTC IRS; and the Credit Default Swaps Risk Committee (CDSRC) for OTC CDS. The Risk Committees operate distinctly, although they may share common members; as such, there are no reporting lines between the Risk Committees.

The Risk Committees review and approve changes to risk policies, subject to Board review. The Risk Committees are responsible for overseeing risks relating to CME's clearing operations as set forth in their respective charters. These Committees are aided in their obligation through reports from the Clearing President and CRO. The Risk Committees meet at least quarterly, or more frequently as necessary. The Board is informed of significant issues relating to clearing risk through regular reports of the chairs of the Risk Committees as well as information provided by the Clearing President as necessary and appropriate.

The CHRC is co-chaired by two directors from the Board, chosen by the Chairman. The CHRC is composed of at least seven members, at least five of which must be representatives of clearing participants. In addition, the CHRC must have a member who is not affiliated with CME or any participant.

The CHRC is responsible for:

- guiding the general direction of CME Clearing Division
- reviewing and approving clearing participation applications for Base products
- monitoring the financial safeguards maintained by CME, in particular the Base Guaranty Fund
- monitoring the financial condition of clearing participants and recommending action where necessary
- reviewing, approving and recommending to the Board changes for Base products relating to operating rules, margin policies, Base Guaranty Fund contributions and accepted collateral
- overseeing the liquidation of a defaulting participant's Base product portfolio.

The IRSRC is tasked with providing guidance and oversight on issues relevant to IRS products. The IRSRC is composed of between 8 and 16 members, with between two and nine clearing participant representatives. These representatives are drawn from both large and small IRS clearing participants. At least two of the IRSRC members must be independent, and the chair must be a director from the Board, nominated by the Chairman.

The IRSRC is responsible for:

- reviewing and approving IRS participation applications
- monitoring the financial safeguards maintained by CME for IRS products, in particular the IRS Guaranty Fund
- monitoring the financial condition of IRS clearing participants, and recommending action where necessary
- reviewing, approving and recommending to the Board changes to operating rules affecting IRS products, IRS margin policies, the IRS Guaranty Fund and collateral accepted for IRS products
- overseeing the IRS Default Committee and, during a default, overseeing the Active Default Management Committee (Active DMC) liquidation of a defaulting IRS participant's IRS portfolio (see CCP Standard 12.1).

The CDSRC has identical responsibilities and powers with respect to CDS products that the IRSRC has for IRS products. The CDSRC is composed of between 11 and 16 members, of which between five and nine members must be representatives of CDS clearing participants. At least two CDSRC members must be independent members. The CDSRC is chaired by a director of the Board, nominated by the Chairman. This assessment does not cover CDS products, as CME is not applying for a CS facility licence for these products.

Risk Management Framework

The Board has a role in overseeing the management of risks, focusing on the top tier risks facing CME. CME Group has established an ERM program to promote and facilitate sound risk management practices.

The ERM program is led by CME's Global CCO who reports to the Senior Managing Director (General Counsel and Corporate Secretary). The Audit Committee is the primary committee with responsibility for overseeing the ERM program, with CME's other Board- and functional-level committees, including the Risk Committees, overseeing specific risks that relate to their core responsibilities. ERM and top tier risks is a regular Audit Committee agenda item, whereas broad risk topics and specific risks are discussed at the Board and other committees, as relevant.

In the context of the ERM program, enterprise risks, including risks relating to the operation of the CCP, are identified, assessed, measured, prioritised and updated regularly by management through the cross-functional Risk Management team. This team is made up of senior managers representing each Department and led by the Global CCO. The Audit Committee and the Board receive regular quarterly reports on significant enterprise risks. Additional reviews or reporting on enterprise risks are conducted as needed, or as requested by the Board or one of its committees.

The Risk Management Framework is part of CME's overall ERM program and is designed to address the top tier risks relating to its CCP operations. The Risk Management Department performs a number of functions under the Risk Management Framework, including ensuring CME's financial safeguards are adequate, monitoring and assessing liquidity risks, and monitoring CME's banking arrangements (see CCP Standard 2.3).

If the financial or operational condition of a participant threatens CME's viability, or may impact financial markets, the Risk Management Framework provides for the Clearing President to assemble a group of senior management and the chairs of the relevant Risk Committees to exercise emergency powers. These powers are designed to limit the risk a participant poses to CME and include measures such as position limitation, suspension of the participant and imposition of higher initial margin requirements.

Business Continuity Management

CME's Business Continuity Management plan outlines the various roles and responsibilities during a crisis. The IT Disaster Recovery portion of the plan and business units' (representatives from each Department and office location) ability to access Disaster Recovery systems are tested at least twice annually. Business units are encouraged, but not required, to participate. CME also tests the plan with a range of stakeholders – including clearing participants, partner exchanges and other CCPs – during annual, industry-wide business continuity testing run by the Futures Industry Association. Other aspects of the plan are tested multiple times each year, including via company-wide exercises. CME has its Business Continuity Management plan assessed by independent consultants to ensure it is sufficient (see CCP Standard 16.7).

Ongoing monitoring

Ongoing monitoring of Risk Management Department's policies and procedures are conducted by the Global Assurance Group, which, in turn, is overseen by the Audit Committee. The Global Assurance Group is a department within the Legal and Regulatory Division, which is separate from the operational departments of CME Clearing Division.

In addition, compliance personnel in several Group-level and CME Clearing Division-level Departments ensure compliance with, and the effectiveness of, the Risk Management Framework as part of CME's DCO regulatory responsibilities. The Market Regulation Oversight Committee provides independent oversight of the policies and programs of CME's regulatory functions relating to its operations of DCMs, DCO and its compliance officers. The CCO also reports directly to the Clearing President and, indirectly, to the CME Group CCO.

2.7 A central counterparty's operations, risk management processes, internal control mechanisms and accounts should be subject to internal audit and, where appropriate, periodic external independent expert review. Internal audits should be performed, at a minimum, on an annual basis. The outcome of internal audits and external reviews should be notified to the Reserve Bank and other relevant authorities.

Internal audits are conducted by CME's Global Assurance Group. The Global Assurance Group operates at an organisational level, and is functionally separate from operational areas. To ensure independence, the Managing Director (Global Assurance Group) reports directly to the Audit Committee of the Board; this Committee is composed solely of independent directors. The remit of the Audit Committee is set out in its charter and covers: receiving reports from the Global Assurance Group; overseeing and reviewing the Global Assurance Group's charter, planned audits, staffing and organisation; appointing CME Group's independent auditors; and reviewing CME's risk management policies, governance and outcomes. The Audit Committee meets at least quarterly, or as frequently as necessary.

Internal audits are conducted according to the annual audit plan. This plan specifies the objectives of each audit, the manager in charge of each audit and the timeline in which the audit will be completed. These audits include a number of yearly audits of risk management and control processes, as well as less frequent audits of specific areas. This plan is reviewed and approved annually by the Audit Committee.

In addition to internal audits, as a DCO, CME conducts an annual assessment of compliance with relevant regulations. This assessment is wideranging and examines compliance with: CFTC regulations, including the DCO Core Principles; SEC regulations; Federal Reserve Board regulations; and the Principles.

CME obtains external, independent reviews as necessary to supplement its internal audit process. The Global Assurance Group is also subject to independent review of its processes by the Institute of Internal Audit. This review occurs every five years; the last review was in 2011.

As a publicly listed company, CME Group's annual 10-K financial report is externally audited.

2.8 Governance arrangements should ensure that the central counterparty's design, rules, overall strategy and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Governance arrangements should provide for consultation and stakeholder engagement through appropriate forums on operational arrangements, risk controls and default management rules and procedures. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

As per CME Group's bylaws, the Nominating Committee, in making its recommendations for Board members, is required to take into consideration applicable composition requirements (see CCP Standard 2.4). The Board and the CHRC each include participation from market participants, for example by the election of directors via Class B shareholders.

In addition to representation on the Risk Committees, all IRS and CDS direct clearing participants have two representatives on the Default Management Committees (DMCs) for the product categories (IRS and CDS) they clear; CME has not created a separate DMC for Base products. The DMCs provide advice to CME on actual or potential defaults and, during a participant default, a subset of the committee is responsible for liquidating the defaulting clearing participant's portfolio (see CCP Standard 12.1).

To provide for further stakeholder engagement, representatives from CME Clearing Division meet biweekly with industry participants through its OTC Clearing Firm Operations Forum to discuss developments and receive feedback. These forums are used to discuss operational details with participants, including the introduction of new products and services, and changes due to regulatory

requirements. CME Clearing Division also holds separate meetings with key end clients that are interested in specific items.

CME Group is a publicly listed company and is subject to disclosure requirements, including quarterly filings (10-Q) and annual reports (10-K).

CME publishes all rule changes, product updates and operational changes via advisory notices to participants, available on the CME Group website. CME Clearing Division also provides a weekly notice, detailing changes to products, system changes and upcoming events.

2.9 A central counterparty that is part of a group of companies should ensure that measures are in place such that decisions taken in accordance with its obligations as a central counterparty cannot be compromised by the group structure or by board members also being members of the board of other entities in the same group. In particular, such a central counterparty should consider specific procedures for preventing and managing conflicts of interest, including with respect to intragroup outsourcing arrangements.

CME is a wholly owned subsidiary of CME Group, with the two corporations having identical executive management and Board composition. To address potential conflicts of interest, CME and CME Group have adopted a Conflict of Interest Policy, an Employee Code of Conduct and a Board of Directors Code of Ethics.

As discussed in CCP Standard 1, CME's exchange and clearing functions are part of the same legal entity. CME has separated its DCM and DCO operations into two functional areas and established a separate management position to manage CME's CCP responsibilities. CME has adopted policies and procedures to address conflicts of interest arising between the two functional areas, and regularly assesses these policies in compliance with relevant regulations. If potential conflicts of interest are identified involving members of the CHRC, those members may be excused from the discussion and determination of the particular matter.

In addition, the organisational structure of CME and its oversight by the CHRC, IRSRC and CDSRC is designed, in part, to mitigate potential conflicts between CME's operations. This is sought to be achieved by ensuring that decisions made by clearing staff that could impact the risk profile of the CCP are reviewed by risk experts with incentives to ensure the safety of CME Clearing Division.

CME ensures that no critical resources are provided to CME by other entities in the CME corporate group. However, CME provides certain technological and operational support to CME Clearing Europe (see CCP Standard 16.9).

Standard 3: Framework for the comprehensive management of risks

A central counterparty should have a sound risk management framework for comprehensively managing legal, credit, liquidity, operational and other risks.

3.1 A central counterparty should have risk management policies, procedures and systems that enable it to identify, measure, monitor and manage the range of risks that arise in or are borne by the central counterparty. This risk management framework should be subject to periodic review.

Identification of risk

To promote sound risk management practices in achieving its organisational objectives, CME Group has established an ERM program (see CCP Standard 2.6). As part of the ERM program, CME has

established a Risk Management Framework which provides a high-level framework to identify and manage risks specific to CME's CCP operations. The Risk Management Framework identifies the key risks that CME faces and sets out broad principles, policies and responsibilities for mitigating these risks (see below).

Risk policies, procedures and controls

The Risk Management Framework is comprised of a number of specific policies and procedures that seek to address the risks CME faces as a CCP. The Risk Management Framework identifies the following areas of risk and sets out specific policies to address each risk:

- *Credit and counterparty risk.* CME has established a Credit Risk Policy, encompassing a number of risk management tools including: monitoring of participants through regular risk-based surveillance; establishing internal credit ratings for participants; and counterparty limits. See CCP Standard 4.
- *Market risk.* To protect itself from adverse market movements during a clearing participant default, CME collects initial margin and calculates variation margin on a daily basis via a mark-to-market process. See CCP Standard 6.
- *Liquidity risk.* CME identifies, monitors and manages liquidity risks in accordance with its Liquidity Risk Framework. See CCP Standard 7.
- *Concentration risk.* CME may call for additional initial margin from clearing participants, or their customers, who have highly concentrated or directional portfolios. See CCP Standard 4.2.
- *Model risk.* CME expects to undertake full external reviews of its key risk models (i.e. stress-testing, haircut and margin) during the second half of 2014. See CCP Standards 4.5, 5.3 and 6.7.
- *Default risk.* CME has set out rules and procedures to address the default of a clearing participant. See CCP Standard 12.
- *Operational risk.* CME has established a Clearing House Operational Risk Management Framework (ORMF) which seeks to identify, measure and mitigate the operational risks CME faces. See CCP Standard 16.

In addition, CME has established policies and procedures that address, for example: legal risks (see CCP Standard 1); risks arising from governance arrangements (see CCP Standard 2); risks around accepting certain forms of collateral (see CCP Standard 5); and custody and investment risk (see CCP Standard 15).

A number of committees and bodies are responsible for overseeing CME's risk management processes, including the: Board; Risk Management Department; Audit Committee; CHRC; and IRSRC. For more detail on the responsibilities of these bodies, see CCP Standard 2.

Key risk management and information systems

CME utilises a number of information and control systems to provide information in respect of its risk policies, procedures and controls. This includes receiving information on risk exposures to clearing participants and their customers, and the aggregation of risk exposures across the CCP.

Key risk management systems include:

- *Margining.* CME uses CME SPAN to calculate initial margin requirements for Base products, and a Historical Value at Risk (HVaR) model for IRS (see CCP Standard 6).
- *Stress testing.* CME carries out daily stress testing to determine the adequacy of CME's financial resources and to monitor the risks associated with clearing participants' positions (see CCP Standard 4).

CME conducts daily monitoring of clearing participant exposures – 24 hours a day, six days a week – including real-time positions and prices produced by its information management systems to identify changes in positions that may require investigation and/or action. These reports include, but are not limited to, large trader reports, which identify customers of clearing participants with large and highly concentrated holdings, and daily position reports (see CCP Standards 4 and 18.2, respectively).

CME's systems provide information to clearing participants about positions and margin requirements to assist participants' management of credit and liquidity risks. CME publishes detailed margining information on its website, including descriptions of margining methodologies, schedules of margin rates and daily CME SPAN margin parameter files. This information allows participants to calculate margin requirements for hypothetical or actual portfolios in futures Base products. CME also provides margin estimation software, called PC-SPAN, to participants to help with these calculations. For IRS and OTC FX Base products, CME has developed an online, interactive margin calculator, called CME CORE, which allows clearing participants and their customers to estimate initial margin requirements for hypothetical or actual portfolios.

Internal controls and review

The CRO is responsible for implementing the Risk Management Framework. Any significant changes to the Risk Management Framework, or to policies under the Framework, must be approved by the Clearing President. Material changes are also brought to the attention of the relevant Risk Committee and the Board. Minor changes to policies under the Risk Management Framework are overseen by senior management of CME.

The Global Assurance Group conducts risk-based audits of components of the Risk Management Framework on a periodic basis; each component that the Global Assurance Group is tasked to review is reviewed at least once every four years. Beginning in 2014, the Global Assurance Group expects to review the processes established by CME for performing model validation on an annual basis. The audits provide assurance that the Risk Management Framework is being implemented correctly. Where appropriate, CME complements the work of the Global Assurance Group by auditing components of the Risk Management Framework externally.

The CHRC and the Board review the Risk Management Framework on an annual basis. The CCO also reviews the Risk Management Framework as a part of its annual DCO compliance assessment against the DCO Core Principles, and conducts a self-assessment against the Principles.

For more detail on these internal controls and governance arrangements, see CCP Standard 2.

3.2 A central counterparty should ensure that financial and other obligations imposed on participants under its risk management framework are proportional to the scale and nature of individual participants' activities.

Clearing participants' financial obligations to CME include: initial margin against their positions (see CCP Standard 6); contributions to the Guaranty Funds (see CCP Standard 4); daily variation margin payments (see CCP Standard 6.4); and minimum capital requirements (see CCP Standard 17).

Initial margin is set to cover CME's risk exposure, with at least 99 per cent confidence. The methods used to calculate CME's exposure to its participants take into account the size, volatility and correlations of each participant's portfolio in each of the three separate product classes (Base products, IRS and CDS). This framework aims to ensure a participant's obligations for initial margin are proportional to the size, scope and magnitude of the participant's activities and risk profile. See CCP Standard 6 for details on how CME calculates initial margin.

For each of the Guaranty Funds, a participant's contribution is proportional to its relative size and activity. For the Base Guaranty Fund, participant contributions are computed as the greater of US\$500 000, or the results of a weighted average of the participant's relative size and activity over the previous three months. Contributions to the IRS Guaranty Fund are calculated as the greater of US\$50 million, or the results of a weighted average of the participant's risk and open interest over a 30-day period.

During a participant default, allocation of losses and any obligations to bid at auction for a defaulting participant's portfolio is proportional to the scale and nature of its activities. CME has established a separate default waterfall for each major asset class – Base products, IRS and CDS – and each waterfall is isolated from the others, ensuring that clearing participants are only liable for losses associated with a default within the asset classes in which they participate (see CCP Standard 4.3). Within a Guaranty Fund, losses would be allocated on a pro rata basis (see CCP Standard 12.1 for details on the respective default waterfalls).

CME imposes minimum capital requirements on clearing participants, which are determined by the classification of the participant (i.e. non-bank or bank) and the product categories the participant clears (see Standard 17.1). If CFTC or SEC capital requirements for a clearing participant exceed CME's requirements, CME hold the clearing participant to the higher requirement.

Clearing participants are required to have the operational capability to engage in clearing transactions (see CCP Standard 17). In addition to general requirements, participants clearing IRS are subject to specific risk and operational requirements. Participants that clear for customers must be able to track, and provide to CME, all of the clearing participant's customers' positions.

3.3 A central counterparty should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the central counterparty.

Because initial margin and Guaranty Fund requirements are designed to be proportional to the risks clearing participants pose to CME, participants have financial incentives to manage and contain the risks of their portfolios. CME's framework for managing concentration risk (i.e. concentration margin) provides additional incentives for clearing participants to contain such risks (see CCP Standard 6.3).

Loss-sharing arrangements have been established by CME to reflect participant risk profiles, by assigning losses proportionate to Guaranty Fund contributions (see CCP Standard 12).

Participants clearing on behalf of customers can set limits, monitored by CME, on their customers' positions. CME notifies clearing participants in real time if limits are exceeded, and allows clearing participants to block or cancel limit-exceeding trades.

3.4 A central counterparty should regularly review the material risks it bears from and poses to other entities (such as other FMIs, money settlement agents, liquidity providers and service providers) as a result of interdependencies, and develop appropriate risk management tools to address these risks.

The Risk Management Framework provides a high-level framework to manage risks resulting from interdependencies with other entities. These risks are measured, monitored and managed in accordance with the specific policies CME has established for each type of risk, including: payment and settlement intermediaries (see CCP Standard 9); custodians (see CCP Standard 15); utilities and essential service providers (see CCP Standard 16); and other Financial Market Infrastructures (FMIs; see CCP Standards 16.5 and 19).

CME provides clearing services to two other FMIs: Eris Exchange (Eris) and the Dubai Mercantile Exchange (DME). Both Eris and DME depend on CME to provide clearing operations in order to process trades. CME monitors, margins and manages clearing participants from each of these partner exchanges as if they originated from a CME Group-owned exchange. This ensures risk management techniques are consistent across all clearing participants. CME also conducts business continuity tests with its partner exchanges (see CCP Standard 12.4). The contractual agreements between CME and each exchange set minimum service levels and standards that CME must fulfil (see CCP Standards 16.5 and 19).

CME also provides certain technological and operational support to CME Clearing Europe including: Clearing Operations; Risk Management; and Disaster Recovery and Business Continuity (see CCP Standard 16.9).

3.5 A central counterparty should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. A central counterparty should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, a central counterparty should also provide relevant authorities with the information needed for purposes of resolution planning.

CME has addressed crisis scenarios in which it may be prevented from providing critical operations in its Business Continuity Plan. This plan includes contingency arrangements and other mitigating steps that CME would take. See CCP Standard 16.

CME is currently in the process of developing a Recovery and Wind-down Plan (RWP) which will address CME's recovery and orderly wind-down procedures. CME has finalised its RWP but has been granted an extension from the CFTC until December 2014 in order to ensure its RWP complies with CPSS-IOSCO guidelines on recovery plans; these CPSS-IOSCO guidelines are expected to be finalised by September or October 2014. The Bank will expect to conduct a review of these plans once this work has been completed.

Standard 4: Credit risk

A central counterparty should effectively measure, monitor and manage its credit exposures to participants and those arising from its clearing processes. A central counterparty should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence.

4.1 A central counterparty should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its clearing processes. Credit exposures may arise from current exposures, potential future exposures, or both.

CME maintains a framework for managing credit exposures to its clearing participants, including a stress-testing regime (see CCP Standards 4.5 to 4.7), the use of variation margin to mark positions to market (see CCP Standard 6) and the maintenance of financial resources. These financial resources comprise initial margin and fully paid-up pooled financial contributions sufficient to cover obligations arising in the event of the default of the two largest participants in stressed market conditions (see CCP Standard 4.4).

CME's framework for managing credit exposures is set out in its Credit Risk Policy and Risk Management Framework (see CCP Standard 3).

- The Credit Risk Policy outlines CME's approach to measuring, monitoring and managing credit risk exposure to its clearing participants and counterparties (see CCP Standard 4.2). The Credit Risk Policy is reviewed on an annual basis by the Credit Risk Management team, with any recommendations arising made to the Managing Director (Risk Management). Outside of this annual review, policy reviews and updates can be brought to the Credit Committee¹⁰ – which is responsible for overseeing credit policy – on either an ad hoc basis or at scheduled quarterly meetings.
- The Risk Management Framework outlines CME's approach to managing risks, including counterparty credit risk. The Framework covers CME's policies in determining and managing this risk, using a number of quantitative and qualitative measures, and also the execution of risk management tasks. The Risk Management Framework is reviewed annually by the CHRC and the Board, or more frequently to reflect significant changes in policy.

4.2 A central counterparty should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks. To assist in this process, a central counterparty should ensure it has the capacity to calculate exposures to participants on a timely basis as required, and to receive and review timely and accurate information on participants' credit standing.

Sources of credit risk

CME's Credit Risk Policy outlines its methodology for measuring, monitoring and managing its credit risk exposure. In particular, the Credit Risk Policy addresses the credit risk exposure that CME faces from its counterparties, that is clearing participants (through the potential non-performance in satisfying clearing obligations), and from custodial and settlement banks (through potential non-performance in providing depository arrangements).

The following paragraphs (of CCP Standard 4.2) describe how CME monitors and measures the credit risk exposures it faces from its counterparties generally – that is, clearing participants, and custodial and settlement banks. The remainder of CCP Standard 4 will then focus on how CME manages credit risk exposures specifically arising from clearing participants. Additional measures CME takes to address credit risk exposure posed by settlement banks and custodians is addressed under CCP Standard 9 and CCP Standard 15, respectively.

Measurement and management of credit exposures

The Credit Risk Policy reflects CME's assessment of the credit profile of its clearing participants and other counterparties. The Credit Committee is responsible for overseeing credit policy, as well as the

¹⁰ The current Credit Committee members include: the CME Clearing President and CRO; senior and executive staff from the Risk Management, Financial and Regulatory Surveillance, Collateral Services, Credit Risk Management, Market Risk Management and Financial Unit departments; and senior and executive staff from CME Clearing Europe (CMECE).

assessment of the credit profile of CME's clearing participants and counterparties. A primary function of the Credit Committee is to review and affirm CME's internal risk ratings (IRRs; see below) of its counterparties. Ratings are affirmed upon release of updated financial information concerning the counterparty, but can be reviewed more frequently as necessary. Ratings are approved by the Credit Committee.

The day-to-day implementation of the Credit Risk Policy, including monitoring of the credit ratings of clearing participants and counterparties, is delegated to the Risk Management Department. Within Risk Management Department, the Credit Risk Management team monitors any ongoing significant changes in the financial condition and market metrics of CME's counterparties, and is responsible for maintenance of the Watch List and Weak List (see below). The Credit Risk Management team also performs a credit review of each counterparty on at least an annual basis; the results are reported to the Credit Committee. The Market Risk team monitors participants' trading activity, and settlement of variation and initial margin calls/releases on a daily basis.

The Financial and Regulatory Surveillance Department monitors participants' compliance with financial participation requirements. This includes daily monitoring of customer segregated balances and account balance confirmations (see CCP Standard 17.3).

Risk management tools – Internal Risk Ratings

CME assigns an IRR to each counterparty based on a review of quantitative and qualitative data covering a range of areas, including but not limited to financial performance. Material used for the reviews include public and non-public financial reports, regulatory returns and results of on-site risk management due diligence visits. Counterparties are assigned an IRR from 1 to 10, with 1 indicating a strong financial profile and insignificant level of risk, and 10 indicating a counterparty in default or liquidation.

The IRR of each counterparty is reviewed at least annually and affirmed as necessary to reflect current market information. Counterparties are also monitored daily to identify any issues that may require a change in the IRR; CME has set triggers to alert senior Risk Management staff of notable movements in a range of indicators of a counterparty's creditworthiness. Credit review schedules are more frequent for counterparties with lower ratings.

CME maintains a Watch List and a Weak List to track the creditworthiness of counterparties that are deemed to pose a heightened risk to the CCP. The Credit Risk Management team is responsible for identifying counterparties for inclusion on the Watch List and Weak List; these lists are reviewed and formally approved by the Credit Committee on at least a quarterly basis. CME may place counterparties on the Watch List for a range of reasons, such as a decline in earnings that could impact the counterparty's ability to meet its financial obligations or public regulatory actions. Counterparties with an IRR indicating a weak financial profile are automatically placed on the Weak List.

Quarterly meetings are held with key representatives from each team in CME Clearing Division to ensure all groups are aware of counterparties on the Watch List and Weak List. Counterparties on the Watch List and/or Weak List are subject to increased monitoring by Risk Management Department, and may be required to post additional financial resources (e.g. margin or Guaranty Fund resources), raise additional capital, or reduce exposures to reduce the credit risk posed to CME (see CCP Standard 4.3).

Risk management tools – margin

CME performs routine margin calculations twice per day for futures products (intraday and end-of-day) and end-of-day only for IRS products. For futures clearing, routine intraday margin calculations include variation margin and initial margin on start-of-day positions and new positions submitted by 11.00 am Chicago time (see CCP Standard 6). When conditions require, CME may conduct additional intraday settlement cycles for futures products, and may also conduct intraday margining for IRS products (see CCP Standard 6.4).¹¹

To ensure that existing margin levels are not eroded before margin in relation to a new position is called, CME requires clearing participants to place credit control limits on all accounts. For IRS clearing participants, clearing limits are established so that large transactions are approved prior to acceptance. In part, these measures are designed to ensure that clearing participants are cognisant of customers putting on new positions prior to the collection of margin.

CME conducts daily concentration stress testing to monitor the effects of ‘extreme but plausible’ scenarios on participants’ portfolios (see CCP Standards 4.5 and 4.6). Where stress-test results exceed predefined limits, additional margin will be called. This ‘concentration margin’ accounts for potential market exposures due to large positions relative to the counterparty’s financial resources available to support those positions, taking into account the differences between the markets and typical position sizes in each major asset class.

For futures products, concentration margins are additional requirements imposed on clearing participants based on positions held, the clearing participant’s excess adjusted net capital and payment history. This may result in a 10 to 50 per cent increase in margin requirements for the impacted product category, depending on the size of the stress-test loss relative to the participant’s excess adjusted net capital or a predefined threshold.

For IRS products, concentration margins are assessed separately for specific currencies and applied based on the initial margin requirement. The level at which the concentration margins are set take into account the potential cost of liquidating positions that are sufficiently large to trigger a liquidity charge. The multipliers and margin ranges are designed to be progressive in nature. There is also a maximum margin amount, beyond which, the liquidity multiplier will remain flat.

Apart from the thresholds outlined above, Risk Management Department does not define any mandatory action in response to stress-test results, such as calling for additional margin. However, CME may take various actions (see CCP Standard 4.7).

4.3 A central counterparty should have the authority to impose activity restrictions or additional credit risk controls on a participant in situations where the central counterparty determines that the participant’s credit standing may be in doubt.

CME uses a Watch List and Weak List to track participants whose credit standing may be in doubt (see CCP Standard 4.2). As specified in its Rulebook,¹² CME may require that participants on these lists post additional financial resources (e.g. margin or Guaranty Fund resources), raise additional capital, or reduce exposures to lower the credit risk posed to CME. As noted in CCP Standard 4.2, the Credit Risk Policy establishes CME’s risk tolerance, criteria for the triggering of exceptions (e.g. significant

¹¹ CME’s Rulebook allows it to call for additional margin whenever, in its opinion: unstable conditions relating to one or more products exist; additional margin is required to maintain an orderly market or to preserve fiscal integrity; or any IRS clearing participant takes on commitments or risks for which CME believes intraday margining is justified.

¹² For example, under Rule 403.C (Emergency Actions) and Rule 824 (Additional Performance Bond).

changes in financial conditions and market metrics that reflect changes in a participant's creditworthiness), and the roles of the Watch and Weak Lists.

The Clearing President has the power to declare an Emergency Financial Situation if a clearing participant breaches a risk control or participation requirement, or if the Clearing President determines that the financial or operational condition of a clearing participant jeopardises CME or financial markets. Depending on whether the participant is an IRS- or Base-product clearing participant (or both), this declaration convenes either: the Emergency Financial Committee, the IRS Emergency Financial Committee, or both. Each committee comprises the Clearing President, the CEO, the Executive Chairman, and the Chairman of the IRSRC or CHRC, as appropriate. The Emergency Financial Committee and IRS Emergency Financial Committee have the power to order: position limitation; suspension; a call for additional initial margin; liquidation of the clearing participant's portfolio; and any other action the Committee determines is necessary.

4.4 A central counterparty should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see CCP Standard 5 on collateral and CCP Standard 6 on margin). In addition, a central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the central counterparty in extreme but plausible market conditions. All other central counterparties should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the central counterparty in extreme but plausible market conditions. In all cases, a central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

CME's risk controls include a range of financial resources to cover its credit exposures and to protect against losses in the event of a clearing participant default. These controls are often referred to as a 'default waterfall'. CME has established a separate waterfall for each major asset class – Base products, IRS and CDS.¹³ Each waterfall is isolated from the others, ensuring that clearing participants are only liable for losses associated with a default within the asset classes in which they participate.

Each waterfall consists of initial margin provided by participants in respect of their outstanding positions; a segregated, pooled default fund (Guaranty Fund) of paid-up contributions from clearing participants; and a number of additional safeguards (both paid-up and promissory).¹⁴ These resources would be used in the following order to cover losses due to a participant default: the defaulting participant's margin (see CCP Standard 6) and Guaranty Fund contributions; CME's Capital Contribution; contributions from non-defaulting participants to the Guaranty Fund; and promissory resources obtained through CME exercising its Assessment Powers. All of these are explained further below, except CME's Assessment Powers, which are discussed in CCP Standard 4.8.

¹³ This assessment does not cover CDS products, as CME is not applying for a CS facility licence to clear these products.

¹⁴ CME refers to these additional safeguards as 'Mutualized Financial Safeguards'.

Guaranty Funds

In the event that the losses from a participant's default exceed that participant's margin and Guaranty Fund contributions, CME will access the next layer of the waterfall – the respective mutualised Guaranty Fund contributions of non-defaulting participants. The size of the Guaranty Fund is based on stress-testing results and comprises contributions from clearing participants. The adequacy of the Fund is assessed on a daily basis, with participant contributions adjusted on at least a quarterly basis for Base products and at least a monthly basis for IRS, or more frequently if there are large changes in required participant contributions.

As at 31 July 2014, the size of the Guaranty Funds were: Base Products (US\$3.578 billion); IRS (US\$2.090 billion); and CDS (US\$0.750 billion).

1. Base Guaranty Fund

The Base Guaranty Fund, which covers futures products, is sized to cover the default of the two participants and their affiliates¹⁵ that would potentially cause the largest credit exposure to CME under a wide range of stress-test scenarios (see CCP Standards 4.5 to 4.7). The Guaranty Fund is sized to cover the greater of either: the 'cover 2' stress exposure on the last day of the calculation period; or the average of the cover 2 stress exposures during the entire calculation period. CME communicates Guaranty Fund requirements to participants as a proportion of average daily aggregate initial margin across all clearing participants. At 31 July 2014, the size of the Guaranty Fund was around 4 per cent of average daily aggregated initial margin.

Stress-test outcomes are compared against the Guaranty Fund size on a daily basis. Any breaches beyond 10 per cent are immediately escalated to the Stress Testing Committee for further investigation and action, including increased margin, possible changes to the size of the Guaranty Fund, or participant-targeted increased Guaranty Fund requirements.

Participant contributions to the Fund are computed as the greater of US\$500 000, or the results of a weighted average of each participant's relative size and activity over the previous three months; that is, a participant's contribution to aggregate initial margin and contribution to risk-weighted activity, weighted at 95 per cent and 5 per cent, respectively.

Participant contributions are routinely adjusted at the start of each quarter, based on average activity over the prior three months.

2. IRS Guaranty Fund

The IRS Guaranty Fund is sized to cover the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to CME under a wide range of stress-test scenarios (see CCP Standards 4.5 to 4.7). The Guaranty Fund is sized to cover the greater of either: the cover 2 stress exposure on the last day of the calculation period; or the average of the cover 2 stress exposures during the entire calculation period. CME calculates these credit exposures by measuring the shortfall between the stress-test result and collateral on deposit for each clearing participant. For clearing participants that clear for customers, the shortfalls are computed as the worse of: the shortfall of the house accounts; or the shortfall of the house accounts plus the largest customer accounts (currently two but monitored on an ongoing basis).¹⁶ Positions of affiliates are generally cleared through the direct clearing participant's house account and therefore captured in

¹⁵ As outlined in Rule 106.I (Affiliate Member Firm), an affiliate is defined as a clearing participant that is either controlled by another clearing participant or is under common control with another clearing participant.

¹⁶ Hypothetical gains on customer accounts cannot be used to offset the losses in the house account.

stress testing of that account. However, where a clearing participant's affiliates positions are not captured in the house account (e.g. if an affiliate of a direct clearing participant is also a direct clearing participant of CME), CME calculates the aggregate of the shortfall across all relevant affiliates.

Clearing participant contributions to the Guaranty Fund are calculated as the greater of US\$50 million,¹⁷ or the results of a weighted average of each participant's risk and open interest over a 30-day period; that is, a participant's share of potential portfolio loss under stress testing and their gross notional, weighted at 90 per cent and 10 per cent, respectively.

Contributions are adjusted monthly, based on an average of daily data for the previous 30 days. CME may adjust contributions to the Guaranty Fund more frequently if the risk profile of the top two largest net debtors changes by more than 10 per cent from the calculation for the prior period. CME may request an additional deposit to the Fund from a participant if changes to the business of the participant require an increase in its contribution of 10 per cent or greater.

CME Capital Contribution

The CME Capital Contribution is an amount pledged by CME to absorb losses beyond the contributions of the defaulting clearing participant. The specific amounts depend on the asset class, but are generally set at least at the average size of clearing participants' calculated contributions. As at 31 July 2014, the CME Contributions were: Base Products (US\$100 million); IRS (US\$150 million); and CDS (US\$50 million).

The adequacy of the CME Capital Contribution is reviewed in conjunction with the daily analysis of the overall financial safeguards package and the monthly Senior Management review.

4.5 A central counterparty should, through rigorous stress testing, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a central counterparty should perform a comprehensive and thorough analysis of stress-testing scenarios, models and underlying parameters and assumptions used to ensure they are appropriate for determining the central counterparty's required level of default protection in light of current and evolving market conditions. A central counterparty should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a central counterparty's participants increases significantly. A full validation of a central counterparty's risk management model should be performed at least annually.

CME conducts daily stress testing to monitor risk exposures to individual participants and to test the adequacy of its financial resources. Stress tests are performed on all clearing participants and available client portfolios. Daily stress tests are evaluated against each clearing participants': current contributions to the Guaranty Fund; individual maximum assessment powers (see below); margin held; adjusted net capital; CME IRR; other capital; and other items. The Market Risk team also assesses the stress-testing values in comparison to historical trends based on: stresses across all asset classes; Guaranty Fund size and characteristics; and across different time periods.

CME employs a number of separate stress-testing models to assess potential clearing participant exposures across markets.

¹⁷ However, for clearing participants that are classified as 'affiliated' (i.e. a clearing participant that has an affiliate that is also an IRS clearing participant), the amount is US\$25 million for each affiliated participant.

Stress-testing models

CME uses 'Largest Net Debtor' (LND) stress testing as the basis for assessing the adequacy of the size of its Guaranty Funds in each asset class. This testing is conducted daily, incorporating a combination of hypothetical scenarios and the largest historical moves in each market.

For exchange-traded products, including futures, each market and account class based on origin is stressed up and down individually using extreme but plausible market fluctuations based on historical data for individual products as well as hypothetical stresses. The largest stressed loss in each market/origin is added together to arrive at the largest hypothetical loss for each clearing participant account.

For OTC IRS products, the LND is calculated using extreme but plausible stress-test scenarios for each participant's house account, and for the combined house and customer accounts. The larger of these two potential shortfalls is used as the basis for the sizing of the Guaranty Fund.

Hypothetical gains in the house account or collateral in excess of hypothetical losses in the house account are used to offset losses in the customer account. However, hypothetical gains in the customer account cannot be used to offset losses in the house account.

In addition, CME conducts account level stress testing of large trader accounts, clearing participant level stress testing, and concentration margin stress testing. Ad hoc stress testing can be conducted by Risk Management Department staff whenever this is warranted. The analysis can include both quantitative and qualitative techniques to support and complement the models used by CME on a daily basis.

Governance and validation

The stress-testing framework and policy that CME has in place is reviewed by the Board as part of the Risk Management Framework. For both futures and IRS, stress-testing results and recommended changes to the stress-testing program are formally reviewed every month by the Stress Testing Committee (comprised of representatives from Market Risk and Credit Risk Management, Risk Research and Risk Policy). In addition, representatives from Market Risk, Risk Research and Senior Management meet on at least on a quarterly basis to review stress-test parameters, underlying assumptions, and any proposed changes to policy. Risk Management Department staff may present stress-test results on a more frequent basis if these results diverge significantly, or if warranted by market conditions.

Also, any parameters that display new, more extreme moves will be reviewed and updated by the Risk Management Department. The new parameters are subject to approval by Senior Management.

CME plans to commission a full external validation of its stress-testing models, parameters and assumptions in the second half of 2014. The Bank expects to engage with CME on the results of its model validation and testing.

4.6 In conducting stress testing, a central counterparty should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

Base products

For futures, CME employs a number of stress-testing scenarios to capture the market shocks experienced during previous periods of economic distress and reflect a set of extreme but plausible market events, using both historical and hypothetical scenarios. Historical scenarios include historical dates with extreme changes. Hypothetical scenarios include a number of events based on previous financial shocks; these include, for example, an Oil Supply Crisis and Inflationary Expectations.

An expected shortfall approach of 99.9 per cent is used for each product set, with data going back to the 1980s, or whenever available. The hypothetical scenarios assume that the different expected shortfall amounts for each product occur on the same date.

CME reviews its stress-testing scenario parameters monthly and may adjust them as necessary to ensure that the risks it faces are adequately captured (see CCP Standard 4.5).

IRS

For IRS products, stress-test scenarios employ a combination of historical and hypothetical moves. Historical scenarios are established using a variety of measurements across different historical time periods and include, for example, tenor specific, tilt and curvature Scenarios. Hypothetical scenarios have been defined by CME for stress testing and include principal components analysis and additional event-based scenarios.

CME targets coverage of 99.9 per cent for almost all portfolios. Both historical and hypothetical parameters and scenarios are reviewed on a monthly basis, and adjusted as necessary (see CCP Standard 4.5).

4.7 A central counterparty should have clearly documented and effective rules and procedures to report stress-test information to appropriate decision-makers and ensure that additional financial resources are obtained on a timely basis in the event that projected stress-test losses exceed available financial resources. Where projected stress-test losses of a single or only a few participants exceed available financial resources, it may be appropriate to increase non-pooled financial resources; otherwise, where projected stress-test losses are frequent and consistently widely dispersed across participants, clear processes should be in place to augment pooled financial resources.

All stress tests defined in the CME Stress Testing Policy and Procedures, unless otherwise noted, are generated and reviewed daily. Results from the stress tests are reviewed by the Market Risk team. The team identifies any changes in clearing participant potential exposures across all products, historical trends, and adequacy of resources to determine whether additional investigation or action is warranted. Changes in a clearing participant's behaviour or risk profile that are identified by the Market Risk team as warranting additional investigation are reported to Senior Risk Management for further consideration.

CME Risk Management Department does not define any mandatory action in response to stress-test results, but does maintain the right to request additional customer or clearing participant information, increase margin requirements, increase capital requirements, or to require that a clearing participant reduce or transfer its positions. Any proposed actions would be approved by CME Senior Management. The appropriate Risk Committee would be informed of any actions undertaken at its next meeting.

CME's prefunded pooled financial resources are sized according to stress-test results, with the relevant Fund size being adjusted on at least a quarterly basis, or more frequently if conditions warrant (see CCP Standard 4.4).

4.8 A central counterparty should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the central counterparty. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds a central counterparty may borrow from liquidity providers. These rules and procedures should also indicate the central counterparty's process to replenish any financial resources that the central counterparty may employ during a stress event, so that the central counterparty can continue to operate in a safe and sound manner.

As discussed in CCP Standard 3.5, CME is currently in the process of developing a RWP, which will address how CME intends to fully cover any credit losses and replenishment plans. CME expects the RWP to be finalised by the end of 2014.

More broadly, CME has established rules around the default of clearing participants for each major asset class.¹⁸ As outlined in CCP Standard 4.4, which covers pre-funded resources, a default waterfall has been established for each major asset class that consists of margin provided by participants in respect of their outstanding positions; a segregated, pooled Guaranty Fund of paid-up contributions; and a number of additional safeguards, which include the CME Capital Contribution and CME Assessment powers.

In the event that the Guaranty Fund is drawn on to pay towards losses caused by a clearing participant default, each non-defaulting clearing participant is required to replenish its Guaranty Fund contributions by close of business, the business day following the payment.¹⁹

CME Assessment Powers

In the event that the margin and Guaranty Fund contributions of the defaulting participant, the contributions of non-defaulting participants to the Guaranty Fund, and the CME Capital Contribution have been exhausted, CME can call for further funding from non-defaulting participants by utilising its Assessment Powers. These Assessment Powers can be utilised to allocate losses among non-defaulting participants, and to replenish the respective Guaranty Fund. Assessment totals for each clearing participant are calculated by CME and reported to individual participants with the same schedule and frequency as the Guaranty Fund requirements. Assessments are calculated individually for Base and OTC (IRS and CDS) products.

1. Base products

In the event that a single participant defaults, the total Assessment amount for participants in the Base products waterfall structure is sized at 275 per cent of the Base Guaranty Fund for exchange-traded products. This total is allocated between the surviving participants in the same manner as the Guaranty Fund; as a proportion of the participant's margin and volume. Should multiple participants default within a five-day period, the size of the Assessment would be raised to 550 per cent; this is the maximum amount that participants would be called.

¹⁸ Rule 802 for Base products, and Rule 8G802 for IRS products.

¹⁹ This is described in Rule 802.F (Guaranty Fund Contributions to be Restored).

The size of the Assessment amounts outlined above are set to cover the amount necessary to replenish the Guaranty Fund once exhausted and potential additional clearing participant defaults beyond the two largest.

2. IRS

For IRS products, Assessment Powers are sized to cover potential losses arising in the event of the default of the third and fourth largest theoretical net debtors (determined using the stress-test methodology described under CCP Standards 4.5 and 4.6). Once sized, the Assessment totals are allocated among all clearing participants. The total Assessment size assumes the simultaneous default of all participants used to size the Assessment, plus any additional participants as determined by CME Risk Management Department. The total Assessment is allocated among the remaining participants.

Each clearing participant's allocation of the IRS Assessment is based on its 'Individual Maximum Assessment Power' (IMAP). The IMAP is calculated based on CME's LND stress testing results across several scenarios, in which a number of LNDs default.

CME calculates the aggregate required IRS Assessment on at least a monthly basis, as well as each IRS clearing participant's maximum IRS Assessment. CME may calculate such requirements more frequently if the risk profile of the top two largest net debtors change by more than 10 per cent from the calculation for the preceding period. Following any recalculation, CME provides a report to each IRS clearing participant detailing its maximum IRS Assessment.

Other provisions

CME has outlined further provisions in its rules and procedures for uncovered credit losses.

1. Base products

In the situation where credit losses exceed financial safeguards, CME would follow the close-out netting procedures as described in its Rulebook.²⁰

2. IRS

If a default leads to losses that are larger than applicable financial resources, CME would follow the procedures outlined in its Rulebook.²¹ Rule 8G802 incorporates limited recourse standards and states that CME will fulfil variation margin payments to the extent that resources attributable to the major asset class are available, but variation margin will be haircut for participants with variation gains to offset the losses. These haircuts will be made on a pro rata basis, based on resources available.

Standard 5: Collateral

A central counterparty that requires collateral to manage its or its participants' credit exposures should accept collateral with low credit, liquidity and market risks. A central counterparty should also set and enforce appropriately conservative haircuts and concentration limits.

5.1 A central counterparty should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity and market risks.

CME's Collateral Policy sets out its principles for determining and reviewing the collateral it will accept from clearing participants to meet margin and Guaranty Fund requirements. The objective of the

²⁰ Uncovered credit losses are subject to close-out netting as described in Rule 818 (Close-out Netting).

²¹ Rule 8G802 (Protection of Clearing House).

collateral eligibility criteria, as set out in the Policy, is to promote asset diversification, while minimising credit risk, liquidity risk and market risk. To mitigate remaining risks, CME conducts ongoing reviews and daily valuation of collateral received, and applies haircuts and concentration limits. In the event of a clearing participant default, CME's Collateral Policy establishes procedures for liquidation of collateral held.

Acceptable collateral

CME's collateral eligibility criteria emphasise the quality and market liquidity of collateral assets. At a high level, eligible collateral must: be liquid with minimal credit risk and market risk; have a liquid and transparent secondary market; and be subject to a legally robust framework. Further, if the collateral cannot readily be liquidated within an hour, additional liquidation arrangements must be established to support the use of the collateral to meet obligations arising in the event of a clearing participant default.

The Credit Risk Management team conducts an initial review of new collateral types for acceptability, focusing on the credit profile of the issuer, secondary market liquidity, price volatility, market development and operational arrangements for pledging collateral to CME.²² For collateral that does not have a natural same-day settlement time horizon, arrangements must be in place to facilitate access to cash in the currency of the defaulted obligation on a same-day basis.

CME accepts the following collateral:

- For initial margin contributions across Base, IRS and CDS products, CME accepts: US dollar cash, select foreign currencies,²³ physical gold, US Treasuries and agencies, select foreign sovereign debt,²⁴ letters of credit (Base only), US equities (Base only), and certain CME-managed Interest Earning Facility (IEF) programs.²⁵ At the end of June 2014, cash, US Treasuries and CME-managed IEF funds accounted for around 90 per cent of total initial margin held.
- Variation margin obligations must be settled in cash. Obligations are denominated in the currency of the underlying position.
- Effective from April 2014, collateral for participant contributions to Guaranty Funds may be in the form of: cash or US Treasury bills; and US Treasury notes or bonds with remaining time to maturity of 10 years or less.

Letters of credit are accepted to cover initial margin related to Base futures products only. Effective from July 2014, letters of credit are classified as 'Category 2' collateral, capped at the lesser of 25 per cent of core collateral requirements or US\$500 million per clearing participant (see CCP Standard 5.5 for more information on the different categories of collateral). Financial-affiliated clearing participants are not permitted to meet house initial margin requirements using letters of credit, except to meet intraday margin calls as a buffer (if approved by an Executive Director or above from CME's Risk

²² Prior to posting physical gold as collateral, a clearing participant is required to execute a title transfer agreement (see CCP Standard 5.7).

²³ The specific foreign currencies accepted vary across Base, IRS and CDS products. Australian dollar cash is accepted for Base and IRS products.

²⁴ Discount bills, notes and bonds are accepted from: Canada, France, Germany, Japan, Sweden and the UK.

²⁵ The CME-managed IEF are: IEF2 (Money Market Mutual Fund Program); IEF4 (Corporate Bonds); and IEF5 (Interest Earning Deposits). IEF2 and IEF5 allow clearing participants to earn returns on US dollar cash lodged at CME (see CCP Standard 15). The IEF4 program supports CME's acceptance of corporate bonds as collateral through arrangements with tri-party agents, which conduct operational tasks associated with corporate bonds (e.g. pricing and facilitating collateral movements).

Management Department). At the end of June 2014, letters of credit accounted for around 2 per cent of total initial margin held.

Letters of credit can only be supplied by approved banks; these 'letter of credit banks' are determined under CME's Credit Risk Management process (see CCP Standard 4). Letter of credit banks are rated as part of CME's internal credit risk scoring process on at least an annual basis, and must maintain a score as established in the Credit Policy. Letter of credit banks are monitored on a daily basis. If deterioration in the financial health of any of these banks is detected, CME can reassess its risk profile more frequently. In this situation, CME could reduce the limit of the letter of credit bank, stop accepting new letters of credit issued by that bank, or remove the bank from CME's list of acceptable issuers. A list of approved letter of credit banks and requirements for letters of credit is published on CME's website.

Letter of credit banks are assigned limits according to the risk assessment scoring process and CME's assessment of each bank's ability to fund the commitment. As noted above, letters of credit are capped at the lesser of 25 per cent of core collateral requirements or US\$500 million per clearing participant. In addition, clearing participants may only post letters of credit from a single letter of credit bank up to 40 per cent of that bank's established limit. If this target were exceeded, CME may consider revising the limits assigned to letter of credit banks, or the 40 per cent cap. Credit Scoring and Credit Limits are approved by the Credit Committee.

The Bank will monitor the acceptance of letters of credit as collateral, including through the provision of data from CME.

Wrong-way risk

The Credit Risk Management team monitors and reviews each direct clearing participant's portfolios and collateral on an ongoing basis to identify and mitigate exposures that may give rise to wrong-way risk. This includes monitoring correlations between a clearing participant's credit rating and its posted collateral and cleared products, and between clearing participants and the sovereign issuer of collateral. CME's rules prohibit its participants from posting assets that have been issued by the participant, or an affiliate of the participant. CME also prohibits participants from accepting securities or letters of credit issued by a customer or its affiliates as margin payments for that customer, without permission from CME.

Governance

Collateral eligibility, haircuts and limits are reviewed by the Credit Risk Management team on at least a monthly basis, or more frequently as market conditions warrant. A report is presented to the Credit Committee each quarter detailing the concentrations of each type of collateral held throughout the previous quarter.

The Collateral Policy is governed by the Collateral Committee, consisting of senior management from the Risk Management and Financial departments. Recommendations for acceptance of new types of collateral or changes to current collateral guidelines are presented to the Collateral Committee and Credit Committee for approval. Under exceptional circumstances, the Collateral Committee can meet on an ad hoc basis to expedite changes to the Collateral Policy. The Collateral Policy is reviewed on an annual basis by the Credit Risk Management team.

5.2 In determining its collateral policies, a central counterparty should take into consideration the broad effect of these policies on the market. As part of this, a central counterparty should consider allowing the use of collateral commonly accepted in the relevant jurisdictions in which it operates.

To provide for flexibility in collateral eligibility, CME accepts a range of currencies, including Australian dollar cash, and sovereign securities as collateral for initial margin contributions (see CCP Standard 5.1). Variation margin obligations must be met in cash in the currency of the underlying position.

CME reviews requests from participants, customers and other stakeholders to accept additional forms of collateral. A Request Form is publicly available on CME's website. CME will consider such requests where the relevant asset meets certain quality and liquidity criteria for eligibility (see CCP Standard 5.1). CME provides advance notice to market participants regarding changes to collateral eligibility.

The Bank expects CME to consider accepting Australian government bonds as initial margin in the event that direct Australian-based participant in CME becomes material. CME has indicated that it will investigate the acceptance of Australian government bonds as initial margin during the second half of 2014. The Bank will review CME's progress by year end.

5.3 A central counterparty should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

CME marks non-cash collateral to market on at least a daily basis. Given the high liquidity of eligible non-cash collateral – such as US Treasuries and agencies, and select foreign sovereign debt – price information is readily available.

Valuations are validated by CME using an alternative pricing verification service to test collateral pricing regularly. Exception reports are used to validate prices that exceed defined thresholds for intraday price moves. CME reviews these exception reports to validate current market prices with approved third-party data sources and can override prices as appropriate.

Audit reports are produced and reviewed by the Financial Department on a daily basis, highlighting any securities for which no prices are available. Any securities that are not being priced are investigated and excluded from the list of eligible collateral.

CME applies haircuts to all non-cash collateral posted and all cash collateral that is not in the same currency as the product being covered. Haircuts are calibrated to ensure, with a high degree of confidence, that in the event of liquidation at a time of market stress, cash received would be at least equal to the value of the collateral. Haircuts are calculated based on at least a one-day, 99 per cent confidence interval of price movements over the past 12 months. Longer liquidation periods are used for foreign currencies, physical gold, foreign sovereign debt and the IEF4 collateral program (Corporate Bonds). CME can also apply ad hoc haircuts if significant volatility is observed in the markets relevant to acceptable collateral.

CME's analysis of the appropriateness of haircuts also incorporates additional quantitative data on tail risks, utilising data over the prior four years, as well as qualitative market information that may not yet be reflected in the market data.

Collateral haircuts and limits are reviewed on at least a monthly basis, or more frequently as market conditions warrant, by the Credit Risk Management team (under the governance of the Collateral Committee) to ensure they accurately reflect market conditions. This monthly analysis involves assessing market data over a one-year and four-year time horizon, as well as qualitative inputs (e.g. to reflect recent changes to market characteristics). CME plans to complete an independent validation of its collateral haircut models in the second half of 2014.

5.4 In order to reduce the need for procyclical adjustments, a central counterparty should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

CME's procedures and risk management standards are designed to establish stable and conservative collateral haircuts. To establish haircuts, CME's formal policy is to apply a 99 per cent confidence interval, with a one-year look-back period. In practice, however, CME considers a longer time horizon when setting haircuts. The aim is to have more static haircuts with reduced procyclicality.

For more information on how CME establishes haircuts, see CCP Standard 5.3.

5.5 A central counterparty should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

CME accepts collateral that can be liquidated at short notice. CME classifies collateral as Category 1, 2, 3 or 4, imposing limits on each category commensurate with the liquidity or credit risk, or price volatility of the included assets. Effective from July 2014, the following types of collateral are accepted for Base products:

- Category 1 assets are cash in major currencies and US Treasuries. Category 1 assets are considered by CME to be sufficiently liquid that the unlimited eligibility of these assets as collateral will not have any material impact on market liquidity or price.
- Category 2 assets are letters of credit (capped at the lesser of 25 per cent of core collateral requirements or US\$500 million per clearing participant) and IEF5 (Interest Earning Deposits).
- Category 3 assets are select US Government agency debt and mortgage-backed securities, and special types of US Treasuries including STRIPS and TIPS. Category 3 assets are capped at 40 per cent of the participant's core collateral requirement per currency and capped in combination with Category 4 assets at US\$7 billion per clearing participant.
- Category 4 assets are physical gold, equities, assets subject to the CME-managed collateral programs IEF2 (Money Market Mutual Funds) and IEF4 (Corporate Bonds), and foreign sovereign debt. Category 4 assets are capped at the lesser of 40 per cent of core collateral requirements per currency or US\$5 billion per clearing participant. The IEF2 (Money Market Mutual Funds) program is not subject to the 40 per cent cap. As noted above, Category 3 and Category 4 assets are capped in combination at US\$7 billion per clearing participant.

The acceptable collateral types, categories and limits described above also apply to IRS products, subject to the following exceptions: letters of credit and equities are not accepted as collateral for IRS.

CME's Credit Policy and Collateral Policy each define risk management standards and requirements for determining the acceptability of eligible collateral. Liquidity arrangements are scaled to cover the potential liquidation of the largest participant that holds the maximum allowable amount of Category 2 and Category 3 assets.

CME routinely conducts liquidity analysis to ensure potential liquidity needs could be met with the resources available. The calculation of the largest liquidity need for CME is driven by scenarios relating to the default of the largest potential clearing participant, using actual and hypothetical clearing participant collateral profiles.

Liquidity risks are measured and monitored through liquidity stress testing, performed on a daily and monthly basis. Stress testing analyses the liquidation of a collateral profile and the conversion of the

collateral to cash through funding arrangements to meet liquidity needs. The stress-testing model assesses collateral profiles with reference to potential variation margin payment obligations by currency and available liquidity resources by currency. A number of parameters can be factored into these scenarios, including collateral price shocks, forecast liquidation costs, the potential roles of key entities (such as affiliates) and the timing of liquidity demands (e.g. from settlement cycles). Liquidity risks are highlighted to the Credit Committee, along with the overall stress-test results.

CME also conducts simulated collateral liquidation drills. These are performed internally and externally with contracted liquidation agents on at least an annual basis. For further information on liquidity risks and management, see CCP Standard 7.

5.6 A central counterparty that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner

Based on its analysis, the Collateral Committee determines eligible collateral types and sets limits on their acceptance (see CCP Standards 5.2 and 5.5). Cross-border collateral is reviewed and analysed by CME for all major risks, including liquidity risk, market risk, operational risk and legal risk, before being accepted to ensure that the collateral can be used in a timely manner.

CME considers the legal implications of all cross-border collateral as part of its initial review of eligibility and on an ongoing basis. As part of this review, CME identifies and seeks to address any material conflicts of law between jurisdictions, and demonstrates that its laws, rules, procedures and contracts are enforceable in relevant jurisdictions.

In addition, CME undertakes legal assessments when it seeks to provide offshore clearing services; for example, legal reviews were conducted prior to CME accepting certain sovereign debt as collateral, holding collateral offshore and using a foreign custodial bank. CME has indicated to the Bank that it is planning to implement a program under which these assessments will be reviewed regularly (see CCP Standard 5.7).

Operational risks are also considered, including time-zone frictions and custodial banks' operational timelines for moving collateral. If market transactions typically occur outside the US time zone of major operations, CME ensures cross-border collateral can be pledged to its committed secure credit facility, or other facilities as warranted (see CCP Standard 7).

5.7 A central counterparty should use a collateral management system that is well designed and operationally flexible.

Collateral management system

CME's collateral management system allows for the timely valuation and management of collateral holdings, according to various rules and limits. CME has the ability to modify settings of the system, including margin types and limits. CME ensures that there is appropriate staffing to support the collateral management system, taking into account peak periods.

CME has a clearly defined operational timeline for clearing collateral deposits and withdrawals, calculation of collateral value and collateral reporting. CME can also perform ad hoc collateral valuation cycles as needed. CME reconciles internal systems against its holdings at custodial banks and institutions daily.

CME maintains appropriate control of collateral, as each clearing participant grants to CME a first priority security interest and unencumbered lien on all collateral deposited with CME.²⁶ The majority of collateral is transferred into an account in CME's name at a custodial bank, which guarantees simultaneous possession and control. CME accepts pledges of 'control only' collateral in instances where CME is satisfied that the mechanisms for taking possession in a default situation would be unchallengeable.

CME accepts physical gold held in approved custodial vaults located in London as collateral to meet proprietary margin requirements of participants. Prior to posting physical gold as collateral to CME, a clearing participant is required to execute a title transfer agreement, which covers all subsequent deposits of gold. The title transfer agreement ensures that CME has control over the collateral that is specified in CME rules, under English law, since the gold is physically located in London.

CME assesses the quality of its claim to pledged collateral via a legal examination of its collateral acceptance mechanisms. Legal assessments are sought when CME is considering the acceptance of new collateral types or in the event of changing bankruptcy laws. If, as a result of a legal examination, CME identifies material issues with its claim to collateral, the collateral will not be accepted. As noted in CCP Standard 5.6, CME has indicated to the Bank that it is planning to implement a program under which these legal assessments will be reviewed regularly.

Re-use of collateral

CME does not currently re-use non-cash collateral posted by participants. However, Rule 827 (Securities Lending Program) gives CME the right to re-hypothecate certain types of collateral deposited by clearing participants in satisfaction of Guaranty Fund or margin requirements. CME is reviewing Rule 827 in light of bankruptcy remoteness and Basel III standards, and the rule may be revised or eliminated (see CCP Standard 15).

Standard 6: Margin

A central counterparty should cover its credit exposures to its participants for all products through an effective margin system that is risk based and regularly reviewed.

6.1 A central counterparty should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio and market it serves.

For all cleared products, CME collects 'performance bonds' (i.e. margin) from clearing participants. Performance bonds comprise 'maintenance performance' margin (which corresponds to initial margin as defined in the CCP Standards) and 'settlement variation' margin (which corresponds to variation margin as defined in the CCP Standards).²⁷

²⁶ This is outlined in Rule 819 (Lien on Collateral) for exchange-traded products and Rule 8F008 (Lien on Collateral) for OTC products.

²⁷ In addition to maintenance performance margin, CME also sets 'minimum initial margin' (not to be confused with simply initial margin) which is charged only to speculative customer accounts that are cleared through a clearing participant. Customers who are charged minimum initial margin are required to deposit this amount with their clearing participant. The clearing participant is, in turn, responsible for depositing the maintenance margin portion with CME. The level of these minimum initial requirements is based on the risk characteristics of each product and is set at least 10 per cent higher than the maintenance performance margin level. If the customer's total margin holdings fall below the maintenance performance level, they will be re-margined at the higher minimum initial margin level.

CME calculates initial margin twice per day for Base products and once a day for IRS products, to cover possible losses on the close out of a participant's position in the event of that participant's default. Variation margin is calculated twice daily for Base products and once daily for IRS products via a mark-to-market process to cover gains or losses on positions arising from price movements.

CME may also collect additional intraday margin throughout a trading session in the event of significant market movements (see CCP Standard 6.4).

The margining methodologies employed by CME are calibrated to take into account a range of risks, including the potential for concentration risk and liquidity risk. CME uses different methodologies to calculate initial margin, depending on the product type (see below).

Base products

CME calculates initial margin on its futures products using the CME SPAN methodology. Initial margin is calibrated to cover 99 per cent of forecasted price moves for a position over a minimum close-out period of one trading day (see CCP Standard 6.3).

Participants are required to deposit gross initial margin for customer segregated and customer sequestered positions. CME allows net initial margin deposits for non-segregated or proprietary positions.

CME SPAN model parameters for futures products are reviewed by CME Risk Management Department at least monthly, or more frequently during volatile market conditions (see CCP Standards 6.6 and 6.7).

IRS

The IRS margin methodology employs a HVaR model. The model aims to cover at least 99 per cent of losses over a five-day close-out period for a 'large universe of portfolios'. The model coverage is backtested on a suite of over 20 000 portfolios including, but not limited to, outright, spreads, butterflies, client portfolios, synthetic portfolios and random portfolios that have sensitivity to different tenors of the curve.

Since the model has been backtested against a very long history of different rate and volatility regimes, the parameters in the HVaR model employed by CME are static, and may only require adjustment where there are concerns about model coverage. The model uses an Exponentially Weighted Moving Average (EWMA) volatility forecast, which allows the model to adapt to changes in rate and volatility regimes. This enables the model to self-adjust on a daily basis without changing parameters (see CCP Standard 6.3). In addition, the model employs volatility floors to reduce the potential for procyclical effects.

Cross-margining of IRS and futures

CME offers IRS clearing participants, who also hold a CBOT Exchange Clearing Membership (for US Treasuries) and/or a CME Exchange Clearing Membership (for eurodollars), the ability to cross-margin eligible interest rate futures by allocating these positions to the participant's OTC derivatives portfolio. If participants choose to do this, the allocated interest rate futures will be HVaR margined, as for IRS products (rather than margined using the CME SPAN methodology), and are subject to a five-day close-out period. In a default situation, these commingled positions would continue to be treated as swaps, rather than futures (see CCP Standard 12.1).

CME only permits the commingling of futures and swaps where it results in a reduction of risk. CME performs daily calculations to determine whether commingling futures and IRS positions would

decrease margin for the overall portfolio, which would indicate a reduction in risk. If the inclusion of a futures position would not reduce the risk of a commingled portfolio, it would remain in, or be transferred back to, the participant's futures account, as applicable.

If granted a licence, CME would offer futures and IRS products independently to Australian clearing participants; however, participants holding the requisite clearing memberships would have the option to cross-margin these positions.

6.2 A central counterparty should have a reliable source of timely price data for its margin system. A central counterparty should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

CME has access to timely price data for its exchange-traded products. CME's primary sources of data are 'direct' sources, including trade quotes, and other market information gathered from product market transaction activity. To value the OTC derivatives products it clears, CME may consider a combination of relevant market data, including, but not limited to, trading activity, pricing data obtained from IRS market participants, the settlement prices of related products and any other pricing data from sources deemed reliable by CME. CME sources price data on reference interest rates from Reuters and Bloomberg.

Depending on the product, CME may use a range of methods for determining the settlement price, including: midpoint of the high and low quotes in the closing range; volume-weighted average price of the closing range; midpoint of bid-ask spread at closing time; and option price settlement, using price data for the underlying commodity and option pricing models.

IRS

To determine the settlement price for IRS products, data are first obtained from multiple recognised sources. Any material differences in prices from these sources are validated. The threshold of difference varies depending on the liquidity profile of the instrument. After the quote has been validated, a proprietary blending algorithm is applied to produce quotes for end-of-day curve construction.

If a settlement price derived by the normal methodology for a product is inconsistent with observed prices or other relevant market information, or if there is no relevant market activity, CME may establish a settlement price that best reflects its reasonable judgment of the true market valuation at closing time.

CME has established internal processes to review IRS settlement prices upon request from clients. In addition, CME runs automated comparisons of differences in settlement prices by obtaining data from multiple sources. The system will identify differences that exceed pre-established thresholds for staff to investigate. A final review will be conducted before the end-of-day settlement cycle, with all curve inputs being rechecked.

Base products

Settlement price information for futures products may be validated at the exchange level. CME can receive pricing data from up to approximately 30 vendors. To validate these data, CME may cross-check information with third-party vendors (e.g. Reuters and Bloomberg) or request information from price reporting agencies (e.g. Platts, Argus, OPIS), as necessary.

Participants are given all information necessary to create the end-of-day yield curve and independently calculate the net present value of any contract.

6.3 A central counterparty should adopt initial margin models and parameters that are risk based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 per cent with respect to the estimated distribution of future exposure. For a central counterparty that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a central counterparty that calculates margin at more granular levels, such as at the sub-portfolio level or by product, the requirement should be met for corresponding distributions of future exposure. The model should: use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the central counterparty (including in stressed market conditions); have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products; and to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

Base products

CME calculates initial margin requirements using the CME SPAN methodology. This methodology calculates initial margin that reflects the total risk of each portfolio. Initial margin is calibrated to cover 99 per cent of forecast price moves for a position over a minimum close-out period of one trading day. Forecast price movements are based on a variety of data, including: historical volatility over various time periods; price changes within a market session; forward-looking measures of potential volatility derived from analysis of the options market; and seasonal volatility.

CME calculates margin on some products or portfolios over a longer close-out period (e.g. 1.5–2 days) depending on factors such as liquidity profiles, and the complexity and concentration of a portfolio. CME Risk Management Department is responsible for determining and assessing the close-out period for products and portfolios. Regular default simulation drills are conducted to validate this process. Margin on new products is typically set based on at least a two-day close-out period. In addition, CME may use volatility floors, liquidity add-ons and other additional margin requirements (e.g. concentration margin; see below) to further increase the close-out period. Interest rate futures cross-margined with IRS positions are HVaR margined and so are subject to a five-day close-out period.

The key parameters in the CME SPAN methodology are the 'price scanning range' and 'volatility scanning range'. These scanning ranges are calibrated to the distribution of price and volatility movements for a set of related contracts under normal market conditions. The scanning ranges are used to construct a set of 16 hypothetical risk scenarios used to measure the loss from a portfolio caused by a range of changes in price and volatility.

CME sets the scanning ranges to cover at least the 99th percentile of historical daily price moves over short-, medium- and long-term time periods. The selection of the time period depends on the specific product being evaluated, varying between 1 month and 10 years. For most products, historical volatilities covering 1, 3, 6, and 12 months are applied.

CME applies a series of adjustments within CME SPAN to account for correlations and specific risks within a given contract type. An upward adjustment can be made to the margin requirement for a given set of related contracts to account for less-than-perfect correlation between contracts with different expiries (known as the 'intra-commodity spread charge').

CME also applies offsets designed to account for reliable and economically robust correlations across different contract types (see CCP Standard 6.5). These 'inter-commodity spread concessions' reflect

that, while the scanning risk for each ‘combined commodity’ (sets of contracts related to the same underlying commodity) is set based on the worst-case risk scenario for that combined commodity, it may be highly unlikely that the set of worst-case scenarios will occur simultaneously. This is particularly the case if a participant holds net long and net short positions in different combined commodities that have a robust positive correlation.

CME’s Risk Management Department can approve adjustments – both increases and reductions – to margin rates (for futures and IRS products) if the standard statistical analysis would result in an economically inappropriate outcome. This may be required if the backward-looking statistical analysis does not take appropriate account of expected future price movements. Other reasons for using management discretion include insufficient historical data (e.g. where a product is new), seasonality in some products and isolated spikes in price movements that result in a distortion of statistical recommendations. CME policy also allows the approval of exceptions to the normal margin rate setting process based on a broader risk assessment. Any such changes must be approved by an Executive Director (or above) from Risk Management Department.

In conjunction with the application of margin, CME maintains a concentration margin program for each major asset class. Concentration margin can be applied to portfolios that may require a longer liquidation period. Each major product type maintains a unique trigger for its concentration charge. For exchange-traded products, participants’ portfolios are subject to concentration margin if the results of stress tests exceed financial resources. A participant may be required to post additional collateral should stress-test outcomes reveal that the potential loss arising from its positions, as at the close of the previous day, exceeds their net adjusted capital (see CCP Standards 4.3 and 4.7). Directors in CME Risk Management Department also have the authority to further increase a participant’s margin based on expert opinion and participant-specific risks.

IRS

CME uses HVaR to calculate initial margin requirements for IRS, with EWMA volatility rescaling to determine the margins for a given IRS portfolio. In this methodology, past events are used to generate possible scenarios in the future, with recent events weighted more heavily than events further in the past. Initial margin rates are set based on a 99.7 percentile confidence level, assuming a close-out period of five days, to target an *ex post* coverage of 99 per cent for almost all portfolios. A rolling look-back period of five years, in addition to including the global financial crisis period of 2008–09, is used to provide a set of historical scenarios. In addition, a volatility floor is established to protect against procyclicality.

The model also incorporates volatility scaling and considers risks associated with products and collateral that span multiple currencies.

As part of CME’s concentration margin program, liquidity charge multipliers can be applied to IRS products. The liquidity charge multiplier is applied to the margin calculated for each currency to account for the potential cost of liquidating large positions. The multipliers and margin ranges are designed to be progressive in nature.

Wrong-way risk

CME addresses wrong-way risk in its Collateral Policy and Risk Management Framework. CME’s policies and rules prevent its participants from clearing derivative instruments that may give rise to wrong-way risk or to post collateral that would have similar risk (see CCP Standard 5).

Procyclicality

As discussed above, the CME margin model for IRS products adopts a HVaR-based approach where historical returns are scaled using EWMA volatility. CME uses volatility floors to reduce the potential for procyclical effects, which prevent margins from falling below certain levels in times of reduced volatility and hence provide a buffer against sudden large market corrections. Volatility floors are set based on analysis of historical volatility and liquidity data at a product level. For example, for IRS the volatility floor is calibrated to be within the 40th to 50th percentiles of historical absolute EWMA volatility.

CME will introduce a stressed-VaR component to its margin model to further reduce the potential for procyclicality; pending regulatory approval, CME expects to implement this in the second half of 2014.

6.4 A central counterparty should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A central counterparty should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.

Margin requirements for both futures and IRS are calculated overnight, with variation margins based on closing prices each day, and notified to participants the next morning.

CME has the authority and operational capacity to make intraday margin calls and payments, as outlined in its Rulebook and Clearing House Manual of Operations. CME may make intraday calls where there is significant erosion in the margin cover provided by individual participants. Intraday margin calls reflect changes in participants' positions and price movements. For futures products, mark-to-market calculations are carried out routinely at mid-day and end-day, and on an ad hoc basis in situations CME deem necessary. For IRS products, variation margin is calculated at the end of the day. Although there is no routine intraday margining of IRS products, CME may carry out intraday margining in situations deemed appropriate (see CCP Standard 4.2).

CME maintains procedures requiring explicit approval of funds due by a certain time for each settlement cycle and trading day. Settlement banks give their irrevocable commitment to pay margin amounts at the established settlement time. Any shortage of payment by a participant may be treated as a failure to perform, which is defined as a default event (see CCP Standard 12). Further, CME has debit authority over all clearing participant accounts and can automatically debit the accounts for margin and variation payments (see CCP Standard 9).

6.5 In calculating margin requirements, a central counterparty may allow offsets or reductions in required margin across products that it clears or between products that it and another central counterparty clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where a central counterparty enters into a cross-margining arrangement with one or more other central counterparties, appropriate safeguards should be put in place and steps should be taken to harmonise overall risk management systems. Prior to entering into such an arrangement, a central counterparty should consult with the Reserve Bank.

Inter-commodity offsets

In applying the CME SPAN methodology to futures transactions, CME allows offsets in the form of inter-commodity spread concessions (see CCP Standard 6.3). These offsets reduce margin requirements to account for reliable and economically robust correlations observed across combined commodities.

The magnitude of inter-commodity spread concessions are gauged by evaluating 99 per cent volatility levels over multiple look-back periods. To be eligible for an offset, the relationship between the products must be stable and demonstrate a significant correlation. Further, offsets are only approved after a review by CME Risk Management Department staff so that a 'common sense' rationale is taken.

CME may adjust the inter-commodity spread concessions identified by CME SPAN to ensure that they appropriately reflect underlying economic relationships, including through periods of market stress. All recommendations for inter-commodity spread concessions, and reviews of existing offset levels, are evaluated and agreed by senior staff of CME Risk Management Department during weekly meetings.

Cross-margining

As noted in CCP Standard 6.1, IRS clearing participants also holding CBOT and/or CME Exchange Clearing Memberships can choose to cross-margin specific interest rate futures by allocating these positions to the participant's OTC derivatives portfolio. If participants choose to do so, the allocated interest rate futures will be HVaR margined, as for IRS products, with extensions to take into account the characteristics of the interest rate products being cross-margined and their correlations with the IRS products. As with IRS products alone, a five-year historical dataset is used. The methodology also addresses risks specific to each interest rate product, such as requirements around physical delivery for Treasury futures.

Interest rate futures in the pool under the HVaR methodology are subject to a five-day, rather than a one-day close-out assumption. CME states that, although HVaR margining can result in less conservative estimates of correlations, this longer close-out period means that cross-margined interest rate futures will typically be subject to higher margin requirements under the HVaR methodology, compared with the existing CME SPAN methodology.

Cross-margining between IRS and futures clearing streams recognises the economic relationship between these products and, to the extent that positions are indeed offsetting, would be expected to result in a reduction in the amount of initial margin required relative to the case in which positions were margined independently. The potential for changes in the relationship between IRS and interest rate futures, such as during times of stress, is captured through the VaR margining process.

Prior to implementation and on an ongoing basis thereafter, CME performs analysis to ensure the adequacy of margin levels for portfolios of IRS and interest rate futures. This includes verifying that the margin algorithm produces adequate and reasonable results for the amount of risk in these accounts. CME also monitors, on a daily basis, the variation and market risk of portfolio-margined accounts to ensure the additional future positions reduce risk to the swaps portfolio. If the futures positions are not risk reducing, CME will take several actions that include a detailed analysis of the risk and margin impact of transfer to the full portfolio. If needed, the Market Risk team will contact the participant to reduce the exposure, which could involve transferring futures positions back from the swaps portfolio margin account to the futures portfolio account.

Cross-margining between CCPs

CME also offers a range of programs between it and other CCPs, including the cross-margining programs with Options Clearing Corporation (OCC) and the Fixed Income Clearing Corporation (FICC), and its Mutual Offset System (MOS) with Singapore Exchange Limited (SGX). These are considered in detail in CCP Standard 19. Under the proposed scope of the CS facility licence, Australian clearing participants may be eligible to participate in the MOS to the extent they act as a carrying participant

at CME for Eurodollar contracts executed on their behalf by a clearing participant on SGX (see CCP Standard 19)

6.6 A central counterparty should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more frequent where appropriate, sensitivity analysis. A central counterparty should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a central counterparty should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.

For futures products, margin levels are reviewed on at least a monthly basis by the Risk Management Department. Products that have large open interest or display significant volatility/liquidity factors are reviewed more frequently. CME Risk Management Department monitors market volatilities, and reassesses margins for any products that have experienced a perceived shift in risk profile. Daily price exception reports are distributed to CME Risk Management Department to highlight price changes that exceed margin levels for the preceding trading day.

Weekly meetings are held with senior management of Risk Management Department to discuss proposed margin changes and address product groupings that may have experienced increased volatilities. Each product offered by CME is covered at least on a monthly basis during these weekly meetings. Any changes to margin model parameters must have senior Risk Management Department staff approval, before being implemented.

Backtesting

Prior to implementation, every significant proposed change to a margin model is backtested against a sample of portfolios, representative of the full scope of the cleared products. Backtesting is used to confirm that the margin model performs at the required coverage level with the addition of the change.

CME conducts daily backtesting for each major asset class (Base products, IRS and CDS) at both the portfolio and contract level, monitoring margin held against the following day's (or five-day) market moves to ensure adequate coverage. The Risk Management team analyses the backtesting results to ensure that the margin model, and its parameters, is performing as expected, and that the participant's portfolios are meeting 99 per cent coverage levels. In the year to 31 July 2014, backtesting results for futures and IRS products showed coverage at 99.99 per cent and 100 per cent, respectively.

In addition to daily backtesting, CME performs monthly backtesting of each portfolio over a look-back period starting in 2008. CME also conducts periodic backtesting on a larger set of hypothetical portfolios, covering a range of risk profiles, around two to three times a year.

If backtesting results show that a participant has been holding insufficient margin to cover recently observed market moves, or the model is performing below the required coverage level, the model parameters will be reviewed to ensure they are tuned to prevailing market conditions. In addition, any backtesting failures will be escalated to senior Risk Management Department staff, who will determine the necessary steps to address the failure. These could include the participant being assessed for additional margin. Backtesting is also carried out when CME is testing the application of the margin model on proposed new products.

CME performs sensitivity analysis for margin models and monitors model parameters to ensure that they meet the required coverage standards.

Sensitivity analysis

CME conducts sensitivity analysis of margin levels, model parameters and coverage statistics upon release of additional IRS products and features (such as additional currencies and portfolio margining). Outside this process, sensitivity analysis for IRS model coverage is conducted 'periodically'. CME is in the process of revising its procedures for conducting sensitivity analysis, with the expectation that the results of IRS sensitivity analysis will be brought before the Stress Testing Committee each month.

For futures products, sensitivity analysis is undertaken by reviewing and varying the CME SPAN model parameters; this includes varying price scan ranges. Sensitivity analysis is performed on a monthly basis and reviewed by the Stress Testing Committee at its monthly meeting.

6.7 A central counterparty should regularly review and validate its margin system.

CME Risk Management Department is responsible for developing margin models. Prior to implementation, all models designed by CME Risk Management Department or any significant changes to existing models, are backtested, presented to the relevant Risk Committees for approval, and vetted by independent experts (see CCP Standard 6.6).

Model validation

CME expects to have its margin models and methodologies reviewed and validated on an annual basis by a qualified and independent party. CME will also conduct additional validations that cover other items, such as liquidity issues.

As a general rule, CME selects the independent party on the basis of their knowledge of the specific product and margin model. For ongoing model validation, CME performs regular reviews, at least annually, using qualified internal staff. These staff are unconnected to the model development and approval process, and not involved in the daily margin process; see CCP Standard 19 for discussion of CME's validation of cross-CCP margining arrangements.

CME last reviewed its IRS margin model in 2013 and there have been no significant changes to the model since then.

Governance

Results from margin model backtesting, other documentation and analysis conducted by Risk Management Department, and independent reviews are presented to the appropriate Risk Committees for their approval.

For Base products, the CHRC is presented with margin model validations for review. For IRS products, IRSRC members receive monthly backtesting reports for relatively large-sized portfolios. CME staff will present to the Risk Committees on any crucial model/parameter changes including information on backtesting results, sensitivity analysis and impact analysis.

6.8 In designing its margin system, a central counterparty should consider the operating hours of payment and settlement systems in the markets in which it operates.

CME's timetables for margin calculation and collection are typically consistent with the operating hours of the relevant payment and settlement systems in which it operates. Where operating hours do not align across systems, alternative arrangements may be put in place.

CME currently operates 24 hours per day, 6 days a week. Accordingly, CME does not anticipate that it would need to change its hours of operation, if it were granted a CS facility licence, for Australian participants. For further detail on money settlements, see CCP Standard 9.

The Bank will engage with CME to understand the potential impact of the timing of routine margin calls for non-USD currencies (which currently fall outside Australian business hours) on Australian participants and on CME's exposures, and whether any changes are necessary.

Standard 7: Liquidity risk

A central counterparty should effectively measure, monitor and manage its liquidity risk. A central counterparty should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the central counterparty in extreme but plausible market conditions.

7.1 A central counterparty should have a robust framework to manage its liquidity risks from its participants, commercial bank money settlement agents, nostro agents, custodians, liquidity providers and other entities.

Sources of liquidity risk

CME identifies two potential sources of liquidity risk:

- the management of participant defaults – termed a 'direct' liquidity risk by CME
- stresses related to the insolvency or operational failure of commercial banks that provide settlement, custodial or liquidity services to CME – termed an 'indirect' liquidity risk.

CME's participant default liquidity risks arise from the fulfilment of the variation margin obligations of the defaulting participant, cash flows relating to any hedging transactions executed for the defaulting participant's portfolio, and payments arising from the auction and close-out of the defaulting participant's cleared positions.

Daily operational liquidity flows primarily consist of the payment of settlement variation to participants (see CCP Standard 9) and the return of cash collateral collected as initial margin. CME also faces cash flows resulting from investment activities. CME's Liquidity Risk Framework does not explicitly cover daily operational liquidity flows or include daily operational liquidity targets. The Liquidity Risk Framework is based on stressed market conditions, which would also at a minimum cover daily requirements. To meet daily liquidity requirements CME retains the majority of its cash uninvested, rather than investing it to the full extent allowed under its Investment Policy (see CCP Standard 15); invested cash remains uninvested intraday and is invested overnight. CME monitors its holdings of intraday cash, to ensure its holdings do not exceed the credit limits it sets with its counterparties (see CCP Standard 15).

Managing liquidity risk

CME identifies, monitors and manages liquidity risks in accordance with its Liquidity Risk Framework, which is governed by the Credit Committee and implemented by the Credit Risk Department. The Liquidity Risk Framework came into effect during the December quarter of 2013, following approval by the Credit Committee. CME is continuing to enhance the framework as it does for all policies, and

is increasing its internal resources in the Credit Risk Department, including those responsible for monitoring and managing liquidity risks. The Bank will continue to engage with CME as it develops its formal framework.

The Liquidity Risk Framework will be reviewed annually by both the Credit Committee and the CHRC; because liquidity risks are a general risk matter the IRSRC and CDSRC do not review and validate the Liquidity Risk Framework as a matter of course. However, if liquidity risks arose that were specific to one of these product sets, the relevant Risk Committee would be informed. The technical aspects, including the stress testing models (see CCP Standards 7.3 and 7.8), of the Liquidity Risk Framework will be audited by CME's Global Assurance Group on an annual basis; the first such review is planned for the September quarter of 2014. The framework is supported by additional rules relating to liquidity events (see CCP Standard 7.9). These rules are currently being reviewed by the CFTC and the Federal Reserve Board; both regulators are also reviewing the Liquidity Risk Framework as a part of this review.

Under this framework, direct liquidity risks are monitored through daily stress testing and compared against CME's available liquid assets (CCP Standard 7.3). Indirect liquidity risks are addressed through credit risk monitoring of settlement banks, custodian banks and liquidity providers, under the Credit Risk Policy and Settlement Bank Policy (see CCP Standards 4 and 9.3, respectively). CME also monitors key risk indicators in order to provide warning of market stress or market-wide liquidity pressures.

In addition to monitoring liquidity risks, CME seeks to minimise the size of its potential direct liquidity risk through daily and – for Base products – intraday settlement of variation margin. CME can conduct extra intraday settlement cycles for either, or both, product classes if market conditions warrant (see CCP Standard 6.4).

CME provides participants with pricing information for IRS products and SPAN margin parameter files for Base products, as well as software to estimate their margin obligations for actual and hypothetical portfolios. This allows participants to monitor and manage their liquidity needs and risks, which in turn mitigates the risk posed to CME. In addition, CME systems monitor the settlement activity of clearing participants and – if observed settlement activity differs from typical activity – CME will provide early notice of the higher-than-usual estimated variation margin to clearing participants to ensure data accuracy and to allow clearing participants to manage their liquidity risks.

CME uses commercial settlement and custodian banks, and liquidity providers. In order to mitigate the risk of a disruption at any one settlement bank, CME utilises a range of commercial settlement banks. CME monitors and evaluates the indirect liquidity risks arising from its exposure to settlement and custodian banks through counterparty credit risk monitoring under its Credit Risk Policy and Settlement Bank Policy (see CCP Standards 4 and 9.3, respectively). Where counterparty credit risk monitoring identifies credit weakness at a settlement or custodian bank, CME would seek to limit its exposure to that counterparty, in order to mitigate potential liquidity (and credit) risk (see CCP Standard 9.3). In addition to counterparty credit risk monitoring, CME monitors the ability of its liquidity providers and gauges their capacity.

CME has a committed liquidity facility, provided by a syndicate of banks, which allows it to convert assets held as collateral into cash (see CCP Standard 7.4). CME assesses the capacity of the banks in the syndicate through counterparty credit risk monitoring and by conducting test draws of the facility at least annually (see CCP Standard 7.6).

7.2 A central counterparty should have effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

CME uses an internally developed system to monitor a variety of factors relevant to liquidity risk in real time, including: participants' positions and variation margin obligations; the value of participants' collateral balances; and the value and concentration of assets held at settlement and custodian banks. End-of-day reports provide a detailed account of all collateral on deposit with CME, including the type of collateral, the haircut and par value, and the US dollar-equivalent value of foreign currency-denominated collateral. The information is available by participant, account type (customer or house), currency and asset type. The reports list all settlement and custodian banks at which collateral or cash is held.

CME monitors the value of assets held at settlement and custodian banks at least daily (see CCP Standard 5.3).

CME monitors the liquidity risks posed by its liquidity providers by monitoring their creditworthiness in accordance with CME's Credit Risk Policy (see CCP Standard 4). CME conducts at least annual due-diligence reviews of settlement banks, custodian banks and liquidity providers against a number of eligibility criteria and reviews counterparties' internal policies, particularly those relating to liquidity, operational and credit risk management. Counterparties with lower internal credit ratings are reviewed more frequently.

7.3 A central counterparty should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the central counterparty in extreme but plausible market conditions. In addition, a central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the central counterparty in extreme but plausible market conditions.

To manage direct liquidity risks, CME performs daily stress testing to identify the participant (and affiliates) that would generate the largest payment obligations in the event of default in extreme but plausible market conditions (see CCP Standard 7.8). These stress tests are calculated separately for each Guaranty Fund and then aggregated across related entities in order to determine total liquidity requirements resulting from a default. CME terms these payment obligations the 'Stressed Potential Payment Obligation' (SPPO).

The SPPO is then compared with the 'Stressed Qualifying Liquid Resources' (SQLR) that CME would have available in order to meet those payments as a result of a default of that clearing participant. Only assets that are sufficiently liquid are included in the value of the SQLR (see CCP Standard 7.4).

CME also considers the payment obligations that would result from the two clearing participants (and affiliates) that would generate the largest payment obligations in the event of default, but this is not included in the calculation of the SPPO. This amount factors into the Credit Committee's decision on how much SQLR should be held above the SPPO.

In order to monitor the adequacy of the SQLR relative to the SPPO, CME prepares reports that summarise:

- the largest SPPO and corresponding SQLR for US dollars, as well as aggregated foreign exchange (FX) cash
- the SQLR by category and currency, and the SQLR utilised by the SPPO (see CCP Standard 7.4)
- any liquidity gaps (where the SQLR is not sufficient to meet the SPPO) or exceptions (where the SPPO exceeds the SQLR by a pre-defined internal threshold)
- the payment obligations that would result from the two clearing participants (and affiliates) that, if they defaulted, would generate the largest payment obligations.

These reports are reviewed by senior management from Credit Risk Department on a monthly basis, or more frequently during a stressed market environment. The Credit Committee reviews the adequacy and approves the level of available liquid resources on a quarterly basis.

If daily monitoring identifies a liquidity gap (that is, the SPPO exceeds the SQLR), Credit Risk department staff will notify senior management of Credit Risk Department. The Credit Committee will then hold an ad hoc meeting in order to determine appropriate action. In order to address a liquidity gap, the Credit Committee could: recommend reduction of the clearing participant's positions that are generating the SPPO; require a clearing participant to change its posted collateral in order to increase the SQLR; or seek to increase CME's committed liquidity facility or prearranged funding arrangements in order to increase the SQLR (see CCP Standard 7.4).

7.4 For the purpose of meeting its minimum liquid resource requirement, a central counterparty's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If a central counterparty has access to routine credit at the central bank of issue, the central counterparty may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

The SQLR is determined by valuing the resources available to meet the payment obligations of the clearing participant creating the largest payment exposure, in aggregate and per currency. Haircuts are applied to account for the costs of liquidating or drawing some of these resources, as appropriate. All assets that CME accepts as collateral meet the CFTC's requirements for qualifying liquidity resources. These assets either qualify directly (cash, interest earning cash deposits and letters of credit), are highly marketable collateral supported by prearranged and highly reliable funding sources, or are used to secure committed lines of credit. CME's Investment Policy requires it to invest in a subset of these assets (see CCP Standard 15); accordingly, the assets that CME invests in either can be used to secure the facility or are US Treasury securities that qualify as highly marketable collateral.

- *Cash, interest-earning cash deposits and letters of credit.* CME holds cash at commercial banks. Only cash in the currency of the payment obligation is included in calculating the resources available for that currency. Letters of credit are counted as qualifying for US dollars for Base products (see CCP Standard 5.1).

- *Highly marketable collateral.* CME holds US Treasury securities as collateral and it considers these assets to be highly marketable collateral which are eligible for inclusion as qualifying liquid resources. In order to qualify, these assets must have prearranged and highly reliable funding arrangements. CME maintains a number of prearranged uncommitted Master Repurchase Agreements to facilitate access to liquidity secured by US Treasury securities, which it considers are highly reliable. In addition, all clearing participants that are Primary Dealers (or which are affiliated with entities that are Primary Dealers)²⁸ will be required to, under proposed Rule 901.Q, enter into a Master Repurchase Agreement with CME. This rule is designed to widen CME's group of counterparties and seeks to ensure CME has highly reliable funding arrangements to convert its US Treasury securities held as collateral to cash in times of market stress.
- *Committed lines of credit.* To ensure its assets are readily convertible into cash, CME has a committed liquidity facility with a syndicate of banks. This facility provides liquidity in most major currencies in which CME may face payment obligations, including Australian dollars.

The facility can be drawn up to US\$7 billion and, subject to per currency limits, can be drawn in a number of major currencies.²⁹ The facility can be expanded to US\$10 billion at CME's request, and without requiring the consent of the syndicate banks. CME can access the credit facility within an hour of notifying the facility's banking group.

The Rulebook does not restrict the circumstances in which CME may use the facility; CME might, for example, draw this facility against participants' collateral in the event of a participant default or a liquidity constraint at a settlement or custodian bank.³⁰ CME has reviewed the terms of the facility to ensure it would be available in extreme but plausible market conditions and performs test draws of the facility at least annually (see CCP Standard 7.6).

The terms of the liquidity facility allow CME to pledge any asset that CME accepts as collateral from participants, aside from certain foreign currency cash (of which CME holds only small amounts and has small payments obligations in).³¹

CME engages a liquidation agent to assist in the liquidation of its non-cash collateral. CME conducts regular tests with its liquidation agent to ensure it is able to meet CME's requirements. CME also has its liquidation agent review its internal assessments of its ability to liquidate non-cash collateral in extreme but plausible market conditions.

CME does not currently hold an account with a Federal Reserve Bank, does not have access to the Federal Reserve's Discount Window and does not assume access to such in assessing the adequacy of its liquid resources. However, as a SIDCO, CME may be granted access to the Federal Reserve's Discount Window under extreme or exigent circumstances, and is eligible to apply for an account at a Federal Reserve Bank under section 806 of the Dodd-Frank Act.

²⁸ Primary dealers are institutions that trade directly with the Federal Reserve Bank of New York.

²⁹ US dollar to USD 7.0 billion; British pound and euro to USD 3.1 billion equivalent; Canadian dollar to USD 1.9 billion equivalent; Hong Kong dollar, Japanese yen, Norwegian krone, Swedish krona and Swiss franc to USD 1.5 billion equivalent; and Australian dollar and Danish krone to USD 1.0 billion equivalent.

³⁰ The CME Rulebook, Rule 817, permits CME to pledge the collateral of participants to a liquidity facility, subject to limits on how much of a non-defaulting participant's collateral can be pledged.

³¹ CME can pledge cash in Australian dollars, British pounds, Canadian dollars, euros, Japanese yen, New Zealand dollars, Norwegian krone, Swedish krona and Swiss francs; outside these currencies, CME also accepts offshore Chinese renminbi, Mexican peso, South African rand and Turkish lira, subject to a number of restrictions (see CCP Standard 5).

7.5 A central counterparty may supplement its qualifying liquid resources with other forms of liquid resources. If the central counterparty does so, these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if a central counterparty does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. A central counterparty should not assume the availability of emergency central bank credit as part of its liquidity plan.

CME does not supplement its qualifying liquid resources with other forms of liquid resources to assist in the event of a default in covering the largest SPPO.

7.6 A central counterparty should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the central counterparty or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. A central counterparty should regularly test its procedures for accessing its liquid resources at a liquidity provider.

CME holds a variety of collateral which it would use to meet a liquidity shortfall, either by liquidating the collateral (directly or through its liquidation agent) or pledging collateral to its committed liquidity facility. CME also has contingent liquid resources, which permit the substitution of certain non-defaulting participants' collateral under certain conditions (see CCP Standard 7.9). CME's Liquidity Risk Framework sets out the order in which each source of liquidity would be used.

To ensure counterparties to Master Repurchase Agreements that are Primary Dealers are able to perform, CME assesses these counterparties' capacity and willingness to finance securities using data available from the Federal Reserve Bank of New York; the methodology for this assessment is outlined in the Liquidity Risk Framework.

CME tests access to its funding arrangements at least annually by performing collateral liquidity drills with liquidity providers and test draws from its committed liquidity facility. The results of these tests are reported to the Credit Committee for review. In addition to annual tests, CME seeks to ensure the ability of its liquidity providers to perform thorough regular credit assessments of its liquidity providers, settlement banks, custodian banks and other financial counterparties. Liquidity providers must maintain a minimum internal credit rating, determined as part of the credit assessment process; these ratings are reported to the Credit Committee on a quarterly basis.

7.7 A central counterparty with access to central bank accounts, payment services or securities services should use these services, where practical, to enhance its management of liquidity risk. A central counterparty that the Reserve Bank determines to be systemically important in Australia and has obligations in Australian dollars should operate its own Exchange Settlement Account, in its own name or that of a related body corporate acceptable to the Reserve Bank, to enhance its management of Australian dollar liquidity risk.

Under Section 806 of the Dodd-Frank Act, CME is eligible to apply for an account at a Federal Reserve Bank and may be granted access to the Federal Reserve Discount Window in unusual or exigent

circumstances as part of its designation as a SIDCO by the Financial Stability Oversight Council. However, CME does not currently have access to the Federal Reserve and does not rely on access to the Discount Window in assessing the adequacy of its liquid resources. CME will establish rules that allow it to – under certain circumstances – pay variation margin obligations in kind to participants that do have access to the Discount Window (see CCP Standard 7.9). These rules are currently being reviewed by the relevant regulators.

The Reserve Bank has not determined CME to be systemically important at this time.

7.8 A central counterparty should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A central counterparty should have clear procedures to report the results of its stress tests to appropriate decision-makers at the central counterparty and to use these results to evaluate the adequacy of, and adjust, its liquidity risk management framework. In conducting stress testing, a central counterparty should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the central counterparty, include all entities that might pose material liquidity risks to the central counterparty (such as commercial bank money settlement agents, nostro agents, custodians, liquidity providers and linked FMIs) and, where appropriate, cover a multiday period. In all cases, a central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

CME uses stress tests to assess the sufficiency of its liquidity resources (see CCP Standard 7.3). The stress tests are used to identify the SPPO. Although the SPPO is based on losses over the close-out period, CME assumes the full liquidity requirement will be needed from the first day of the default as a conservative assumption. CME compares the stress-test-calculated SPPO with its SQLR and the results are reported to the Credit Committee monthly, or whenever the SPPO exceeds the SQLR (see CCP Standard 7.3).

Stress tests are run daily, using standard and predetermined parameters. The stress tests take into account a range of factors, including historical peak price volatilities, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, sudden increases in position or price volatility, changes in market liquidity and model risk. CME considers participants with multiple relationships (e.g. clearing participants that are also liquidity providers) as part of its credit risk monitoring; however, the stress tests do not currently include scenarios of simultaneous failure of participants who have multiple roles with CME (e.g. a participant that is also a liquidity provider).

In addition to daily stress testing, CME monitors a number of key risk indicators relating to liquidity and counterparty risk. If this monitoring identifies a material change in risk, senior management in the Credit Risk Department may recommend an intraday stress test.

The liquidity stress-testing model and methodology, including parameters and scenarios are determined by the Stress Testing Committee and are consistent with CME's stress-testing methodology for sizing its Guaranty Funds (see CCP Standard 4.5). The assumptions and parameters of the liquidity stress-testing model and methodology are reviewed on a quarterly basis by the Stress Testing Committee, and monthly by senior management within the Credit Risk Department. On an annual basis the liquidity stress-testing model and methodology will be reviewed and validated by an

independent party who is not connected with the development of the stress-test model or methodology. CME plans to commission a full validation of its stress-testing models, parameters and assumptions, including liquidity stress testing, in the second half of 2014.

The Credit Committee plans to consider in 2014 whether it should incorporate reverse stress testing into the Liquidity Risk Framework, in order to identify the market stress scenarios that would exceed the SQLR.

7.9 A central counterparty should establish explicit rules and procedures that enable the central counterparty to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the central counterparty's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

CME maintains a number of emergency liquidity resources on which it could draw in the event CME declared a 'Liquidity Event'. CME can declare a Liquidity Event if it cannot obtain sufficient liquidity to meet same-day settlement obligations through asset sales, uncommitted funding arrangements, committed lines of credit or committed repurchase agreements. CME has proposed rules that would enable it, in the event of a declared Liquidity Event, to substitute a defaulting clearing participant's US Treasury securities in exchange for cash contributed to the Guaranty Fund by defaulting and non-defaulting clearing participants; in addition, CME can satisfy variation margin obligations to Primary Dealer participants via 'payment in kind', by transferring US Treasury securities (valued and haircut at the previous day's close). The rules giving effect to these arrangements are currently being reviewed by the CFTC and the Federal Reserve Board.

In the event of counterparty deterioration or market stress, senior management of the Credit Risk Department or CME Clearing Division may determine that a 'Contingency Liquidity Plan' is appropriate. The decision to invoke the plan must be taken by the Credit Committee. This plan provides specific steps that CME would take in order to obtain additional liquidity. The Credit Committee determines whether the Contingency Liquidity Plan needs to be developed on an annual basis; the Credit Risk Department is responsible for developing this plan. CME plans to formalise its Contingency Liquidity Plan in 2014 following the completion of the review of the rules giving effect to that plan by the CFTC and the Federal Reserve Board.

Standard 8: Settlement finality

A central counterparty should ensure clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, a central counterparty should facilitate final settlement intraday or in real time.

8.1 A central counterparty's rules and procedures should clearly define the point at which settlement is final.

CME sets out in its contracts with its settlement banks the conditions under which settlement obligations are deemed final and irrevocable. These contracts state that settlement is final and irrevocable once the settlement instruction is accepted by the settlement bank. CME has stated that the provisions of the contracts relating to settlement finality are harmonised across all its settlement

bank agreements. For the end-of-day settlement cycle, settlement banks have 1.5 hours to accept settlement instructions from the time at which they are communicated to the bank (see CCP Standard 8.2). For intraday and ad hoc settlement cycles, instructions must be accepted within one hour. CME has no exposure to its settlement banks in the course of settlement because its participants remain liable for the payment until it is received by CME (see CCP Standard 9).

CME does not currently use non-US settlement banks; however, its US-based settlement banks sometimes involve their foreign branches in providing settlement services. To the extent that CME were to begin using non-US settlement banks, CME would seek to mitigate any legal risks that may arise by including choice of law provisions in all settlement bank agreements, to ensure that US law governs the agreement. CME would also assess the legal risks presented by a non-US settlement bank, to gain comfort that the agreement would be enforceable and the choice of law would be effective (see CCP Standards 1.6 and 9.3). CME would not use a non-US settlement bank if the laws of the foreign jurisdiction might materially impede CME's ability to enforce its rules, or otherwise interfere.

CME has provided the Bank with a legal opinion stating that the default of a participant should not affect the finality of settlements executed by a settlement bank on behalf of that participant because US bankruptcy law provides 'safe harbours' for DCOs (and other financial participants in certain circumstances). These safe harbours prevent an insolvency trustee from clawing back margin payments made in connection with certain financial contracts (see CCP Standard 1.5). These provisions are intended to minimise the displacement caused in financial markets by a major bankruptcy. CME has provided the Bank with legal opinions regarding the application of the safe harbours contained in US bankruptcy law in the event of the insolvency of US-based and Australian-based clearing participants.

In addition, under Australian law, the PSNA seeks to ensure the finality of settlement for netting markets. CME has applied to the Minister to be approved as a netting market and has provided the Bank with a legal opinion regarding the application of the PSNA with respect to CME in the event of the external administration of an Australian clearing participant.

8.2 A central counterparty should ensure final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk.

CME conducts two regular settlement cycles per day – one end-of-day cycle and one intraday cycle. Only US dollar-denominated obligations related to Base products are routinely included in the intraday cycle. CME retains the right to conduct additional, ad hoc settlement cycles for any product type as necessary (see CCP Standard 9.2).

End-of-day cycles are conducted, and settlement information provided to participants, by midnight Chicago time. Settlement instructions for end-of-day cycles are sent to the participant's settlement bank by 6.00 am Chicago time the next day either by fax or by SWIFT message; CME is in the process of replacing fax confirmation with SWIFT messages for all settlement banks. Settlement banks have until 7.30 am Chicago time to accept the instruction, or notify CME of an error in the instruction. For intraday settlement cycles, settlement information is provided to participants and their settlement banks by 1.00 pm Chicago time; settlement banks have until 2.00 pm Chicago time to respond. The longer gap between receiving settlement information and issuing settlement instructions for the end-of-day cycles is to allow clearing participants that clear swaps for customers to comply with their client funds segregation obligations (as noted above, swaps are not typically included in the intraday cycle) (see CCP Standard 13).

For ad hoc settlement cycles, CME will first notify settlement banks of the cycle and then send the payment instructions; settlement banks have one hour from receiving notification of the cycle to accept the payment instruction.

8.3 A central counterparty should clearly define the point after which unsettled payments, transfer instructions or other obligations may not be revoked by a participant.

CME's contracts with its settlement banks provide that settlements are final and irrevocable once the settlement bank communicates acceptance of the payment instruction to CME. However, CME's settlement bank agreements provide for specific instances where a settlement instruction can be amended or revoked in order to correct operational errors. Erroneous settlement instructions are amended or revoked with coordination between CME, the relevant settlement bank and the affected clearing participant. CME has stated that all adjustments are documented.

Standard 9: Money settlements

A central counterparty should conduct its money settlements in central bank money where practical and available. If central bank money is not used, a central counterparty should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

9.1 A central counterparty should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks. A central counterparty that the Reserve Bank determines to be systemically important in Australia and has Australian dollar obligations should settle its Australian dollar obligations across an Exchange Settlement Account held at the Reserve Bank, in its own name or that of a related body corporate acceptable to the Reserve Bank.

CME does not conduct money settlements in central bank money. The Bank considers that CME will not be systemically important in Australia in the near term and therefore CME will not be required to open an Exchange Settlement Account at the outset of its operations.

9.2 If central bank money is not used, a central counterparty should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

CME predominantly uses commercial bank money to effect money settlements (i.e. payments of initial margin and variation margin). CME normally calculates initial margin in USD, while variation margin is calculated in the currency of the underlying product. CME also uses internal settlement (called 'Combined Cash Flow') for settlements of non-USD variation margin. Both methods apply as described below to AUD money settlements.

CME's 'normal' settlement method

CME requires clearing participants to maintain demand deposit cash accounts at one or more approved settlement banks to facilitate settlement (see CCP Standard 9.3). Clearing participants must hold separate accounts for house funds, customer segregated funds and customer OTC segregated funds. CME issues distinct payment instructions for each account. Clearing participants that participate in non-USD denominated clearing must maintain additional demand deposit cash accounts for each applicable foreign currency. A clearing participant must inform CME of the name of each settlement bank it uses and the relevant account numbers. A participant must sign an agreement with each of its settlement banks to allow that bank to debit or credit its accounts automatically on instruction from CME to meet daily settlement requirements. Failure of a clearing participant to meet a payment is a failure of an obligation to CME and may result in CME declaring an event of default

(see CCP Standard 12). A clearing participant's obligation is extinguished at the time at which CME receives payment (see CCP Standard 9.3).

CME runs two settlement cycles for USD each day (an end-of-day cycle and an intraday cycle), although it has authority to run additional cycles, for example if market conditions warrant it. CME calculates, through its asset management and banking system 'Clearing 21', clearing participant initial margin amounts in USD cash and variation margin amounts in the currency of the underlying product. CME allows clearing participants to meet USD variation margin requirements using investment in money market mutual funds under the CME-managed IEF2 collateral program (see CCP Standard 5), which is netted against the final banking instruction; similarly variation margin paid to a participant can be converted into IEF2 balances. Foreign currency obligations may be settled using the Combined Cash Flow method discussed below. CME then issues variation margin pay/collect and initial margin call/release instructions to the settlement bank.

CME applies thresholds for variation margin; amounts below the threshold are not sent to the settlement bank for processing. For example, a threshold of US\$500 000 applies for USD variation margin requirements during the intraday settlement cycle; in addition no foreign currency variation margin pays or collects are made during the intraday settlement cycle.

CME holds accounts at each of its settlement banks. USD funds are paid into accounts at CME's settlement banks and are then concentrated at a single bank. All currencies except for JPY are concentrated at a bank designated for that currency. CME's concentration banks are: JP Morgan Chase (London) for AUD, NOK, CHF, GBP, NZD, SEK, TRY, SGD, HKD and ZAR; Citibank (London) for EUR, CNH, DKK, PLN, CZK and HUF; Citibank (Canada) for CAD; and BMO Harris Bank for MXN and USD. Concentration instructions are issued to settlement banks at the same time that CME issues settlement instructions, that is concentration occurs as part of the settlement cycle.

CME issues money settlement instructions via the SWIFT network. Interbank payments are effected through the Federal Reserve's Fedwire Funds Service.

CME's 'Combined Cash Flow' settlement method

As noted above, CME uses an internal settlement method called Combined Cash Flow for non-USD money settlements arising from futures products (CME does not use this method for IRS obligations). The objective of this method is to minimise the banking transactions that would otherwise result if the normal settlement method were used, that is it internalises foreign currency variation margin activity to the fullest extent possible. Under this method, CME does not automatically pay out to a clearing participant variation margin owed in a foreign currency; instead, this amount is credited to the clearing participant's 'combined currency flow account' held with CME (which holds the participant's foreign currency cash initial margin balances). Foreign currency variation margin owed from a clearing participant to CME is charged to the participant's combined currency flow account. Accordingly, a foreign currency collect instruction is only issued to the clearing participant's settlement bank if the required amount is greater than the cash balance in that currency in the account.

Balances remaining in the combined currency flow account can be used to satisfy initial margin requirements. If a clearing participant has excess cash in a particular currency over requirements, that excess cash can be used to meet initial margin requirements in other currencies (with a haircut; see CCP Standard 5.3). If the overall amount is not sufficient, CME issues a call for additional USD cash to meet initial margin requirements.

Clearing participants may opt not to use the combined cash flow settlement method, in which case the normal settlement method is applied for all obligations. A participant's legal obligations are not affected by the type of settlement method used.

9.3 If a central counterparty settles in commercial bank money or its participants effect settlements using commercial settlement banks, it should monitor, manage and limit credit and liquidity risks arising from the commercial bank money settlement agents and commercial settlement banks. In particular, a central counterparty should establish and monitor adherence to strict criteria for commercial banks appropriate to their role in the settlement process, taking account of matters such as their regulation and supervision, creditworthiness, capitalisation, access to liquidity and operational reliability. A central counterparty should also monitor and manage the concentration of its and its participants' credit and liquidity exposures to commercial bank money settlement agents and settlement banks.

CME publishes a list of approved settlement banks, and the products (Base, IRS, CDS) and currencies in which they support settlement, on its website.

CME maintains a Settlement Bank Policy which sets out its policies for measuring, monitoring and managing credit and liquidity risks arising from its commercial settlement banks. It is the responsibility of the Credit Committee to oversee the Policy and assess the credit profile of the settlement banks (see CCP Standard 4). The Policy is reviewed on an annual basis by the Credit Risk team, with recommended changes escalated to the Managing Director (Risk Management). Concentration banks are selected and monitored in line with the Settlement Bank Policy.

All settlement banks must be approved by CME and sign a 'settlement bank agreement'. Prior to approval an initial credit review is conducted. CME conducts an on-site visit of potential settlement banks, covering a range of factors including the bank's financial capacity and operational risk management processes. The bank must also demonstrate sufficient understanding of the responsibilities relating to the provision of settlement services.

The review also considers the regulation to which the prospective settlement bank is subject. Each prospective settlement bank is assigned an internal credit rating under the Credit Risk Policy (see CCP Standard 4). To be approved, a settlement bank must receive an internal rating of at least 6. Initial (and ongoing) reviews of settlement banks must be submitted for approval to a Credit Risk Manager, the CRO and the Credit Risk Committee. Finally, CME receives CFTC sign-off prior to accepting a foreign bank as a settlement bank. Criteria for settlement banks are discussed at a high level in CME's *Principles for Financial Market Infrastructures Disclosure* document.

For approved settlement banks, a credit review, including an on-site visit, is conducted on at least an annual basis. Any issues highlighted during the annual review are reported to the Managing Director (Risk Management) and discussed with the settlement bank. The review will also take into account the whole of the relationship that CME has with the bank (e.g. if it acts as both a clearing participant and a settlement bank). The Credit Risk Management team also monitors the financial condition and market metrics of settlement banks on a more frequent basis; issues with settlement banks are discussed by the Credit Risk Management team and can be raised to the Managing Director (Risk Management).

One of the principles of CME's Settlement Bank Policy is to provide for diversity in settlement banks, in order to reduce concentration of risk. CME monitors concentration risks across its settlement banks (e.g. the amount of pays the settlement bank owed to CME on a monthly average basis, and the

largest 10 payments owed over the last year) and this is reported to the Credit Committee. If the Committee determines that a settlement bank poses too much risk to CME or the bank's creditworthiness has declined, limits may be implemented.

Rule 901.I obliges clearing participants to perform on payment obligations to the CCP; a clearing participant's obligation is extinguished at the time at which CME receives payment. This rule would continue to apply in the event of a settlement bank default. In such an event, CME would work with affected clearing participants to find an alternative method of processing payments, for example redirecting settlement activity to an alternative settlement bank or accepting settlement payments directly from the affected clearing participants. The Credit Committee conducts settlement bank default impact assessments, monitoring clearing participant exposures and distribution among settlement banks to consider potential alternative settlement banks to which clearing participant activity might be transferred. If a clearing participant were unable to pay, it may be declared to be in default.

In addition, CME maintains a fully secured committed line of credit with a consortium of international and domestic banks (see CCP Standard 7). CME may access this in the event that there is a temporary problem with the domestic payments system that would delay payments of variation margin between CME and its clearing participants; that is, this would allow CME to pay variation margin to all clearing participants even if financial obligations to CME had not been met. In such a case, to protect itself from the risks associated with the imbalance that would arise from making pay-outs before pay-ins were received, CME would contact the settlement banks experiencing the operational issue to ensure pay-in amounts were secured at those settlement banks.

CME also has the flexibility to calculate variation margin in only some currencies, change the settlement method employed for a settlement currency and redefine thresholds. There are no prescriptive circumstances under which this might occur and to date this has never been exercised. The decision to change the settlement method or currency would be made by the CRO and clearing participants would usually be given advanced notice via CME's standard notification protocols (i.e. a Clearing House Advisory Notice).

9.4 If a central counterparty conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

As discussed in CCP Standard 9.2, CME uses a form of internal settlement for foreign currency settlements, under which the required amounts are set off against foreign currency initial margin balances already held at CME. This reduces the number of foreign currency settlements required. Additional requirements are settled through the normal settlement bank process.

9.5 A central counterparty's legal agreements with any commercial bank money settlement agents should state clearly when transfers on the books of the relevant commercial bank are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the central counterparty and its participants to manage credit and liquidity risks.

CME maintains contractual agreements with its settlement banks; these are governed under US law. CME's settlement bank agreements define the time at which settlement is final and payments are irrevocable, that is at the time when the settlement bank issues confirmation to CME (see CCP Standard 8). Similarly, payments made to the concentration bank are final and irrevocable at the time when the settlement bank issues confirmation to CME. The agreements include a timeline

setting out settlement procedures for each settlement cycle, including non-routine cycles. For the end-of-day cycle, settlement banks make an irrevocable payment at 7.30 am Chicago time; for the intraday cycle this occurs at 2.00 pm Chicago time. For non-routine cycles, settlement banks have one hour from notification by CME of the non-routine cycle to accept the payment instructions. The settlement cycle is also outlined in the Clearing House Manual of Operations and is made available on CME Group's website. CME is in the process of amending its settlement bank agreements to incorporate automation into the confirmation process by replacing phone and fax confirmation with SWIFT messaging. CME is targeting the end of 2014 for completion of this initiative.

If a settlement bank does not confirm its acceptance of a payment instruction by the deadline, this would be escalated to CME senior management. As noted in CCP Standard 9.3, clearing participants continue to be obliged to perform on their obligations in the event of a settlement bank default.

Standard 10: Physical deliveries

A central counterparty should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor and manage the risks associated with such physical deliveries.

CME's CS facility licence application does not include any physically settled contracts. However, because the service offered to the Australian market is an extension of CME's global offering, the Bank has nonetheless assessed CME against CCP Standard 10 at a high level.

10.1 A central counterparty's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

In some cases, the settlement of derivatives contracts cleared by CME involves the transfer of physical assets and commodities. Examples of contracts that require delivery are certain agricultural, metal and energy contracts. Around 2 to 5 per cent of the peak open interest in physically deliverable contracts actually goes through physical delivery.

Chapter 7 of the Rulebook sets out the obligations of clearing participants and CME in regard to physical deliveries. Requirements relating to delivery (e.g. delivery locations and arrangements) are set out in the relevant contract-specific chapter of the Rulebook. CME also has rules to allow the transfer of in-delivery contracts erroneously taken into delivery by clearing participants that are unable to make or take physical delivery to clearing participants that can make or take physical delivery.

CME sets out in its rules that it only financially guarantees the commercially reasonable replacement cost for all physically delivered contracts and does not guarantee physical delivery. These costs are accounted for in the initial margin collected on these contracts. Further, CME is not directly involved in the delivery process (see CCP Standard 10.2). CME has recently amended the Rulebook in order to clarify and make more explicit its obligations for delivery failures. CME's settlement systems for physically delivered contracts are designed so that title for physically delivered assets and commodities does not pass until payment is confirmed by the relevant settlement bank (see CCP Standard 11).

10.2 A central counterparty should identify, monitor and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

CME mitigates the risks associated with physical delivery by minimising its involvement in the storage and delivery process. CME is not directly involved in the delivery process. Rather, following expiration

of physically delivered contracts, CME matches participants that have delivery obligations with those that are due to receive. Long contracts (participants due to receive delivery) are matched by the date at which the long contract was established – that is, participants due to receive, which established their contracts earliest, are matched first. Short contracts (participants due to deliver) are matched in the order the participant due to deliver declared its intention to deliver.

CME is not involved in handling physically delivered products at any time during the delivery process. However, CME maintains an electronic delivery system that inventories electronic warehouse certificates and warrants for products. CME publishes daily reports on physical delivery metrics on its website. CME is also involved in monitoring and enforcing participants' compliance with their delivery obligations, including through fines, orders for restitution, and, in extreme cases, suspension or termination.

To mitigate the risk of delivery failures, CME communicates with clearing participants that are holding open interest and entering into delivery to ensure clearing participants are aware of their obligations, and the timelines and procedures for deliveries.

The Rulebook outlines that any storage facilities and transport entities involved in physical delivery must be approved by CME, that the underlying product is subject to grading and that appropriate delivery documentation processes must be followed. Grades and delivery locations for physically deliverable contracts are set out in the contract-specific chapter of the relevant Rulebook. CME approves and reviews delivery facilities, which are required to meet certain standards and requirements, depending on the particular product. These requirements are set out in Chapter 7 of the relevant Rulebook.

CME inspects approved delivery facilities at least biennially to ensure the facilities are in good condition and have the operational capabilities to process deliveries. These inspections may also be conducted on an ad hoc basis.

Standard 11: Exchange-of-value settlements

If a central counterparty is involved in the settlement of transactions that comprise two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by ensuring that the final settlement of one obligation is conditional upon the final settlement of the other.

11.1 A central counterparty should eliminate principal risk associated with the settlement of any obligations involving two linked obligations by ensuring that the payment system or securities settlement facility employed operates in such a way that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the securities settlement facility settles on a gross or net basis and when finality occurs.

In those cases where settlement of derivatives contracts involves the transfer of linked obligations, CME has arrangements in place that seek to ensure the linked obligations settle simultaneously, with the final settlement of one obligation conditional on the final settlement of the linked obligation. CME's CS facility licence application includes futures on US Treasury securities, which are settled by the delivery of US Treasury securities.

Delivery of US Treasury securities takes place via book-entry transfer in Fedwire Securities between banks that are members of the Federal Reserve System. Settlement of the securities obligation occurs

on a delivery-versus-payment basis, with the transfer of funds conditional on delivery of the securities. The settlement mechanism in Fedwire Securities is designed to achieve final and irrevocable settlement of the linked obligations on an item-by-item basis intraday. CME has no direct involvement in the settlement process; CME's only role is to match clearing participants with delivery obligations to clearing participants due to receive securities.

CME also settles physically delivered commodity contracts and foreign exchange contracts. Although CME's CS facility licence application does not extend to these contracts, the Bank has nonetheless considered these arrangements at a high level, similar to CCP Standard 10. CME ensures physically delivered assets are stored and delivered via approved commodity warehouses, stockyards and delivery agents. The participant with delivery obligations must be in possession of the relevant commodity and associated documentation on the day of tender, and provide a delivery notice to CME of its intent to deliver, which CME then passes to the matched participant due to receive delivery (see CCP Standard 10). Once the receiving participant has made a payment in same-day funds, the receiving participant is entitled to the documentation to convey title and possession. CME's systems are designed such that title does not pass until payment is confirmed by the relevant settlement bank.

CME facilitates settlement of deliverable foreign exchange contracts through Continuous Linked Settlement (CLS), which is a payment-versus-payment settlement service for foreign exchange transactions. CME is not directly involved in the settlement of CLS-eligible foreign exchange contracts, and instead matches clearing participants long the futures contract (due to receive foreign currency) to clearing participants that are short (due to receive the 'paired' currency).³² As with physically delivered contracts, CME does not guarantee delivery of the foreign currency, only the replacement cost (see CCP Standard 10). For non-CLS-eligible currencies, CME designates a bank in the country of the relevant foreign currency and a bank in the 'home' jurisdiction for the paired currency.³³ Clearing participants must make funds available to the designated settlement banks the day prior to delivery (for details on CME's settlement banks, see CCP Standard 9.3). Once CME has received notification from the relevant settlement bank that the foreign currency has been received, CME will transfer the paired currency from the account of the clearing participant due to pay the paired currency (receive foreign currency) to the other clearing participant due to receive. These transfers occur in same-day funds.

11.2 A central counterparty should eliminate principal risk associated with the settlement of linked obligations by ensuring that it employs an appropriate delivery versus payment (DvP), delivery versus delivery (DvD) or payment versus payment (PvP) settlement mechanism.

Settlement of securities transactions arising from the expiry of US Treasury futures contracts cleared by CME occurs on a DvP Model 1 basis. This involves the simultaneous transfer of cash from the buyer to the seller through the Federal Reserve System and transfer of US Treasury securities from the seller to the buyer by book-entry between the clearing participants' banks, on an item-by-item basis.

CME utilises CLS for eligible currencies, which provides for PvP settlement. Currencies that are not eligible to be settled in CLS are settled using CME's settlement banks as escrow agents. Payments are only released once CME's agent bank receives the corresponding, contra-currency obligation from the clearing participant. As with other physically deliverable contracts, CME only guarantees replacement cost rather than delivery of these currency contracts.

³² The paired currency is either US dollars or euros.

³³ The paired currency is either US dollars or euros, and the respective home jurisdiction is the US or the European Union.

Standard 12: Participant default rules and procedures

A central counterparty should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the central counterparty can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

12.1 A central counterparty should have default rules and procedures that enable the central counterparty to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default. A central counterparty should ensure that financial and other obligations created for non-defaulting participants in the event of a participant default are proportional to the scale and nature of individual participants' activities.

Rules and procedures

The CME Rulebook, the Default Management Procedures and the IRS Default Management Guidelines address – for both Base and IRS products – a range of matters relevant to the management of a default. These include: the declaration of a default; the management of defaulting participants' portfolios; the allocation of losses; and CME's Assessment Powers to call for additional financial resources from non-defaulting clearing participants, and the obligations of clearing participants in the event all financial resources are exhausted.

The Rulebook and Procedures also address the default of a participating exchange – Eris and DME – cross-margining clearinghouse (FICC, OCC) or partner clearinghouse (SGX, through the MOS). Defaults by participating exchanges or partner clearinghouses would be managed in the same manner (covered under Rule 802.A.3) as defaults by clearing participants, that is CME would apply the same rules to discharge any outstanding obligations as in the case of a defaulting clearing participant.

The Rulebook gives CME the power to enter into any commercially reasonable transaction to eliminate or reduce the exposure created by a defaulting clearing participant. This includes hedging, liquidating or selling the defaulting participant's portfolio. All costs and expenses incurred by CME in implementing its default procedures are taken as obligations of the defaulting clearing participant to CME.

The Rulebook authorises CME to use all assets of the defaulting clearing participant available to CME to cover losses resulting from the default. Should the defaulting participant's assets be insufficient, the Rulebook authorises the mutualisation of losses via the default waterfall applicable to the defaulting clearing participant (see CCP Standard 4.4).

The Rulebook contains clauses designed to prevent defaulting clearing participants from impeding CME's actions. This includes preventing the defaulting clearing participant from filing any action in a court that seeks to stay the actions of CME with respect to the default. CCP Standard 1 discusses the enforceability of CME's rules.

CME's policies for handling a default are developed in consultation with, and reviewed at least annually by, the appropriate Risk Committee (i.e. the CHRC or IRSRC).

The policies cover:

- liquidation of margin and Guaranty Fund assets
- liquidation or auction of defaulting portfolios, including customer portfolios if defaults have occurred in the customer accounts

- CME’s financial safeguards and liquidity facility
- announcements to the trading floor and public.

Management of any default event would be handled by Risk Management Department in conjunction with the relevant Risk Committees. The IRSRC would also be assisted by the DMC – see below – in the event of the default of an IRS clearing participant. The Clearing President has ultimate authority for decisions made in pursuing the Guidelines or Procedures, as appropriate.

Following a default, CME would notify the CFTC and relevant partner exchanges or clearinghouses of the default. The Clearing President would determine the timing of a public announcement of the default, taking into account the effect such an announcement might have on CME’s efforts to reduce and mitigate its exposure.

Default management – IRS

In the event that a clearing participant was declared to be in default, CME would inform all members of the DMC, all non-defaulting IRS clearing participants, the CFTC and other regulators.

The IRSRC would second traders from non-defaulting IRS clearing participants to the Active DMC, which consists of a subset of the DMC. Membership of the Active DMC is determined by the IRSRC and is rotated among members of the DMC semiannually. While seconded to the Active DMC during a default, members of the committee are bound by confidentiality agreements and information firewalls are erected between seconded members and their firms.

In the event of a default, representatives on the Active DMC would be expected to be available for on-site default management planning within a prescribed timeline. There are no formal restrictions on non-US-based members participating on the Active DMC. However, given that representatives are required to be physically on-site during a default, practical considerations dictate against participation by representatives that cannot make themselves readily available in the event of a default.

The Active DMC would prepare the appropriate portfolio for auction by determining whether to split and hedge the defaulting clearing participant’s portfolio and any defaulting customers’ portfolios into smaller ‘Auction Portfolios’. Auction Portfolios do not commingle proprietary and customer positions, and are prepared according to the currency in which they are denominated.

If the defaulting clearing participant or any defaulting customers hold commingled interest rate futures in their IRS portfolios (i.e. cross-margined positions), these futures would be included in the Auction Portfolios as if they were swaps. Portfolios with cross-margined positions would be subject to the IRS default waterfall, and would be treated as IRS positions in respect of margining and default management procedures. To manage portfolios containing futures, every IRS-only clearing participant has either an affiliate or has arrangements with another participant able to clear futures products. IRS-only clearing participants are not eligible to participate in the portfolio cross-margining program (see below).

During the hedging and splitting stage, CME would attempt to port any non-defaulting customers’ portfolios to another IRS clearing participant. If a customer’s portfolio could not be ported to an alternative IRS clearing participant, it would be auctioned in the same manner as a defaulting clearing participant’s portfolio. See CCP Standard 13.3 for details of CME’s porting arrangements.

Once the hedging stage was complete, CME would begin auctioning the Auction Portfolios. All clearing participants would be required to submit a bid for each Auction Portfolio in the currency in which it clears. CME may allocate the Auction Portfolio to bidders in such a way as to minimise the cost to

CME. CME has discretion to refuse bids if allocating the Auction Portfolio to the winning bidder(s) would jeopardise CME, cause financial instability or be contrary to law. CME incentivises competitive bidding by linking the application of non-defaulting participants' Guaranty Fund contributions to their bids (see below).

Use and sequencing of default resources – IRS

As outlined in CCP Standard 4, in the event that losses from a clearing participant's default exceeded that participant's margin and Guaranty Fund contributions, CME would access the next layer of the default waterfall – CME's Capital Contribution to the IRS default management waterfall. In the event that losses from a clearing participant's default exceed the participant's margin and Guaranty Fund contributions as well as the CME Capital Contribution, CME would then access the IRS Guaranty Fund contributions of non-defaulting clearing participants. Neither CME, nor non-defaulting clearing participants, have any recourse to the CDS or Base Guaranty Funds, unless assets held by CME in respect of the defaulting clearing participant for Base or CDS products are in excess of the losses that occurred in the liquidation of those portfolios (see below). Finally, if losses exceeded all of the above layers, CME could issue assessments against non-defaulting clearing participants.

Available assets are the defaulting clearing participant's: initial margin; variation margin gains (if any); proceeds from the liquidation of the clearing participant's CME Group Exchange memberships or a deposit made in lieu of ownership of Exchange memberships; and the defaulting clearing participant's contribution to the IRS Guaranty Fund. If these assets are sufficient to meet the IRS losses, the clearing participant's excess assets can be used to meet any losses arising from the liquidation of other product categories on which the participant has also defaulted, if applicable (i.e. Base products and/or CDS products). Likewise, assets held by CME for Base or CDS products in excess of the losses incurred in the liquidation of those portfolios can be used to address any shortfall on IRS products.

A defaulting participant's customers' initial margin and variation margin gains (if any) cannot be used to offset losses arising from a clearing participant's proprietary account or from other, defaulting, customer accounts. See CCP Standard 13 for details of CME's customer account segregation arrangements for IRS products.

As at 31 July 2014, CME had contributed US\$150 million of its own capital to meet IRS losses in excess of a defaulting clearing participant's available assets (see CCP Standard 4.4).

Any further IRS losses are then addressed using non-defaulting clearing participants' contributions to the IRS Guaranty Fund. The size of the IRS Guaranty Fund is determined according to the Rulebook, Chapter 8G07 (see CCP Standard 4.4). As of 31 July 2014, the IRS Guaranty Fund was approximately US\$2.090 billion.

In order to incentivise competitive bidding in default management auctions, the IRS Guaranty Fund is split into three tranches: the subordinated tranche, the seniorised tranche and the remaining Guaranty Fund. IRS losses are allocated to the IRS Guaranty Fund: first, to the subordinated tranche, second, to the remaining Guaranty Fund, and finally, to the seniorised tranche. This structure gives clearing participants incentives to bid competitively on all Auction Portfolios to avoid having some or all of their IRS Guaranty Fund contributions used first as part of the subordinated tranche, and rewards winning bidders, by having the seniorised part of their IRS Guaranty Fund contributions used last.

- To determine the subordinated tranche, CME calculates two quantities for each Auction Portfolio and each IRS clearing participant: the clearing participant's Shortfall Percentage; and the Erosion Factor. The Shortfall Percentage, which is based on stress-test losses, is designed to capture the

risk a clearing participant's portfolio presents to the IRS Guaranty Fund. The Erosion Factor reflects the competitiveness of a clearing participant's bid for an Auction Portfolio. Uncompetitive bidders have some of their Guaranty Fund contribution placed in the subordinated tranche.

- The seniorised tranche is calculated similarly for winning bidders, using their Shortfall Percentage, and the proportion of the total defaulting portfolio that the Auction portfolio represents.

In the situation where the Guaranty Fund was utilised, clearing participants would be required to fully restore their Guaranty Fund contributions to previous levels, before the close of business on the banking day after CME issues notice that replenishment is due; however, in the event of a default, replenishment would be subject to the participant's maximum obligations to contribute to the IRS Guaranty Fund, and to fund IRS Assessments (see below). This limit on replenishment only applies during the 'IRS Cooling Off Period'. This period lasts for 25 business days following the default of a clearing participant. If another default occurred during the IRS Cooling Off Period, the 25-day period would begin again from the date of the later default. After the IRS Cooling Off Period, clearing participants must fully replenish their Guaranty Fund contributions.

The final resource in the default waterfall is the unfunded Assessments against each non-defaulting clearing participant (the CME Assessment); see CCP Standard 4.4. The maximum Assessment is sized to match the third and fourth largest stress-test losses. Once sized, the Assessment totals are allocated among all clearing participants. Each clearing participant's obligation is its share of the total assessment, calculated on the same basis as its IRS Guaranty Fund contribution.

Assessments are due to be paid to CME on the day they are called, unless the call is made within one hour of the close of Fedwire, in which case the assessment is due within one hour of when Fedwire next opens.

If a default occurred, CME may issue an advance Assessment demand to non-defaulting clearing participants. This would only occur in the situation where the collateral of the defaulting participant was less than 50 per cent of the margin requirements for its IRS contracts (e.g. due to extreme margin erosion). This would require non-defaulting clearing participants to contribute capital up to a maximum of the amount that would be necessary to bring the collateral of the defaulting clearing participant to 100 per cent of the relevant margin requirement. Any such Assessment would be allocated pro rata among participants, would be separate from any pre-funded Guaranty Fund contribution, and would be subject to any cap on Assessments established for participants (see below).

IRS Termination Event

If at any time following a default: CME was unable to cover a variation margin payment obligation and had no expectation of accessing funds to permit it to cover the obligation; CME determined that available collateral would be insufficient to satisfy auction bid results for the defaulting clearing participant's portfolio; CME otherwise determined that IRS losses were likely to exceed available collateral; or there was a bankruptcy event of the Exchange, an IRS Termination Event would be declared.

Should an IRS Termination Event occur, CME would conduct a final settlement cycle, netting offsetting variation margin gains and losses against the IRS clearing participant's assets held by CME. If non-defaulting participant variation margin gains exceeded variation margin losses, CME would haircut the

gains pro rata. Likewise, if CME received more variation margin than it paid, these gains would be reimbursed to clearing participants in reverse order of the waterfall.

Interest rate futures held in a clearing participant's IRS account, or customer IRS account, under the commingled futures/swaps portfolio margining program would revert to being treated as futures, rather than swaps, should an IRS Termination Event occur.

Once this final settlement cycle was complete, all IRS contracts would be terminated.

Default management – Base products

With regards to default management in for Base products, the first step in closing out a defaulting clearing participant's portfolios (and defaulting customer omnibus) would be to liquidate the collateral held as initial margin against those positions. CME would then attempt to transfer all non-defaulting customers, along with their collateral, to another clearing participant. See CCP Standard 13.3 for details on CME's porting arrangements. CME has not established a DMC for Base products.

The Rulebook authorises CME to close out the defaulting clearing participant's portfolio, and any defaulting customer portfolios via:

- book-entry offset of open contracts in the defaulting portfolio
- open market liquidation on a CME Group Exchange
- private auction.

The decision to utilise a particular close-out mechanism would depend on a number of factors, including CME's assessment of the liquidity of the market and the complexity of the portfolio. CME has arranged for a number of default brokers to assist in the default management process, and has utilised these brokers in previous liquidation situations.

In closing out the portfolio, CME would determine which positions to liquidate and, for those positions that were to be auctioned, how the portfolio would be split.

Once Auction Portfolios were determined, CME would send details of the Auction Portfolios to clearing participants. CME has discretion over which firms it would offer Auction Portfolios. CME may determine the clearing participants that it would approach based on participation in previous drills and default management exercises, or based on products in which the clearing participants are typically active. Clearing participants may also contact CME to express an interest in bidding. Firms interested in participating would submit private bids for the Auction Portfolios. CME has discretion to select which bid to accept for the portfolio, taking all circumstances into account. Participation in auctions is optional.

During the management of a default, CME's exchanges and clearing operations, including variation margin settlement, would continue as normal.

Use and sequencing of financial resources – Base products

The costs of liquidating the defaulting clearing participant's portfolio are 'losses', including any costs incurred liquidating a defaulting customer omnibus portfolio above the initial margin held against that omnibus portfolio. Losses would first be met using the defaulting clearing participant's available assets for the Base portfolio. These assets are the defaulting participant's: initial margin; cross-margin assets (below); variation margin gains (if any); proceeds from the liquidation of the clearing participant's CME Group Exchange memberships; and Base Guaranty Fund contribution. As with IRS losses, if the available assets exceeded the losses, those excess assets could be used to meet losses

arising from the liquidation of other product categories on which the participant had also defaulted (i.e. IRS and CDS products) and vice versa (see above).

The positions and initial margin in the cross-margin account of the defaulting clearing participant or in its (or its cross-margining affiliate's) account held at a cross-margining clearinghouse would be available to CME. The split of assets between CME and the cross-margining clearinghouse is determined by the Cross-Margining Agreement between CME and the cross-margining clearinghouse (see CCP Standard 19). Any shortfalls arising from the cross-margining program would be treated as losses.

If the participant's available assets were insufficient, losses would be met according to the default waterfall. Unlike in the case of the IRS Guaranty Fund (see above), a single non-tranched waterfall is used in practice for Base products; however, a rule exists (but is not operational) that splits the Base Guaranty Fund into a number of tranches.

As at 31 July 2014, the first US\$100 million of any additional losses were met by CME's Capital Contribution. Losses would then be addressed using non-defaulting participant's contributions to the Base Guaranty Fund. As at 31 July 2014, the Guaranty Fund was approximately US\$3.578 billion. See CCP Standard 4.4 for details on the method used to determine the size of the Base Guaranty Fund.

If CME had to use the Base Guaranty Fund, clearing participants would be required to restore their contribution to previously required levels, by the end of the next banking day; however, in the event of a default, replenishment would be subject to the participant's maximum obligations to contribute to the Base Guaranty Fund, and to fund Base Assessments. This limit on replenishment only applies during the 'Cooling Off Period'. The Cooling Off Period lasts for five business days following the default of a clearing participant. If another default occurred during the Cooling Off Period, the five-day period would begin again from the date of the later default. After the Cooling Off Period, clearing participants must fully replenish their Guaranty Fund contributions.

Assessments of non-defaulting clearing participants would be made once CME had determined that a loss or deficit still remained after application of all available assets of the defaulting participant. The Risk Management Department would advise clearing participants of the existence and magnitude of an Assessment at the earliest possible opportunity. The maximum Assessment CME can call is 275 per cent of the clearing participant's Base Guaranty Fund contribution in the event of a single clearing participant's default, or 550 per cent in the event of multiple defaulting clearing participants within the same Cooling Off Period. Assessments are due to be paid to CME on the day they are called, unless the call is made within an hour of the close of Fedwire, in which case the Assessment is due within one hour of when Fedwire next opens.

Except as provided for in CME Rules 818.A and 818.B, CME does not have contractual provisions to close out, net and offset non-defaulting participants' open Base product contracts without CME declaring bankruptcy. Accordingly, if the waterfall was extinguished, CME would declare bankruptcy in accordance with Rule 818. In this event, all open positions across all product categories would be immediately closed through a final settlement cycle. Closed positions would then be netted and offset against all the participant's assets held at CME across all three product categories, in accordance with US bankruptcy law. The value of initial margin posted by non-defaulting clearing participants cannot be used to offset losses or the default of CME or another clearing participant.

12.2 A central counterparty should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. This requires that the central counterparty should:

(a) require its participants to inform it immediately if they:

- (i) become subject to, or aware of the likelihood of external administration, or have reasonable grounds for suspecting that they will become subject to external administration; or**
- (ii) have breached, or are likely to breach, a risk control requirement of the central counterparty; and**

The CME Rulebook sets out the notification requirements for clearing participants. Events that trigger a notification requirement include when the clearing participant: fails to meet CME's minimum capital requirements; suffers a reduction of net capital of 20 per cent or more; fails to meet any of CME's financial reporting requirements; or becomes subject to insolvency proceedings of any kind.

(b) have the ability to close out, hedge or transfer, a participant's open contracts in order to appropriately control risk of a participant that:

- (i) becomes subject to external administration; or**
- (ii) breaches a risk control requirement of the central counterparty.**

CME may implement any of the default management powers contained in the Rulebook as soon as a clearing participant default is declared. The Clearing President and the CRO have the power to declare that a participant is in default.

The CME Rulebook (Chapter 8G for IRS products) and the exchange rulebooks (Chapter 8 for Base products) define a 'default event' as when a clearing participant either: fails to promptly discharge obligations owed; or becomes subject to insolvency or equivalent proceeding. In the event that a clearing participant was declared to be in default, subsequent failures by that participant to meet obligations would be deemed to be part of the same default event. Defaults by multiple clearing participants, however, would be separate default events and would be managed separately.

12.3 A central counterparty should publicly disclose key aspects of its default rules and procedures.

The key aspects of CME's default rules are contained in the CME Rulebook (Chapter 8G for IRS Products) and in the exchange rulebooks (Chapter 8 for Base products). The rules are publicly available on CME's website. These rules outline when CME can take action against a clearing participant and the powers of CME in the event of a default, including the ability of CME to transfer customer positions to other clearing participants. The Rulebook explicitly sets out the treatment of house and customer positions for both Base and IRS products.

The procedures that CME would follow during a default are detailed in its Default Management Procedures. These Procedures are made available to clearing participants, but are not publicly available. Additional rules for IRS products detailing loss allocation and auction procedures are contained in the IRS Default Management Guidelines (see CCP Standard 12.1). These Guidelines are provided to IRS participants, but are not publicly available.

12.4 A central counterparty should involve its participants and other stakeholders in the testing and review of the central counterparty's default procedures, including any close out procedures. Such testing and review should be conducted at least annually and following material changes to the rules and procedures to ensure that they are practical and effective.

CME conducts semiannual default management drills for each product category. These tests involve clearing participants and certain customers of clearing participants, chosen by CME as appropriate. These drills allow participants to familiarise themselves with the default procedures and to test their capability to evaluate sizeable portfolios in extreme but plausible scenarios. Portfolios for the drills are structured to be consistent with participants' exposures and to incorporate large and complex portfolios. IRS and CDS clearing participants are required to participate in drills; participation in Base product default management drills is determined by CME.

In addition to clearing for the CME Group Exchanges, CME clears contracts listed by DME and Eris. Each DME participant is required to also hold a NYMEX membership. In light of their dual status as DME and NYMEX participants, DME participants are included in default management drills. Eris participants are not required to be clearing members of CME. Currently, CME does not require Eris participants to be included in the default management drills. CME is considering extending mandatory participation to cover Eris participants in the near future.

The relevant Risk Committees review and analyse the results of the default management drills. These results feed into the Risk Committee's annual review of the default management process. For IRS products, the DMC reviews drill results. The results of default drills are made available to the appropriate regulators.

CME is currently in the process of developing a RWP. CME expects the RWP to be finalised by the end of 2014 (see CCP Standards 3.5 and 4.8).

12.5 A central counterparty should demonstrate that its default management procedures take appropriate account of interests in relevant jurisdictions and, in particular, any implications for pricing, liquidity and stability in relevant financial markets.

CME's DMC has at least two representatives from each IRS clearing participant. The DMC advises CME and the IRSRC during the default of a clearing participant, as well as on default management practices and procedures more generally.

CME's default management procedures aim to liquidate a portfolio with minimal market disruption.

- In managing an IRS default, the Active DMC pursues a hedging strategy, and splits the defaulting clearing participant's portfolio into smaller Auction Portfolios. These actions are designed to form relatively risk-neutral portfolios, to mitigate the risks to be assumed by successful bidders. Together with the incentives for competitive bidding, as detailed in CCP Standard 12.1, these processes are designed to facilitate timely auction completion and assist in reducing market disruption.
- In managing a Base product default, CME seeks to liquidate the portfolio either on-market or in private, invitation-only auctions. In addition, the Clearing President determines the timing of a public announcement of the default, taking into account the effect the announcement will have on CME's efforts to reduce and mitigate its exposure.

To provide for further stakeholder engagement, CME meets biweekly with industry participants (clearing participants, back-office vendors and middleware providers) through its OTC Clearing Firm Operations Forum to discuss developments and receive feedback (see CCP Standard 2.8). In addition, CME's Risk Committees include representatives from clearing participants (see above), as well as independent members.

The Bank expects CME to take appropriate account of Australian membership and regulators in default management. The Bank will engage with CME and the CFTC on how it is envisaged that the

default of an Australian-based participant, or any participant with a large Australian dollar-denominated portfolio, would be managed. It is expected that such dialogue will clarify the roles of Australian-based participants in this process and the nature of cooperation with the Australian regulators.

Standard 13: Segregation and portability

A central counterparty should have rules and procedures that enable the segregation of positions of a participant's customers and the collateral provided to the central counterparty with respect to those positions.

13.1 A central counterparty should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the central counterparty additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the central counterparty should take steps to ensure that such protection is effective.

Under US law, FCMs and DCOs are required to offer certain types of account structures; in all cases, house and customer collateral and positions are legally segregated from one another. CME maintains omnibus segregated customer accounts for most Base products and Legally Segregated Operationally Commingled (LSOC) accounts for certain OTC-traded Base products and all IRS products (see CCP Standard 13.2). CME obtains an acknowledgement letter from each depository institution and custodian holding customer monies, which acknowledges that such funds are customer funds and that holding arrangements comply with relevant US laws. Further information on these settlement banks and custodians is outlined in CCP Standards 9 and 15.

As outlined in the CME Rulebook,³⁴ in a default situation, CME would attempt to transfer (i.e. port) participants' customer positions and associated collateral, with respect to any customer account in which there is no default, to alternative clearing participants (see CCP Standard 13.3).

Under US law, participants clearing on behalf of customers are required to be registered as FCMs. For non-US-domiciled clearing participants, CME obtains legal opinions regarding the enforceability and efficacy of CME's rules and procedures (see CCP Standard 1). These opinions assess any legal risks that may arise from the clearing participant's jurisdiction, including to CME's segregation and portability arrangements.

US law seeks to prevent a defaulting clearing participant's insolvency administrator from reversing the transfer of customer positions. It is intended that these provisions would apply provided the porting arrangements were entered into before a clearing participant went into administration, or within seven days after, and provided the transfer were approved by the CFTC.

13.2 A central counterparty should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A central counterparty should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts, or equivalent.

Under US law, DCOs are required to use LSOC accounts for all cleared swap customer positions and collateral.³⁵ Of the products cleared by CME, currently IRS and certain Base product OTC FX forwards

³⁴ Rule 802.G; 8G802.G for Interest Rate Derivative Clearing; and 8H802.H for Credit Defaults Swap Clearing.

and OTC metals forwards fall into this category. For all other products, customer positions and collateral are required to be held in futures-style omnibus accounts.³⁶

OTC Base products and IRS

CME uses an LSOC model for customer positions and collateral in certain OTC-traded Base products and all IRS. Customer positions and collateral are segregated from those of the house account and therefore customer collateral cannot be used to offset losses arising on a clearing participant's proprietary account. In addition, under LSOC arrangements the initial margin and variation margin gains (if any) of defaulting participants' customers cannot be used to offset losses arising from other, defaulting, customer positions or collateral. Any losses incurred by CME in liquidating a defaulting customer's portfolio that exceeded the customer's initial margin would be treated as losses of the defaulting clearing participant (see CCP Standard 12.1).

Clearing participants are required to submit daily reports on the identity of customers and the amount of their initial margin. These reports are required under US law for cleared swaps customers. Customer positions are tracked by CME as they are cleared.

Initial margin for customer positions is calculated on a gross basis, per customer account; offsetting customer accounts at the same clearing participant do not net to reduce initial margin. CME requires clearing participants to call at least as much initial margin from each customer as CME calls from the clearing participant for that customer's account, and lodge this minimum amount with CME. In addition, under CME's 'LSOC with excess' program, clearing participants are able to deposit excess funds with CME on behalf of their customers, providing a buffer for those customer accounts.

Base products

CME offers omnibus customer accounts for Base products for which LSOC arrangements are not required. As a result, initial margin from non-defaulting customers could be used to meet losses arising from defaulting customers in the omnibus account. However, customers' initial margin and variation margin gains (if any) cannot be used to offset losses arising on a clearing participant's proprietary account. As with IRS, the clearing participant would be obliged to meet any losses arising from its customers in excess of the collateral held against the omnibus.

As required under US law, initial margin for customer positions is calculated on a gross basis. Clearing participants are required by CME to collect at least as much initial margin from each customer as CME collects from the clearing participants and lodge this minimum amount with CME. These participants also have the option to lodge excess customer collateral with CME. These two measures are designed to ensure that customer positions are unlikely to be under-margined.

Clearing participants report gross open-interest customer data for Base products twice daily. In the event of a default, CME would rely on its own records, received via the daily reporting process, to identify individual customers' positions and initial margin.

13.3 To the extent reasonably practicable under prevailing law, a central counterparty should structure its portability arrangements in a way that makes it highly likely that the positions

³⁵ CDS contracts submitted for clearing for the account of a CDS clearing participant's Cleared OTC Derivative Customer are held in a Cleared OTC Derivatives Sequestered Account.

³⁶ Futures products that are cross-margined with OTC products would be subject to LSOC rules. For more information on CME's cross-margining arrangements, see CCP Standard 6.

and collateral of a defaulting participant's customers will be transferred to one or more other participants.

OTC Base products and IRS

In the event of a default, CME would work with non-defaulting clearing participants to port customer positions from a defaulting participant. In the meantime, CME would establish arrangements directly with non-defaulting customers of a defaulting clearing participant for their initial and variation margin payments, until they can be ported to a non-defaulting clearing participant. Customer collateral is legally segregated and identifiable to CME. If non-defaulting customer positions and collateral could not be ported, the customer positions would be liquidated in the same manner as those of a defaulting customer.

Customers of a defaulting clearing participant would be notified by the defaulting clearing participant of CME's intention to port them to a non-defaulting clearing participant. This would generally be done by negative consent letters. This means customers would be given the opportunity to remain at the defaulting clearing participant (and have their portfolio liquidated by CME), but a customer's non-response would be taken as consent to the porting arrangement. Following the management of the default, customers that were ported would be free to transfer their positions and collateral to a different clearing participant under business-as-usual porting arrangements.

Base products

In the event of a clearing participant default that also involved a customer default in a Base product omnibus account, CME would use its own records to determine which customer accounts had defaulted. CME would attempt to port non-defaulting positions and initial margin, net of losses incurred by the defaulting customer(s). Customer consent for porting would be obtained in the same way as for IRS.

CME seeks to improve the likelihood of successful porting through gross margining of customer positions, as this means customer accounts are less likely to be under-margined.

Other arrangements

To further improve the probability of successful porting of customer positions, CME would examine the customer portfolios of a clearing participant that appeared to be in distress. In this situation, CME would aim to identify non-defaulting clearing participants with similar or complementary customer profiles that could be well placed to take on non-defaulting customers if the distressed clearing participant defaulted.

13.4 A central counterparty should disclose its rules, policies and procedures relating to the segregation of a participant's customers' positions and related collateral. In particular, the central counterparty should disclose whether customer collateral is segregated on an individual or omnibus basis. In addition, a central counterparty should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

CME's arrangements for segregation and portability are set out in the CME Rulebook, which is publicly available on CME's website. CME has also published: a summary of its financial safeguards, which outline the implications of the different account structures and the segregation protections these

structures provide customers; and a separate disclosure on LSOC account structures, including the risks of using such arrangements.³⁷

In the event of a clearing participant default, under US law, CME cannot compel the porting of customer positions after a participant has filed for insolvency protection, absent a court order. Under US law, once insolvency protection has been filed, porting becomes the responsibility of the defaulting participant's trustee.

In regards to segregation arrangements, CME is required under US law to offer certain types of account structures; as discussed above, these account structures determine how losses are shared in the event of a clearing participant default (see CCP Standard 13.2). However, in the situation where a defaulting FCM is found not to be holding enough customer funds due to being in breach of its regulatory requirements, the effect of US law is such that customers of the defaulting FCM are required to share any losses on a pro rata basis. CME has indicated that there are no operational constraints preventing it from segregating customer positions and collateral.

Standard 14: General business risk

A central counterparty should identify, monitor and manage its general business risk and hold, or demonstrate that it has legally certain access to, sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

14.1 A central counterparty should have robust management and control systems to identify, monitor and manage general business risks, including losses from poor execution of business strategy, negative cash flows or unexpected and excessively large operating expenses.

CME Group is responsible for determining and overseeing the business strategy, and managing general business risks for the entire corporate group, including CME Clearing Division. CME and CME Group both have capital available to cover business-related losses arising from risks unrelated to the default of a clearing participant (see CCP Standard 14.2). CME is required to maintain sufficient financial resources for, respectively, its DCO operations and DCM operations, as per CFTC regulations. The minimum financial resource requirements are additive in that each of CME's DCO and DCM operations are independently required to maintain sufficient operating capital to address its operating costs for a rolling one-year period.

Business-related risks are identified and monitored at Group-level as part of CME Group's ERM program, which is led by CME's Global CCO and coordinated by CME Group's cross-functional ERM team (see CCP Standard 2.6). The ERM program is designed to facilitate business risk management across the Group by establishing processes to consistently identify, communicate, assess, respond to and monitor all risks faced by CME, across all of its functions.

The ERM program assesses risks across Operational, Strategic (including Regulatory) and Financial areas for CME Group. These take account of:

- *Trading*. This includes CME Exchange Division's infrastructure, software, operational processes and support services that are essential to ensure continuous operation of CME's trading venues.

³⁷ Available at <<http://www.cmegroup.com/clearing/files/lsoc-and-cme-groups-vision-cleared-swaps-customer-protection.pdf>>.

- *Clearing.* This includes the operational processes and systems responsible for clearing, settlements and risk management.
- *Product and service offerings.* Examines risks relating to CME's product and service offerings, including the potential influence of CME-specific and competitor-related or business-environment-related factors, both domestic and international.
- *Personnel.* Monitoring of this risk area is designed to ensure CME has adequate resourcing and includes ensuring that it has appropriate organisational programs in place to attract, train and retain talent. It also covers key person risk and succession planning.
- *Compliance, legal and regulation.* Includes CME's surveillance and investigations of exchange activity, as well as risks relating to litigations and regulatory change.
- *Physical and information security.* Monitors CME's capabilities in identifying, assessing, treating and preventing cyber and physical threats to its physical infrastructure and personnel.
- *Recoverability.* Covers CME's responses to operational risks and Business Continuity plan (see CCP Standard 16).
- *Project execution.* Monitors potential risks with project delivery across projects related to strategic, operational and regulatory plans and requirements.
- *Credit and liquidity.* Monitors risks that may affect CME Group's credit, or its ability to meet business-related expenses.
- *Financial reporting.* Monitors risks related to CME Group's reporting requirements as a publicly listed company.

Key risks identified by the ERM program are presented to the Board and Audit Committee in the quarterly Enterprise Risk Profile Report. The report classifies risks by their area (listed above) and rates the risks by their likelihood and potential impact. Changes in ratings are documented, and the rationale and background for the change explained.

In addition to the ongoing monitoring of business-related risks through the ERM processes, CME Group has an annual strategic and planning process, an annual budget process and a five-year financial plan. These plans and processes are combined to monitor and understand CME and CME Group's ability to meet business plans, and to protect against business risks including adverse business conditions or poor execution of business strategy. As part of this process, CME estimates its revenues and expenses based on internally estimated market, economic and volatility projections; estimates are cross-referenced against external analyst reports that cover the industry and domestic and global economy. CME uses sensitivity methodologies to assess its ability to cover its expenses during adverse business conditions and market contractions.

CME has established an Opportunity Review Committee (ORC) to consider any new initiative that would require significant investment (i.e. greater than US\$2 million). The ORC has processes in place to develop the initiative and, at checkpoints along the way, determine if further allocation of resources is necessary to develop that initiative into a project. Following the development of a business case, it is presented to management or (depending on the size and scope of the project) the Board for a decision. In a project's implementation phase, the ORC provides advice and guidance, and monitors the project's status, working jointly with the Enterprise Solutions Division (see CCP Standard 16.4).

The ORC is responsible for communicating the status of potential projects to relevant areas of the management team, while CME's Enterprise Solutions Division is responsible for communications regarding projects in execution. The Enterprise Solutions Division also manages cross-functional projects related to business initiatives such as mergers and acquisitions, and expansions into new business areas (see CCP Standard 16.4). CME Clearing Division is responsible for managing and prioritising risk- and operations-related projects, including by ensuring adequate resource availability.

CME calculates 12-month-ahead expected revenue and operating costs for each month across major expense categories to ensure it has adequate financial resources (see CCP Standard 14.2). This analysis is undertaken monthly for short-term forecasts and quarterly for longer-term, three-year forecasts.

CME Group publishes a quarterly 10-Q report as part of its requirements under Securities and Exchange Commission rules. This document contains unaudited financial reports, including consolidated balance sheets, consolidated statements of income and consolidated statements of cash flows.

CME holds insurance to cover a number of business risk areas, including general liability, property, management liability, workers' compensation and employers' liability insurance.

14.2 A central counterparty should hold, or demonstrate that it has legally certain access to, liquid net assets funded by equity (such as common stock, disclosed reserves or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity a central counterparty should hold, or have access to, should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

CME holds capital sufficient to cover 12 months of projected operating expenses. CME recalculates this amount monthly and reports the amount to the CFTC quarterly. Of these resources, CME holds an amount sufficient to cover six months of operating expenses in cash or highly liquid securities. Capital held to cover operating expenses is invested in accordance with CME's Investment Policy (see CCP Standard 15). CME calculates operational expenses using projected expenses across major expenditure areas (e.g. compensation and benefits, communications infrastructure, occupancy and building operations). These projections are based on CME's financial plan and annual budget, and are adjusted to reflect changes in CME's business environment or the assumptions underlying the financial plan or budget.

Based on this analysis, CME's 12-month projected operating costs, as at the end of June 2014, were US\$489 million, and six-month projected operating costs were US\$242 million. As at end June 2014, CME had total assets funded by equity equal to US\$1.2 billion of which US\$480 million was held in cash and a further US\$48 million in highly marketable securities; US\$300 million of this capital and cash is CME's contribution across the three default waterfalls, and is not available to address business losses.³⁸

CME is in the process of developing a RWP which will, among other things, identify recovery and wind-down scenarios, estimate the length of time to achieve an orderly wind-down, and identify tools and resources available to achieve recovery or orderly wind down. The utilisation of a specific tool

³⁸ This US\$300 million comprises US\$150 million for the IRS default waterfall, US\$100 million for the Base waterfall and US\$50 million for the CDS waterfall. See CCP Standard 12.1.

and/or resources to enable recovery or orderly wind down will depend on the facts and circumstances at the time of the triggering event(s) (see CCP Standard 14.5).

14.3 A central counterparty should maintain a viable recovery or orderly wind-down plan and should hold, or have legally certain access to, sufficient liquid net assets funded by equity to implement this plan. At a minimum, a central counterparty should hold, or have legally certain access to, liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under CCP Standard 4 on credit risk and CCP Standard 7 on liquidity risk. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

CME is preparing a plan for recovery and orderly wind-down to comply with CCP Standard 14.3, and has been granted an extension until 31 December 2014 by the CFTC to finalise the plan. The Bank will expect to conduct a review of these plans once this work has been completed.

CME currently has access to sufficient liquid net assets, funded by equity, equal to at least six months of current operating expenses (see CCP Standard 14.2).

14.4 Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the central counterparty to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

CME invests its capital in high-quality assets, in accordance with CME's Investment Policy (see CCP Standard 15). CME ensures it holds cash (which, under its Investment Policy, can be held at central banks and creditworthy commercial banks; see CCP Standard 15) or highly liquid securities, funded by equity, sufficient to meet projected six-month operating costs; this amount is recalculated quarterly.

Assets held to cover business risk are not commingled with the financial resources held to cover the default of a participant, including the capital CME contributes to the Guaranty Funds. To ensure separation of margin and Guaranty Funds from assets to cover business risks, CME has accounting, reconciliation and financial services for the former undertaken by a division within CME Clearing, while a division at CME Group is responsible for those assets used to cover business risks.

In addition, CME has a formal credit line with CME Group – currently US\$400 million – which can be drawn solely to cover general operational expenses of CME and its subsidiaries. However, because this line is not an asset funded by equity, it is not an eligible loss-absorbing resource for the purpose of CCP Standard 14.2 or 14.3.

14.5 A central counterparty should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

CME currently has available net equity in excess of 2.5 times CME's projected six-month operating costs. In the event additional liquidity is required, CME Group maintains a universal shelf registration statement, approved by the Board, with the SEC. This registration allows CME Group to access the public debt or public equity markets quickly and could be utilised to raise equity to contribute to CME. As a wholly owned subsidiary of CME Group, CME could receive a contribution to its equity from its parent, CME Group Inc. CME Group could fund up to a pre-determined amount of capital for CME without additional Board approval. The Board of CME Group, which is identical to the Board of CME, would also have to authorise further increased investment in CME (see CCP Standard 2).

The Bank expects CME to formally document these plans to raise additional equity in its recovery and wind-down plan. As discussed in CCP Standard 14.2, CME expects to finalise its recovery and wind-down plan by 31 December 2014.

Standard 15: Custody and investment risks

A central counterparty should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. A central counterparty's investments should be in instruments with minimal credit, market and liquidity risks.

15.1 A central counterparty should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures and internal controls that fully protect these assets.

Under CME's Investment Policy, CME's cash – including cash posted to it by participants – can be held at central and commercial banks, invested in bilateral and tri-party reverse repurchase agreements, or used to purchase high-quality securities. These activities are conducted in accordance with CME's Investment Policy (see CCP Standard 15.4) and are consistent across Base, IRS and CDS products.

Non-cash collateral is held at regulated commercial custodian banks in the US and UK. These banks are prudentially regulated and supervised in their respective jurisdictions. CME has informed the Bank that it is confident that these banks apply appropriate accounting standards.

CME selects its custodian banks in accordance with its Settlement Bank Policy, Collateral Policy and Credit Risk Policy. These policies specify criteria against which custodian banks are assessed for suitability, including minimum internal credit ratings, liquidity and operational risk management, each bank's internal processes for monitoring and managing accounts, and operational processes and timeframes for moving collateral and money. CME Group publishes a list of approved custodian banks on its website. Custodian banks are approved and reviewed on an ongoing basis by CME in the same manner as settlement banks (see CCP Standard 9.3).

Under CME's Settlement Bank Policy, all custodian banks are reviewed at least annually to ensure they meet all relevant criteria. In addition, key representatives from each department in CME Clearing Division meet quarterly to discuss any issues that have arisen.

15.2 A central counterparty should have prompt access to its assets and the assets provided by participants, when required.

CME has custody agreements in place with each of its custodian banks, which specify that the assets of CME and its participants held by the custodian bank are maintained exclusively for the benefit of CME and do not constitute general assets of the custodian bank. In addition, the Rulebook requires that collateral from participants is unencumbered. Participants' collateral and Guaranty Fund contributions are held by CME in accounts at custodian banks in the name of CME and subject to CME's exclusive control, subject to certain name conventions and regulatory requirements for accounts holding assets of indirect participants (see CCP Standard 5). Because the accounts are in the name of CME and CME has control over the collateral, CME submits instructions directly to its custodian banks. These agreements and rules aim to ensure that CME has prompt and legally certain access to collateral, including in the event of a participant default (see CCP Standard 1.1).

In order to manage risks arising from foreign jurisdictions, CME ensures it has choice of law provisions in its custodian and settlement arrangements so that the laws of a foreign jurisdiction will not negatively impact CME's ability to perform any function or exercise any of its rights, including in a

default or insolvency situation (see Standard 1.6). Before entering into a custody agreement with a non-US bank, CME obtains legal advice to assess any legal risks and to provide comfort regarding the enforceability of CME's rights.

CME currently utilises three UK branches of overseas banks as custodians in order to accept small amounts of gold as collateral (see CCP Standard 5). CME has operational and support staff available 24/7 and is able to issue instructions to custodian banks regardless of time zone. During a default, CME would be able to access the gold collateral held at these UK custodians on a same-day basis in the US during UK business hours or, at worst, on the following US business day. CME has performed specific test draws with these custodians to ensure it is able to access the assets.

Rule 817 permits CME to pledge assets to a credit facility in order to obtain timely liquidity in the event of a member default.

15.3 A central counterparty should evaluate and understand its exposures to its custodians, taking into account the full scope of its relationships with each.

CME reviews its custodians at least annually – and more frequently for certain counterparties, or if deemed appropriate – to determine the creditworthiness, liquidity resources and overall counterparty strength of its custodian banks. These reviews are conducted as part of CME's counterparty credit review process, overseen by the Credit Committee (see CCP Standard 4). These counterparty credit reviews take into account the entire relationship between CME and the counterparty across all its business relationships and consider, among other things, the safekeeping practices and internal controls of the counterparty. In addition, the Risk Department monitors indicative market data and external credit ratings on a daily basis, consistent with CME's Credit Risk Policy (see CCP Standard 4.2). If monitoring identified deteriorating creditworthiness of a custodian bank, the situation would be escalated to senior management, along with a summary of the exposure amounts and a recommended course of action. Recommendation actions may include discussion with the institution, restrictions on the relationship, or, in extreme cases, considering terminating the relationship. The recommended actions would also be presented to the Collateral Committee and Credit Committee for approval.

15.4 A central counterparty's investment strategy should be consistent with its overall risk management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

CME invests cash in accordance with its Investment Policy, which details the principles and criteria for investing the cash balances held on behalf of participants. The primary objective of the Policy is to ensure the safety and preservation of capital, and the minimisation of liquidity risk. Consistent with these priorities, the Investment Policy defines counterparty eligibility criteria and defines the scope of permitted investments. In particular, investment counterparties must have minimum internal credit ratings, as referenced in the Investment Policy. Permitted investments are restricted to: central bank deposits; commercial bank deposits, subject to CME's Credit Risk Policy; reverse repurchase agreements of US Treasuries or US Government Agency securities with counterparties meeting internal credit requirements, subject to defined haircuts; or outright purchases of US Treasuries or US Government Agency securities, subject to limits on maximum maturity. CME does not invest non-US dollar cash it receives as initial margin; this cash is held uninvested at CME's settlement banks (see CCP Standard 9.3).

Single counterparty limits are set for each investment counterparty and take into account CME's internal rating of the counterparty, whether the investment is secured or unsecured, and the counterparty's capital. The limits are approved under the governance of the Collateral Committee and are reported to the Credit Committee on a quarterly basis. Limits are also placed on the concentrations of US Government Agency securities. To mitigate liquidity risk, reverse repurchase agreements are limited to overnight terms, or to open repurchase agreements that can be terminated with one business day's notice.

CME currently invests the bulk of its cash collateral on an unsecured basis with a relatively small number of commercial bank counterparties. However, CME has informed the Bank that it is working to establish relationships with a wider range of repo counterparties. Once these arrangements have been established, CME intends to invest the bulk of its cash portfolio on a secured basis. The Bank will continue to monitor CME's planned diversification program, with the expectation that CME should continue to manage counterparty concentration risk in the investment of its treasury investment portfolio.

Customers' funds must be invested in the categories set out in CFTC Regulation 1.25. CME's Investment Policy also adheres to these categories for all other, non-customer funds.

CME does not invest in its own securities or the securities of its participants.

Interest on securities – including the IEF programs (see CCP Standard 5) – held by CME on behalf of participants accrues to participants or their customers, as appropriate. CME does not guarantee returns to participants on the IEF programs and participants do not earn interest on cash collateral posted to CME outside of IEF programs.

CME does not provide its Investment Policy to clearing participants as a matter of course, but will communicate details about the Policy on an ad hoc basis in response to requests from clearing participants.

CME has, in the past, operated a securities lending program that reused non-cash collateral provided by clearing participants. However, this program is currently inactive while CME reviews the program in light of bankruptcy remoteness and Basel III standards. Under this program, CME – through agent banks acting as fiduciaries – is able to lend out securities posted by clearing participants and reinvest the cash received in a manner consistent with the Investment Policy. Only securities posted as collateral for house positions and the Guaranty Fund could be used for the program.

The Collateral Committee is responsible for determining eligible investments. This committee comprises senior personnel from across relevant areas of CME Clearing Division, including the CRO. These eligible investments are approved by the Credit Committee (see Standard 4 for more detail on the Credit Committee).

Day-to-day management of investments and liquidity is carried out by the Banking and Collateral Services Group, which monitors the performance of the investment portfolio in relation to the policy objectives. Any exceptions to the Investment Policy require approval of a Senior Director of CME Clearing Division or above and an Executive Director of Risk Management or above.

Daily monitoring and reporting is conducted on exposures against agreed limits, weighted average maturity of the portfolio, and the investment performance of each investment and the entire portfolio. To aid in monitoring adherence to the Investment Policy, the Clearing Banking and Collateral Services Group prepares quarterly and annual investment reports, which are approved by

the Collateral Committee and provided to the Credit Committee. These reports include a management summary of the investments and transactions over the prior quarter.

The Investment Policy is reviewed annually by the Collateral Committee; any recommended changes must be approved by the Credit Committee.

Standard 16: Operational risk

A central counterparty should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the central counterparty's obligations, including in the event of a wide-scale or major disruption.

16.1 A central counterparty should establish a robust operational risk management framework with appropriate systems, policies, procedures and controls to identify, monitor and manage operational risks.

CME maintains an ORMF, which outlines the policies and steps to identify, assess and manage operational risks facing CME Clearing Division. The policy is part of the CME Group-wide Enterprise Risk Management program and complements the CME Clearing Division Risk Management Framework. Components of the ORMF were reviewed by the CHRC and the Board in the second quarter of 2014, and will now be reviewed at least annually thereafter in their review of the Risk Management Framework (see CCP Standard 3), or when significant changes are made.

The main areas of operational risk identified by CME Clearing Division include IT risk, vendor risk, compliance risk, process risk and financial reporting risk.

CME Clearing Division uses a 'three lines of defence' approach to monitor and manage operational risks.

- Primary and immediate responsibility for identifying and managing risks lies with operational department-level management and staff.
- The second line of defence comprises Group-wide Corporate Compliance and ERM processes. The purpose of the ERM program is to promote and facilitate risk management across CME Group by establishing processes to consistently identify, communicate, assess, respond to and monitor enterprise-relevant risks. The objective of this approach is to allow the first line of defence (operational functions) to establish risk management processes that meet necessary operational requirements, while also supporting the needs of enterprise-wide risk management. CME Group has established a Risk Management Team (RMT) as a cross-functional forum for identifying, communicating, assessing, responding to and monitoring enterprise-relevant risks facing CME Group. The RMT is comprised of senior representatives from each division designated by the Senior Leadership Team and meets at least monthly. The Clearing House Operations function has representation on the RMT where relevant risks are discussed. Governance and oversight of the ERM program is provided by the Senior Leadership Team and the CME Group Audit Committee. Furthermore, the ORMF is overseen by the Clearing House Risk Management team.
- The third line of defence comprises internal and external audits of the implementation and performance of the ORMF. Internal audits are conducted according to the annual Global

Assurance Plan (see CCP Standard 2.7). Risk management and control processes are audited annually, while other specific functions are audited less frequently. CME Group's Global Assurance Group is overseen by CME Group's Board-level Audit Committee. Where appropriate, CME Group complements the work of the Global Assurance Group with external audits. See also CCP Standard 2.7 for more detail on CME's internal audits.

CME Clearing Division uses these processes to produce a library of risks, as well as related items including relevant policies and procedures, regulations, controls, tests and indicators. The ERM team coordinates the compilation of a quarterly Enterprise Risk Profile report, which provides the Senior Leadership Team and the Audit Committee with a perspective on CME Group's risk profile. Changes in the operational risk profile of CME Clearing Division are reported through the Head of Operations to senior management of CME Clearing Division, the CHRC, the ERM team and the Board. Any product-specific changes in operational risks are also reported to the IRSRC and the CDSRC, as appropriate. The ERM team is also responsible for reviewing any significant operational incidents.

16.2 A central counterparty's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the central counterparty's operational risk management framework. Systems, operational policies, procedures and controls should be reviewed, audited and tested periodically and after significant changes.

The Board – through the Audit Committee – is tasked with approving, monitoring and reviewing the operational risk framework, policies and practices of the CME Group Exchanges and CME Clearing Division. The Audit Committee receives quarterly reports on CME's risk profile from the ERM team.

The Board's duties and responsibilities in relation to operational risk are to approve and review annually the enterprise-level framework for managing operational risk, including:

- satisfying itself that appropriate systems are in place to identify, evaluate and manage the significant risks faced by CME Clearing Division
- ensuring that staff throughout the enterprise are clear as to their own roles and responsibilities
- providing senior management with clear principles underlying the framework
- approving the policies developed by senior management or, if appropriate, the appropriate Risk Committee(s) and setting the risk appetites for the various operational risks
- receiving reports on operational risk exposure, including against risk appetites as part of its oversight function, so that it can ensure appropriate action is taken
- ensuring that the operational risk framework and procedures, across the enterprise, are audited effectively by independent, appropriately trained and competent staff.

As noted in CCP Standard 16.1, the implementation and functioning of the ORMF is subject to internal and external audit, and components of the Framework are reviewed annually, as part of the broader governance and oversight function undertaken by the Board and the Audit Committee (see CCP Standard 3.1).

Systems are reviewed before major changes, in accordance with CME's change management program. The program has policies covering configuration, change management and systems development. Broadly, these policies ensure:

- security impact analyses are performed for all system and configuration changes

- information security templates are completed, so that information security is considered at the beginning of system development projects
- quality assurance testing is carried out for all changes prior to implementation
- vulnerability scans are performed on all new standard configuration settings.

The Global Assurance Group reviews the implementation and effectiveness of change management policies and procedures. CME occasionally engages independent external firms to assess application development and change management practices.

16.3 A central counterparty should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives. These policies include, but are not limited to, having: exacting targets for system availability; scalable capacity adequate to handle increasing stress volumes; and comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Availability

CME documents operational reliability objectives through operational reliability goals and Service Level Agreements. CME's Service Level Agreement targets for its key systems (Front End Clearing and File Transfer Protocol server access) aim for system availability in excess of 95 per cent. CME Clearing Division's average system availability for the twelve months to June 2014 was 99.979 per cent, with no outages other than due to routine maintenance. In addition, there were no outages in July 2014.

Capacity

CME Group aims to have capacity in excess of twice the last peak load for all operational systems, although this is not a formal policy. The all-time peak was established during August 2011 and current capacity is at two times this peak. During 2013 and until end-July 2014, CME's clearing systems did not experience any capacity-related issues or outages. CME Group will be conducting stress testing on the capacity of its disaster recovery systems during 2014.

CME Group has systems in place to allow real-time monitoring of resource usage to help meet its reliability objectives. The CME Clearing Division IT Department includes a dedicated performance and reliability testing team to monitor capacity utilisation. Alerts are generated when messaging capacity thresholds are reached and these are manually escalated to clearing support staff. In addition, CME Group's IT staff produce daily reports for critical services (the Service Level Agreement targets reports), review all key performance metrics and service levels, and monitor trends in capacity use for the past 7 and 120 days. CME Group also produces a daily report on broader job execution/processing times, which helps to identify capacity trends in areas that are not explicitly monitored in the Service Level Agreement targets report. CME Group Senior Management are notified, according to CME Group's escalation protocol, when specified thresholds are, or are likely to be, exceeded.

CME Group also has processes for modelling operational demands in order to forecast required capacity. CME Group stress tests capacity on a weekly rotating basis, with critical systems grouped into four test groups (i.e. each system is tested on a four-weekly basis). Capacity testing is performed using an application that can run at speeds multiple times faster than in production. Results are reviewed weekly and any issues are escalated to operational and development teams as required. Capacity modelling is monitored and reviewed by Senior Management through quarterly capacity meetings, which review infrastructure performance and capacity utilisation trends. These meetings inform infrastructure enhancements and ensure operational reliability goals continue to be met.

CME Group maintains a change management program to ensure performance and resilience of core IT systems. The program has policies covering configuration, change management and systems development (see CCP Standard 16.2).

Physical and information security

CME Group's Business Continuity Management Policy seeks to mitigate risks from potential sources of physical vulnerability and threats. These arrangements are detailed below under CCP Standard 16.7. In establishing its Business Continuity Management Policy, CME Group has cooperated with a number of industry bodies, including the Futures Industry Association and the Securities Industry and Financial Markets Association, and US regulators, including the Department of Homeland Security and the Federal Emergency Management Agency. This cooperation seeks to ensure that CME's business continuity arrangements are consistent with relevant standards and are coordinated with relevant stakeholders. The Business Continuity Management Policy is aligned with the US NFPA 1600 standard and International ISO 22301 standard.

CME Group also maintains an information security strategy, with the objective of protecting the confidentiality, integrity and availability of CME Group's information. The strategy is implemented and overseen by the Group's Global Information Security Department. Information security requirements apply to all CME staff, contractors and consultants, as well as to outsourced services and third-party agreements. The Global Information Security Department provides training to CME staff and third-party users, and conducts risk-based compliance assessments; those who do not comply may be subject to disciplinary action. The Global Information Security Department is also responsible for ensuring information security is considered as part of project development, and for conducting risk-based security assessments.

CME's information technology policies include measures to reduce CME's exposure to cyber-attacks. CME has conducted third-party and internal testing of its ability to withstand cyber-risks.

16.4 A central counterparty should ensure that it can reliably access and utilise well-trained and competent personnel, as well as technical and other resources. These arrangements should be designed to ensure that all key systems are operated securely and reliably in all circumstances, including where a related body becomes subject to external administration.

Resourcing is determined at CME Group level. CME human resources are budgeted for by the Finance Department at least annually, based on input from operational divisions. When specific staffing needs arise, operational divisions are responsible for lodging requests with CME Group's Human Resources Department; this is set out in CME Group's Recruiting Resource Guide. CME Group has a dedicated group of recruiters to support hiring; recruiters actively seek qualified candidates to fill positions. CME provides training opportunities to staff. CME has an External Training Policies and Procedures document, which sets out how employees can access external IT, management and professional skills training. All CME staff must complete a security awareness training course at least annually and some departments require training specific to employees' roles.

CME Group also conducts a semiannual performance review process to ensure its staff have appropriate skills. This process identifies development goals and expectations for staff; off-cycle coaching discussions between staff and supervisors to help staff attain proficiency are also encouraged. Compensation and promotions are aligned with performance.

CME Group has a group-wide employee Code of Conduct, which addresses fraud prevention, including insider trading. All employees are held to the Code and breaches are handled according to the

Management Employee Reporting and Escalation Policy. Violation of the Code can result in disciplinary sanctions, including termination.

CME Group prioritises business processes and systems to ensure that resources are available to perform critical functions in the event of a business disruption. CME Group seeks to manage key-person risk by identifying critical roles and developing plans for potential successors. These plans are reported to the Board annually. The Board and its Governance Committee directly oversee succession planning for the Chairman and the CEO, while the Board-level Strategic Steering Committee oversees succession planning for all other Senior Management roles.

To ensure that all key systems are operated securely and reliably in all circumstances, CME Group's disaster recovery plans also cover alternative work arrangements in the event of disrupted access to office locations. This includes relocation of staff required to support critical operations to backup locations, telecommuting and work-transfer (see CCP Standard 16.7). Additionally, clearing and settlement systems can be recovered and operated by out-of-region employees, which helps to ensure system recovery in less than two hours. This is tested semiannually to ensure operations can be resumed. CME also facilitates remote access for critical staff, to be used in the event of operational events such as pandemics or severe weather. These arrangements are tested at least annually.

Projects

CME Clearing Division is responsible for managing and prioritising risk- and operations-related projects, including ensuring adequate resource availability. CME's Enterprise Solutions Division is responsible for managing cross-functional projects related to business initiatives such as mergers and acquisitions, and new business areas. The Enterprise Solutions Division is responsible for ensuring projects are implemented on time, and within budget and scope. Part of the Division's role is to assess the resource requirements and supply throughout the project, to ensure disruption to business-as-usual processes is minimised.

16.5 A central counterparty should identify, monitor and manage the risks that key participants, other FMIs and service and utility providers might pose to its operations. A central counterparty should inform the Reserve Bank of any critical dependencies on utilities or service providers. In addition, a central counterparty should identify, monitor and manage the risks its operations might pose to its participants and other FMIs. Where a central counterparty operates in multiple jurisdictions, managing these risks may require it to provide adequate operational support to participants during the market hours of each relevant jurisdiction.

Dependencies on participants and other FMIs

CME Clearing Division monitors the operational capability of its clearing participants on an ongoing basis. Participants must meet specified operational capacity requirements for clearing membership. These requirements are detailed below under CCP Standard 16.6. Participants are also encouraged to participate in CME Group's business continuity tests (see CCP Standard 16.8). As part of full-system failover, CME Group tests its clearing systems twice each year. One of CME Clearing Division's tests forms part of the Futures Industry Association's industry-wide clearing exercise, conducted each autumn.

Systems for communication with clearing participants, and operational support, are available 24/7. CME Group also ensures its risk management systems are available 24/7, and operates a Global Security Command Centre that is managed continuously by security analysts to monitor and respond to security threats.

CME has operational staff based in Chicago and London that work during Australian business hours. CME has indicated to the Bank that it is prepared to expand its operational staff in the region on an as-needed basis as its business develops. In the first instance, operational assistance to Australian participants would be provided from Chicago, with support also available from CME's London office. CME also maintains clearing staff in Singapore. CME has further indicated that it would work with Australian market participants to meet their training needs, including through in-person training.

CME provides clearing services to two third-party exchanges: DME and Eris. CME's clearing operations do not materially depend on either organisation. CME uses real-time monitoring to alert it to system issues related to all exchanges it clears, including these third-party exchanges. In addition, CME Clearing Division seeks to mitigate and control the risks it poses to third-party exchanges through Clearing and Services Agreements, which provide general standards of performance. Additionally, these partner exchanges participate in CME Group's autumn disaster recovery exercises detailed above, to ensure contingency connectivity and clearing services function adequately.

CME has arrangements with three partner clearinghouses: FICC and OCC for cross-margining arrangements; and SGX for the mutual offset program (see CCP Standard 19). CME has frequent contact with these clearinghouses to ensure business continuity plans, clear lines of communication and escalation procedures are in place. CME Clearing Division monitors network communications and data transfers between clearinghouses so as to be alerted on a timely basis should a disruption occur.

Dependencies on service providers

CME Group defines critical suppliers as suppliers that are needed to run core business functions and the failure of whose systems/services would threaten the viability of CME or its reputation. CME's contracts with its critical suppliers contain service level agreements and performance metrics to ensure the supplier meets relevant operational standards. Breaches of these agreements are escalated within CME and can result in financial penalties for suppliers. CME has indicated to the Bank that it plans to conduct regular assessments of the continuity and resilience practices of its critical suppliers.

CME has identified its critical suppliers as the third parties that provide network, telecommunications and power services, as well as providers of market information. CME relies on Bloomberg and Reuters for pricing information. In the event of a failure of Bloomberg or Reuters, the first option would be to obtain prices from an alternative provider. If this is not possible, CME Clearing Division would use the previous day's prices and apply a more conservative haircut. In addition, Rule 813 establishes CME's right to conduct settlements based on the information that is available. In the event of a SWIFT failure, CME Clearing Division would effect payment and securities movements to banks and custodians using facsimile.

Operational risks posed by utility providers are addressed in the context of CME Group's vendor resiliency program and through contracts with individual providers. CME Group data centres have redundant electrical feeds, backed up by generators. To mitigate the risks arising from extended outages of utility providers, CME Group maintains multiple data centres (see CCP Standard 16.7).

CME Clearing Division also relies on settlement banks and Fedwire to conduct its money settlements (see CCP Standard 9), and CLS as a third-party provider for foreign exchange settlement services (see CCP Standard 10).

Support to Australian participants

The Bank expects CME to provide adequate operational support arrangements to Australian participants, particularly during Australian market hours. As noted above, CME has informed the Bank

that, in the first instance, operational assistance to Australian participants would be provided from Chicago, with support also available from CME's London office. CME will also work with Australian participants to meet their training needs. The Bank will monitor these arrangements to establish whether they appropriately meet Australian participants' needs and adequately mitigate operational risks associated with their participation.

16.6 A participant of a central counterparty should have complementary operational and business continuity arrangements that are appropriate to the nature and size of the business undertaken by that participant. The central counterparty's rules and procedures should clearly specify operational requirements for participants.

CME Clearing Division requires all participants to have adequate operational capacity to:

- participate in default management procedures and auctions
- commit to real-time monitoring of positions
- conduct daily internal stress tests
- measure their exposures in real time
- determine and monitor customer suitability and creditworthiness.

CME Clearing Division monitors participants' compliance with operational requirements; a failure by a clearing participant to meet these requirements may result in sanctions or suspension.

Participants are also monitored by the Joint Audit Committee. The Joint Audit Committee is an industry body, assigned responsibility by the CFTC, to oversee all clearing participants of US CCPs. All US CCPs, including CME Clearing Division, are represented on the Joint Audit Committee. The Joint Audit Committee conducts examinations of clearing participants in order to reduce the compliance burden on clearing participants that clear with multiple CCPs, and to promote a uniform approach among CCPs. Joint Audit Committee reviews include examination of a clearing participant's adherence to applicable CCP rules, and adherence to regulations of the CFTC and other authorities. Additionally, the Joint Audit Committee undertakes risk-based examinations of participants, including operational requirements like recordkeeping and reporting. The CFTC requires risk-based examinations to be performed every 9 to 18 months. The CFTC reviews a sample of the examinations every quarter, and may conduct its own examinations.

The CME Rulebook requires all clearing participants to have written disaster recovery and business continuity policies and procedures in place. These requirements are designed to ensure that clearing participants are able to perform basic operational functions, key to CME Clearing Division's own risk mitigation, even during significant disruptions. Requirements include:

- procedures to port customer accounts to another clearing participant with minimal disruption to CME Clearing Division
- periodic testing of disaster recovery and business continuity plans
- mirroring of critical systems at backup sites
- periodic backup of critical information
- a list of key contacts, provided to CME Clearing Division
- any other requirement CME Clearing Division prescribes.

16.7 A central counterparty should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology systems can resume operations within two hours following disruptive events. Business continuity arrangements should provide appropriate redundancy of critical systems and appropriate mitigants for data loss. The business continuity plan should be designed to enable the central counterparty to facilitate settlement by the end of the day of the disruption, even in case of extreme circumstances. The central counterparty should regularly test these arrangements.

Contingency arrangements

CME Group has business continuity and disaster recovery arrangements, encompassing recovery plans for critical services. These arrangements are documented in the CME Group Business Continuity Management Policy. The Policy is designed to ensure CME Group and CME Clearing Division can respond to an incident in a way that mitigates potential impacts and protects participants, stakeholders and CME.

CME Group's Business Continuity Management Policy establishes a two-hour recovery time objective for clearing and settlement systems. This recovery time objective was introduced at the end of 2013, replacing the previous four-hour recovery time objective, and applies once a disaster has been declared. The two-hour recovery time objective does not apply to 'non-essential to clearing' applications.

CME Group is moving to a two-data-centre model, with its production data centre in the Chicagoland area and its disaster recovery facility in the New York/New Jersey area. Both data centres rely on separate infrastructure. The New York/New Jersey data centre houses recovery facilities for all critical systems, but with lower capacity than the Chicago facility. All critical CCP functions are supported by staff in different locations, who can be assigned where necessary during a crisis.

To ensure data integrity and availability, CME mirrors production systems in real time and supplements these with nightly and weekly backups of data, systems and configurations. Critical operational systems exist in dual environments at different data centres where the same applications, servers and databases are available. These environments are replicated throughout the day to ensure that data can be easily recovered.

Incident management

CME Group's Business Continuity Management Policy establishes a command structure and assigns responsibilities in a crisis. Should an event occur that falls within the parameters of a 'Business Continuity or Disaster Recovery event', the relevant business area would notify the Crisis Management Team (CMT) Commander. If an outage was due to staff or a site being unavailable, it would be considered a Business Continuity event (if either critical or non-critical functions were impacted), while a catastrophic event at the production data centre would be classified as a Disaster Recovery event. The CMT Commander would assess whether to continue to monitor the situation, or whether to declare a crisis and mobilise the CMT.

Should the CMT Commander declare a crisis, four teams would be set up to coordinate CME's response. These teams are:

- **CMT:** composed of CME Group Senior Management and provides overall direction and governance during a crisis. The CMT Commander, who is the Senior Managing Director of Global Operations, has first responsibility for crisis management and is notified of any event that could

potentially damage CME Group's operations, financial standing or reputation. Backup CMT Commander roles are assigned to the Chief Information Officer and the Chief Operating Officer. All three individuals are members of the CME Group Senior Leadership Team. The CMT Commander assesses the impact and decides whether to mobilise the CMT. If the situation requires a system failover, the technology representative on the CMT would make the recommendation to the CMT Commander, who gives final authorisation for failover procedures.

- **Logistics Team:** supports crisis management activities of the CMT by acting as the coordination and communications hub. The team comprises representatives from departments across CME, including CME Clearing Division and all other CME Group divisions.
- **Business Continuity Teams:** responsible for responding once the CMT makes a declaration and for ensuring CME Group's priorities are met during the recovery.
- **Regional Incident Response Teams:** respond to local issues at each CME Group office location. These teams are overseen by the CMT Commander.

CME Group's Business Continuity Management Policy ensures planning occurs by location, to ensure location-specific impacts and events are communicated to the CMT Commander and are handled appropriately. The relevant Regional Incident Response Team is responsible for implementing any local actions.

The Business Continuity Management Policy includes a plan for crisis communications. This plan is overseen by the Corporate Communications member on the CMT and is carried out by the Logistics Team. The plan details procedures for internal and external communications, including to relevant regulators, stakeholders, participants and the public.

Testing

CME Clearing Division conducts monthly, internal failover tests. These tests involve a failover of critical clearing systems to the disaster recovery facilities. All critical applications and business continuity plans are tested at minimum twice per year; the results of business continuity tests are subject to internal audit. As noted in CCP Standard 16.5, CME Group participates in the annual industry-wide clearing business continuity testing, run by the Futures Industry Association.

CME Clearing Division has conducted a number of recent business continuity tests, including a test of the New York/New Jersey backup infrastructure in late November 2013 and in March 2014.

16.8 A central counterparty should consider making contingency testing compulsory for the largest participants to ensure they are operationally reliable and have in place tested contingency arrangements to deal with a range of operational stress scenarios that may include impaired access to the central counterparty.

CME Clearing Division's biannual contingency tests include scenarios in which participants are forced to failover to their backup environment, which ensures participants' backup facilities can establish and maintain connection with CME Clearing Division. Currently, these exercises are not mandatory, but are strongly encouraged.

As noted in CCP Standard 16.5, CME Clearing Division participates in industry-wide clearing business continuity testing, run by the Futures Industry Association. During 2013, 44 of CME's clearing participants also participated in this test, representing around 90 per cent of CME's clearing volume.

16.9 A central counterparty that relies upon, outsources some of its operations to, or has other dependencies with a related body, another FMI or a third-party service provider (for

example, data processing and information systems management) should ensure that those operations meet the resilience, security and operational performance requirements of these CCP Standards and equivalent requirements of any other jurisdictions in which it operates.

CME Clearing Division does not outsource any critical functions. However, CME relies on Bloomberg and Reuters for pricing information and SWIFT for issuing banking instructions – CME Clearing Division has backup plans in case these services are unavailable (see CCP Standard 16.5). CME Clearing Division also relies on Fedwire to ensure payment of settlement obligations across settlement banks.

CME Clearing Division's ORMF applies to risks arising from third parties as well as internal risks. CME Clearing Division's testing programs apply to relevant outsourced services and facilities; agreements with service providers must include information security requirements, arrangements for ensuring continuity of service, arrangements for incident management and for change management.

CME Clearing Division provides clearing services to two third-party exchanges: DME and Eris. CME's clearing operations do not materially depend on either organisation.

CME also provides CME Clearing Europe with services, in Clearing IT, Disaster Recovery and Business Continuity, Clearing Operations, Risk Management, Audit and Membership, Banking and Settlement, Market Regulation, Group Internal Audit and General Services. Although CME Clearing Europe maintains its own operational staff and decision-making responsibility for risk management and overall governance, many processes and systems are shared so that resources may be allocated where required.

16.10 All of a central counterparty's outsourcing or critical service provision arrangements should provide rights of access to the Reserve Bank to obtain sufficient information regarding the service provider's operation of any critical functions provided. A central counterparty should consult with the Reserve Bank prior to entering into an outsourcing or service provision arrangement for critical functions.

CME Clearing Division does not outsource any critical functions.

16.11 A central counterparty should organise its operations, including any outsourcing or critical service provision arrangements, in such a way as to ensure continuity of service in a crisis and to facilitate effective crisis management actions by the Reserve Bank or other relevant authorities. These arrangements should be commensurate with the nature and scale of the central counterparty's operations.

As CME is an overseas CS facility, in a crisis scenario, crisis management actions would be expected to be led by CME's home regulator, the CFTC.

CME has notification requirements with the CFTC when business continuity plans or procedures are activated. CME is also subjected to event-specific reporting requirements in relation to certain hardware or software failures.

CME Clearing Division expects to finalise its RWP by the end of 2014.

Standard 17: Access and participation requirements

A central counterparty should have objective, risk-based and publicly disclosed criteria for participation, which permit fair and open access.

17.1 A central counterparty should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

Participation requirements for access to CME's services are based on risk-related principles, designed to ensure that clearing participants are of suitable financial standing and have sufficient operational capabilities to conduct business.

Overview of participation

CME offers a number of different participation categories, depending on the type of participation sought. To clear exchange-traded futures and/or options on futures, a firm must become a clearing participant of the relevant CME Group exchange (i.e. CME, CBOT or NYMEX/COMEX).

Exchange clearing participants may also be eligible to clear non-IRS and non-CDS OTC derivatives products (i.e. cleared swaps and forwards), subject to meeting certain additional requirements (see below). CME Exchange Clearing Members are required to seek separate CCP and CHRC approval to be eligible to clear FX OTC. Separate criteria are evaluated as part of the risk review in order for CME Group exchange clearing participants to clear other classes of non-IRS and non-CDS OTC products, with eligibility to clear each class of product linked to direct participation in the relevant exchange. For example, CBOT, NYMEX and COMEX clearing participants are eligible to clear ethanol and grain swaps, energy OTC products and metal forwards, respectively, subject to satisfying Risk Management Department that positions in these OTC products and associated accounts can be managed effectively.

CME also maintains a category of participation for participants that only clear OTC derivatives. As noted above, all participants that clear OTC products are subject to specific risk and operational requirements.

Based on the products for which CME is seeking a CS facility licence, Australian clearing participants would be eligible to apply for the following categories of participation: CME Clearing (for eurodollar products); CBOT Clearing (for US Treasury futures); and IRS Clearing.

A summary of participation categories is published on CME Group's website.³⁹

Participation requirements

Clearing participant applicants must meet requirements stipulated by CME. At a high level, clearing participants must satisfy requirements in areas including: fiscal and moral integrity; capital; Guaranty Fund contributions; operational and technological capabilities; OTC products; notification and financial reporting; overseas clearing participation (if applicable); and disaster recovery and business continuity. CME also maintains the right to impose additional requirements on clearing participants specific to the products they would propose to clear.

Regardless of the products traded or type of entity, all approved clearing participants may access the same level of clearing services. However, a participant may be required to meet additional clearing participation requirements depending on its type. Participants that are authorised banks are subject to different clearing participation requirements to non-banks (e.g. relating to capital). Further, within the clearing participation category, each of the exchanges offers separate and distinct clearing participation options depending on the type of participant, which include corporations, hedge funds, banks and FCMs. For example, hedge funds are required to have a minimum amount of capital under

³⁹ Available at <<http://www.cmegroup.com/company/membership/types-of-membership.html>>.

management, are subject to additional reporting requirements and must maintain separate clearing accounts for each fund for which it clears.

A number of CME's clearing participation requirements are elaborated below.

i. Fiscal and moral integrity

CME requires that clearing participants demonstrate 'fiscal and moral integrity' to justify the CCP's assumption of the risks inherent in clearing its trades. This includes the clearing participant: being a registered corporation, partnership or cooperative association as defined under US law (see below for further requirements applying to clearing participants incorporated in non-US jurisdictions); assuming responsibility for all trading activity routed through it by customers; and maintaining a 'good standing' under each applicable regulatory regime to which it is subject.

ii. Capital

CME imposes minimum capital requirements on clearing participants, which are determined based on the asset class cleared (e.g. Base or IRS) and the classification of the participant (i.e. non-bank or bank). For non-bank clearing participants, capital is defined as Adjusted Net Capital, calculated in accordance with CFTC regulations. For bank clearing participants, capital is defined as Tier 1 Capital, which in turn is defined in accordance with regulations applicable to the bank clearing participant.

Non-bank participants clearing only exchange-traded Base products are required to have US\$5 million in capital, or US\$5 billion if the participant is a bank. Participants clearing OTC-traded Base products must have at least US\$50 million in capital, regardless of the type of entity. All IRS and CDS clearing participants must hold capital equal to: 20 per cent of their aggregate margin across both proprietary and customer accounts for IRS and CDS, subject to a minimum of US\$50 million.

If CFTC or SEC capital requirements for a clearing participant exceed CME's requirements, CME would hold the clearing participant to the higher requirement.

The CHRC, IRSRC, CDSRC or CME could prescribe additional capital requirements or grant exemptions.

iii. Guaranty Fund deposit

Clearing participants must maintain a Guaranty Fund deposit with CME. The size of the deposit depends on the risk the clearing participant presents to CME and the products the participant clears.

The minimum Guaranty Fund deposit required for each type of product is:

- Exchange-traded futures and options is US\$500 000 or its proportionate share of the aggregate Guaranty Fund deposit.
- Exchange-traded futures and options and OTC products (excluding IRS and CDS) is US\$2.5 million or its proportionate share of the aggregate Guaranty Fund deposit.
- IRS is the greater of US\$50 million or the participant's proportionate share of the two largest IRS clearing participant's losses.
- CDS is the greater of US\$50 million or the participant's proportionate share of the two largest CDS clearing participant's losses.

See CCP Standard 4 for further details on the calculation of the Guaranty Funds.

iv. Requirements for clearing OTC products

Participants clearing OTC IRS or CDS are subject to additional requirements beyond those that apply for participants clearing only exchange-traded products. These participants must agree to guarantee and assume responsibility for all OTC derivatives trading activity submitted for clearing by customers. In addition, participants must have appropriate risk management and operational arrangements in place to support their OTC clearing activity. This is to ensure that clearing participants are able to implement CME's default management procedures in a timely manner. IRS and CDS clearing participants are also required to participate in default management drills. See CCP Standard 12 for more information on CME's default management procedures.

Additional information on requirements pertaining to OTC clearing participants is outlined in the CME Rulebook.⁴⁰

v. Notification requirements and financial reporting

Clearing participants are subject to certain notification requirements. Key events that participants must notify CME of include: failure to meet capital requirements; failure to maintain trading books and records; ownership changes; failure to meet regulatory requirements; and insolvency. Non-bank clearing participants are required to submit monthly financial reports and annual certified financial statements. Bank clearing participants are required to file with CME any financial reports that are filed with their primary banking regulator, including annual certified financial statements.

vi. Clearing participants in non-US jurisdictions

Clearing participants incorporated in non-US jurisdictions are required to be subject to a legal and insolvency regime acceptable to CME (see CCP Standard 1). CME staff and the Legal Department review relevant legal opinions and advise the appropriate Risk Committee on the content of such opinions and any potential issues prior to the clearing participant's approval.

vii. Disaster recovery and business continuity management

Clearing participants are required to have disaster recovery and business continuity policies and procedures to ensure certain basic operational functions would continue in the event of significant internal or external interruptions to operations. Depending on the type of participant, they may be required to have procedures that would enable them to continue operations during periods of stress or to transfer customer accounts to another participant. Clearing participants are required to: conduct periodic testing of disaster recovery and business continuity plans; have duplication of critical systems at backup sites; and periodically back up critical information.

Additional information on disaster recovery and business continuity requirements is outlined in Rule 983.

viii. Other requirements

Clearing participants must have written risk management plans, policies to comply with anti-money laundering requirements and comply with the operational and risk management standards of the CFTC and CME. In addition, clearing participants must hold the relevant exchange licences to clear contracts listed on CME Group exchanges. For participants clearing only OTC products, an exchange-licence-equivalent deposit of US\$5 million is required to be deposited with CME.

⁴⁰ Rule 8F04 (OTC Clearing Member Obligations and Qualifications), Rule 8G04 (IRS Clearing Member Obligations and Qualifications) and Rule 8H04 (CDS Clearing Member Obligations and Qualifications).

Clearing participants with capital of less than US\$300 million are required to obtain written agreement from any entity or person owning 5 per cent or more of the equity securities of the participant to guarantee all obligations of the clearing participant from proprietary trading accounts.

Application process

As part of the application process, prospective clearing participants are required to submit a range of documents to CME and submit to an on-site review by CME staff. Following receipt of a completed application, CME will notify existing clearing participants during a 20-day posting period. Any concerns raised by an existing clearing participant regarding an application would be brought to the attention of the appropriate Risk Committee, which (as discussed below) is ultimately responsible for approving applications, during its review of the clearing participant applicant.

Clearing applications are reviewed by the Financial and Regulatory Surveillance Department. Staff will investigate the applicant's qualifications, which may include a review of the books and records of the applicant. Once all documentation has been submitted by a prospective applicant, the review process takes approximately four to six weeks.

Once reviewed, applications are presented by name to the relevant Risk Committee for approval by a majority vote. In the situation where a potential conflict of interest may arise (e.g. a Risk Committee member is associated with the applicant), the relevant Risk Committee member(s) do not participate in any discussion or voting regarding the applicant.

The relevant Risk Committee may reject an application if it believes the applicant does not meet the participation requirements; for example, if it is not satisfied the applicant demonstrates the required level of fiscal and moral integrity (see above). If unsuccessful, applicants may appeal the decision of the Risk Committee to the Board within 10 days of the notice of rejection. The Board, by majority vote, may overturn the Risk Committee's decision if it is satisfied that the decision was arbitrary, capricious or an abuse of discretion.

A list of all relevant application forms, instructions for completion and submission, and current clearing participants is maintained on CME Group's website.

Indirect participation

Indirect participation is possible through CME's customer clearing models. In order to clear for customers, clearing participants must be a registered FCM; FCMs offering indirect participation are subject to higher operational requirements (see CCP Standard 17.2). CME does not impose restrictions on customer eligibility; requirements for customers are at the discretion of the clearing participant so long as they comply with CFTC regulations. See CCP Standard 18 for details on CME's customer clearing models.

17.2 A central counterparty's participation requirements should be justified in terms of the safety of the central counterparty and the markets it serves, be tailored to and commensurate with the central counterparty's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, a central counterparty should endeavour to set requirements that have the least restrictive impact on access that circumstances permit.

CME's participation requirements are designed to mitigate the risks that clearing participants pose to CME. At a high level, as outlined in CCP Standard 17.1, CME permits access to those clearing participants that demonstrate the highest levels of fiscal and moral integrity.

Capital requirements imposed by CME aim to ensure that participants are able to withstand unexpected losses (see CCP Standard 17.1). By varying minimum capital and other participation requirements according to product characteristics, CME aims to ensure that requirements have the least restrictive impact on access that circumstances permit. In addition, capital requirements for IRS and CDS clearing participants are proportional to the initial margin held by CME, reflecting the risk the participant poses to CME.

Reporting and operational requirements seek to ensure CME has access to timely information about clearing participants and that participants are able to monitor and manage the risks they pose to CME. Additional operational requirements for IRS and CDS clearing participants focus on the participants' ability to engage in the default management procedures.

FCMs that offer indirect participation to customers are subject to higher operational requirements. This reflects the higher operational burden of monitoring customer accounts and the importance of CME being able to access timely customer information in order to port the customers if the FCM defaults.

CME has outlined requirements for clearing participants in the publicly available Clearing Membership Handbook,⁴¹ OTC Derivatives Clearing Membership Handbook,⁴² Summary of Requirements for Clearing Membership,⁴³ CME Rulebook and on its website more generally.

17.3 A central counterparty should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Monitoring compliance

CME monitors compliance with participation requirements on a regular basis. Under the CME Rulebook, a clearing participant must notify CME if it:

- fails to meet capital requirements
- fails to maintain current books and records
- fails to meet accounting, reporting or financial requirements
- has insolvency, or similar proceedings, brought against it.

The Financial and Regulatory Surveillance Department monitors clearing participant compliance with financial requirements. The Department conducts semi-monthly analysis of clearing participant reports of investments, and daily monitoring of customer segregated, secured and cleared swap balances with the aim of checking compliance with segregation requirements for customer funds and reviewing any material inconsistencies. The Department also monitors monthly submissions of financial statements from clearing participants including balance sheets, capital computation, net income statements and segregation, and cleared swaps customer statements. In addition, the Department reviews annual submissions of certified independent public accounting reports and accountants' reports on material developments.

⁴¹ Available at <<http://www.cmegroup.com/company/membership/files/cme-group-clearing-membership-handbook.pdf>>.

⁴² Available at <<http://www.cmegroup.com/company/membership/files/CME-OTC-Clearing-Membership-Handbook.pdf>>.

⁴³ Available at <<http://www.cmegroup.com/company/membership/files/Summary-of-CMEG-Clearing-Membership-Requirements.pdf>>.

Bank clearing participants are monitored via financial reports filed with the participant's home banking regulator; at a minimum these must be submitted quarterly. Non-bank clearing participants are required to submit monthly financial reports to the Financial and Regulatory Surveillance Department. These financial reports inform CME's internal risk rating of participants and can be used to identify participants for inclusion on the Watch List and Weak List (see CCP Standard 4.2).

The Risk Management Department reviews participants' compliance with risk management requirements, in accordance with Rule 982, at least biennially. For all clearing participants this review includes risk management capabilities. As part of the review process, CME conducts an on-site visit of the clearing participant to assess its risk management capabilities, risk management systems and reporting. In assessing the clearing participant's compliance with risk management requirements, CME will take into consideration the outcomes from its on-site visit and the participant's response to a risk review questionnaire circulated before the visit.

Suspension and exit of a participant

The CME Rulebook outlines the actions CME can take if a clearing participant no longer meets the relevant participation requirements, including: increased margin; additional capital or other financial requirements; position limits; issuing a notice to cease and desist from the conduct in question; and the liquidation or transfer of positions. These actions would be approved by the CHRC (if relating to a clearing issue) or the Business Conduct Committee⁴⁴ (if relating to an exchange issue), by a majority vote. The Business Conduct Committee may also refer a matter to the Board if it believes the matter might warrant a penalty in excess of its own authority.

If a clearing participant fails to meet participation requirements, or if its continued participation presents an unacceptable risk to CME, the clearing participant may have part, or all, of its participation privileges suspended by the CHRC or the Business Conduct Committee, in accordance with the CME Rulebook. This decision must be approved by a majority vote, and, for such decisions made by the CHRC, is also subject to approval by any two of the following: CEO; COO; Chairman; President; Chairman of the CHRC; and the Clearing President.

The Clearing President also has the power to declare an emergency financial situation where a clearing participant threatens the integrity of CME. The procedures and powers relating to an emergency financial situation are detailed in CCP Standard 4.3.

A suspended or expelled clearing participant would be required to liquidate and/or port its (and its customers') positions. The clearing participant would generally be permitted to manage the wind-down of its positions; however, CME and/or the CHRC reserve the right to impose orders, pursuant to Rule 979. Either CME or the clearing participant, as applicable, would move the participant's positions to another clearing participant, or otherwise liquidate them.

Once a clearing participant has been suspended or expelled, the participant is not entitled to any of the privileges of participation including: access to any trading floors or clearing platforms owned or controlled by CME Group; member trading fees and rates; and any applicable cross-exchange trading

⁴⁴ The Business Conduct Committee has non-exclusive jurisdiction over clearing participants pursuant to Rule 418, which covers exchange and OTC clearing participants. The Business Conduct Committee has jurisdiction over matters with respect to business conduct, trading practices, sales practices, trading ethics and market manipulations or other actions that threaten the integrity of the market. The Business Conduct Committee also conducts hearings on charges issued by any of the Risk Committees pursuant to Rule 408; that is, a hearing could be conducted where a respondent is unable to resolve an issue with the Financial and Regulatory Surveillance Department, or where the relevant Risk Committee did not accept an offer of settlement from a respondent.

privileges. A clearing participant that has been expelled must relinquish its licence to any of the exchanges owned or controlled by CME Group within 30 days of the date of expulsion.

Under certain conditions, suspended clearing participants may appeal a final decision of the CHRC or the Business Conduct Committee to a hearing panel of the Board (the Appellate Board). The Appellate Board may overturn the decision of the CHRC or Business Conduct Committee, by a majority vote, if the decision was concluded to be arbitrary, in excess of the Committee's authority, or based on a clearly erroneous interpretation of the CME Rulebook.

Standard 18: Tiered participation arrangements

A central counterparty should identify, monitor and manage the material risks to the central counterparty arising from tiered participation arrangements.

18.1 A central counterparty should ensure that its rules, procedures and agreements allow it to gather basic information about indirect participation in order to identify, monitor and manage any material risks to the central counterparty arising from such tiered participation arrangements.

CME collects data on indirect participants daily. The CME Rulebook (Rules 560 and 561.A) requires clearing participants to submit daily individual client account reports⁴⁵ and large trader reports⁴⁶ to the Market Regulation Department, for customers holding positions in futures contracts that exceed specified thresholds.⁴⁷ In addition, clearing participants are required to submit daily reports on the identity of customers and the amount of their initial margin for OTC Base products and IRS products, and gross open-interest customer data for Base products (see CCP Standard 13.2). CME rules allow it to amend these reporting requirements (e.g. requiring more than one large trader report on a daily basis), as appropriate.

The Market Regulation Department is responsible for the oversight of larger trader reporting requirements, ensuring that such reporting is accurate and timely. Staff in the Department utilise the large trader reports to conduct market surveillance, including ensuring compliance with position limits. Any violation of market surveillance rules would be handled in accordance with the applicable rules in the CME Rulebook.

18.2 A central counterparty should identify material dependencies between direct and indirect participants that might affect the central counterparty.

CME monitors dependencies between direct and indirect participants through real-time monitoring of clearing participant positions, daily customer position reports and large trader reports. In addition, CME conducts a review of all clearing participants at least once every two years, or more often as appropriate (see CCP Standard 18.3). Through these reviews, CME conducts a more thorough investigation of clearing participants' risk management procedures, including the management of large customer accounts.

⁴⁵ The individual client account reports cover positions at or above the reportable level in a particular expiration month of a futures contract, or in all puts or in all calls of a particular option contract expiration month.

⁴⁶ The large trader reports cover, for each reportable account: the EFRP volume bought and sold in the reportable instrument, by contract month, and for Exchange of Options for Options (EOO) by put and call strike; and the number of delivery notices issued and the number of deliveries stopped in the reportable instrument.

⁴⁷ The reportable levels for all contracts are set out in the Position Limit, Position Accountability and Reportable Level Table, available on the CME Group website. These thresholds are based on CFTC regulations.

Apart from these monitoring activities, CME relies on FCMs to primarily manage customer account risk exposures, including liquidity and funding obligations. FCMs are required to meet rules and policies set by CME, for example on counterparty risk management as outlined in Rule 982. The relevant internal policies of FCMs are covered in the biennial review of clearing participants' risk management procedures.

To mitigate disruptions in the event of a clearing participant default, CME attempts to port non-defaulting customers to solvent clearing participants (see CCP Standards 12 and 13). If a customer account cannot be ported, it will be liquidated along with the clearing participant's account in accordance with default management procedures.

18.3 A central counterparty should identify indirect participants responsible for a significant proportion of transactions processed by the central counterparty and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the central counterparty in order to manage the risks arising from these transactions.

CME is able to identify positions held by indirect participants through its monitoring activities, which include daily individual client account reports and semi-monthly analysis of clearing participants' positions to ensure segregation of customer funds. In addition, customers holding large positions in futures contracts are identified to CME through large trader reports.

CME does not have any specific rules or policies to encourage customers to become direct clearing participants. However, in mitigating risks arising from large customer positions, CME:

- is required by the CFTC to margin all customer accounts on a gross basis, rather than net basis, such that customers with offsetting risk profiles do not reduce initial margin
- is required by the CFTC to have its clearing participants call margin from their customers at least at the level called from the participant by CME
- can call for additional margin on the customer account and impose additional Guaranty Fund deposit requirements at the clearing participant level
- allows clearing participants to apply credit limits to their customers, which CME enforces by refusing to clear any trades in excess of the limit
- requires clearing participants to liquidate customers' excess positions, where those positions exceed the position limit thresholds stipulated by CME.

CME seeks to ensure direct participants have or develop appropriate risk control measures in managing their relationships with indirect participants. These measures include: risk management methodologies; operational risks and system capabilities; reporting; credit controls and controls on high volume indirect participants; and liquidity management. The adequacy of these risk control measures is assessed at least once every two years as part of CME's monitoring of direct participants' compliance with CME participation requirements.

18.4 A central counterparty should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

Under US law, only clearing participants that are registered FCMs are permitted to offer indirect clearing services at a US DCO. To mitigate legal risks, including those associated with indirect clearing, CME obtains legal opinions for jurisdictions from which it accepts non-US-based direct clearing

participants to ensure CME's rules and procedures are enforceable and effective (see CCP Standards 1 and 13.1).

CME has taken steps to ensure its Rulebook defines the legal status of indirect participants' positions, collateral and exposures. CME has self-certified that its account structures for indirect participants meet regulatory requirements for Base products and IRS products.

CME monitors the day-to-day market risk of indirect participants' portfolios on an ongoing basis (see CCP Standards 18.1 and 18.3). In particular, CME reviews indirect participants with: large exposures at one direct participant; highly concentrated positions; concentrations of deliverable contracts; or trends atypical of that indirect participant.

Under the CME Rulebook, CME has the right to order indirect participants, through their clearing participant, to take risk mitigating steps. These steps include calling additional margin, limiting activity in expiring contracts, ordering position reduction and moving an account from one clearing participant to another.

Standard 19: FMI links

A central counterparty that establishes a link with one or more FMIs should identify, monitor and manage link-related risks.

19.1 Before entering into a link arrangement, and on an ongoing basis once the link is established, a central counterparty should identify, monitor and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that the central counterparty is able to comply with these CCP Standards.

CME has three FMI links: a MOS with SGX; and two cross-margining programs, with the OCC and the FICC. The operation of these links is outlined in CCP Standard 19.4.

Identifying link-related risks

Before entering into an FMI link, all arrangements must be reviewed and approved by the appropriate Risk Committee(s). For the three current FMI links, only the CHRC is relevant because the links do not relate to CME's IRS or CDS products.

CME monitors the creditworthiness of its FMI-link counterparties on an ongoing basis in accordance with its Credit Risk Policy and Risk Management Framework (see CCP Standard 4). These general risk mitigants are in addition to the link-specific, credit-risk-related mitigants outlined in CCP Standard 19.5.

Managing operational risk

Operational issues related to cross-margining arrangements or the MOS are monitored and managed in accordance with CME's ORMF (see CCP Standard 16); CME does not have additional frameworks or policies for monitoring and managing operational risks associated with CCP links.

CME has operational support available 24/7 in the US and London to handle any issues, including those related to cross-margining arrangements of the MOS. In addition, with respect to the SGX MOS, under the MOS Agreement both CCPs are required to have operational staff available whenever the other CCP is open for trading. This requirement helps ensure inter-exchange transfers (see CCP Standard 19.4) occur promptly, regardless of time zone or business holidays and that staff are consistently available to handle operational incidents. FICC and OCC operate in the US, in the same time zone and on the same calendar as CME, but do not have the same operating hours.

Managing financial risk

CME manages the financial risks associated with its MOS arrangement by collecting initial and variation margin from SGX. For the two cross-margining arrangements, CME has methodologies in place to collect sufficient initial margin to cover its potential future exposures to cross-margining participants; for these two FMI-link arrangements, variation margin for cross-margined products is collected directly from participants and, therefore, does not need to be exchanged between CCPs (CCP Standard 19.4). For all three arrangements, CME has recourse to the default management waterfall associated with its Base Guaranty Fund should losses exceed the relevant defaulting participant's initial margin (or, in the case of the MOS, SGX's initial margin). In sizing its Base Guaranty Fund, CME takes into account the potential future exposures all three links may create (see CCP Standard 19.5). CME does not contribute to any of the other three CCPs' default funds, and none of the three CCPs contribute to CME's Base Guaranty Fund.

The Bank will engage with CME on aspects of its risk management of links, including the extent to which stressed market conditions are taken into account when calibrating collateral requirements for exposures to linked CCPs.

19.2 A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the central counterparty and other FMIs involved in the link.

Two of CME's FMI-link counterparties – FICC and OCC – are based in the US and one – SGX – is based in Singapore.

The FICC and OCC agreements establish the rights of each participating CCP, including in the event of a cross-margining participant default. The jointly held collateral for the OCC cross-margining arrangement is held with two US custodians (see CCP Standard 19.4), both of which are currently custodians for CME's CCP services more broadly and are subject to CME's eligibility criteria for custodians (see CCP Standard 15). The agreements are governed by US law.

The SGX MOS Agreement is governed by US law and sets out CME's rights against SGX, including its recourse to collateral in the event SGX defaults. Collateral is held in the US, at a custodian acceptable to both CME and SGX. CME has confirmed that it has undertaken legal analysis of the enforceability of the agreements underpinning the MOS, including by obtaining external legal opinions, to ensure that Singaporean laws will not affect the operation of the link, or CME's rights under the MOS agreement. CME has informed the Bank that this analysis is updated as necessary, in the event of material regulatory changes that may impact the operation or enforceability of the MOS agreement.

19.3 Where relevant to its operations in Australia, a central counterparty should consult with the Reserve Bank prior to entering into a link arrangement with another FMI.

Neither OCC nor FICC are licensed in Australia. CME's CS facility licence application also does not extend to products eligible for the OCC cross-margining arrangement, but does include cross-margining-eligible products under the FICC arrangement.

Australian clearing participants may be eligible to participate in the MOS to the extent they act as a carrying participant at CME for eurodollar contracts executed on their behalf by a clearing participant on SGX (see CCP Standard 19.4). No other MOS-eligible product is within CME's CS facility licence application scope.

If CME was to propose to enter into another FMI link that affected its Australian operations, the Bank would expect to closely engage with CME and the other FMI, paying particularly close attention to the risk management of the link, and the size and composition of associated collateral.

19.4 Before entering into a link with another central counterparty, a central counterparty should identify and manage the potential spillover effects from the default of the linked central counterparty. If a link has three or more central counterparties, a central counterparty should identify, assess and manage the risks of the collective link arrangement.

SGX MOS

The MOS is a peer-to-peer CCP link that permits clearing participants to execute on a trading venue cleared by one CCP, and have the position transferred to the other CCP to carry the position via a process known as ‘inter-exchange transfer’. Contracts that can be executed using the MOS are: eurodollars, Euroyen, US dollar-denominated and Japanese yen-denominated Nikkei 225 futures and S&P CNX Nifty futures. Only the eurodollar contract is within the scope of CME’s CS facility licence application.

Use of the MOS requires that agent–customer-like arrangements are established between participants of CME and SGX. Before being permitted to enter into MOS trades by either CME or SGX, therefore, these clearing participants must establish the necessary documentation. In order to limit the exposures CME has to SGX (and vice versa), both CCPs exchange initial and variation margin. Collateral that CME will accept from SGX to meet initial margin requirements includes cash, certain securities and letters of credit (see CCP Standard 19.5).

Regarding the acceptance of letters of credit to meet initial margin requirements, the Bank will monitor these arrangements with a view to revisiting this issue in a year or if there is a material increase in exposures across the link.

CME would handle an SGX default in the same manner as it would handle the default of other clearing participants (see CCP Standard 12.1). CME would have recourse to the default management waterfall associated with its Base Guaranty Fund in the event the initial margin collected from SGX was not sufficient (see CCP Standard 14.5). In sizing the Base Guaranty Fund, CME considers the MOS; CME does not collect contributions for its Base Guaranty Fund from SGX, nor does it contribute to SGX’s default fund.

OCC cross-margining arrangement

The OCC cross-margining arrangement allows clearing participants, or their customers, to reduce their total initial margin requirements where they hold related, offsetting positions at OCC and CME.⁴⁸ CME and OCC agree on the contracts that are eligible for initial margin offsets. Currently, CME allows offsets on a range of equity index futures and options. None of these products are within the scope of CME’s CS facility licence application.

Collateral posted as initial margin for cross-margining accounts must be acceptable under both CCPs’ rules (see CCP Standard 5 for CME’s acceptable collateral). Initial margin is calculated using OCC’s methodology. Further detail on the OCC cross-margining arrangement, including the collection of initial margin, and the assumption of risk, is discussed in CCP Standard 19.5.

⁴⁸ Clearing participants are able to engage in house-account cross-margining where the clearing participant is a member at both CCPs. In addition, where two separate, but affiliated, legal entities are participants at both CCPs, between them, these affiliated entities may engage in cross-margining as if they were the same legal entity. Clearing participants can offer cross-margining to their customers under the arrangement.

In the event of a participant default, CME and OCC would coordinate a default management process to liquidate the positions. The positions held in these accounts are managed separately from any positions the defaulting participant has at CME and OCC. Collateral taken as initial margin against these cross-margined positions would be used to address any losses arising from the positions.⁴⁹ In the event losses exceeded the available collateral, CME and OCC would be equally liable to meet the remaining loss.⁵⁰ In accordance with its default management waterfall structure (see CCP Standard 12.1), CME would first use any collateral of the defaulting participant that CME holds and then apply the subsequent layers of the default management waterfall. In calculating the size of the Base Guaranty Fund, CME takes into account potential exposures resulting from cross-margined positions. CME and OCC last tested the default management arrangements for the cross-margining accounts in November 2013. OCC and CME routinely coordinate and discuss as appropriate their overall default management efforts.

In effect, the cross-margining account acts as a third quasi-CCP, to which both OCC and CME are equally exposed. This equal split in exposure is used regardless of the split of cross-margined positions between CME and OCC products. CME regularly reviews the split of positions to ensure equal ownership and exposure remains appropriate and, under the cross-margining agreement, both parties must annually review the split and determine in good faith whether it should be revised.

CME is exposed to OCC only insofar as OCC failed to assume its half of the losses. CME would address such a loss by using the default management waterfall associated with the Base Guaranty Fund.⁵¹ CME has no business-as-usual credit exposure to OCC.

FICC cross-margining arrangement

Under the FICC cross-margining arrangement, clearing participants do not establish a separate cross-margining account. Rather, all eligible positions held in a cross-margining participant's house accounts are eligible to be used for calculating margin offsets; participants do not need to designate certain positions for cross-margining. CME products that are eligible for cross-margining are limited to certain short- and long-term interest rate futures and options.

In calculating initial margin for cross-margining-eligible participants' house accounts, the two CCPs first calculate initial margin in isolation. The two CCPs then exchange position files and, independently, determine the offsets they will allow against the already-calculated initial margin. For CME, this methodology is similar to the way it permits offsets between related contracts under its SPAN methodology (see CCP Standard 6). These offsets then separately reduce the initial margin required from that participant by each CCP. In exchange, each CCP agrees to indemnify the other up to the amount its counterpart reduces initial margin for a clearing participant through offsets in the event that clearing participant defaults. CME uses the initial margin of the defaulting participant and then the default management waterfall associated with the Base Guaranty Fund to meet this indemnity (see CCP Standard 19.5).

CME handles the default of a cross-margining participant in the same way as other clearing participants (see CCP Standard 12.1). The only difference is that, to the extent the defaulting

⁴⁹ If the collateral is sufficient to meet the losses on cross-margined positions, the two CCPs are entitled to 50 per cent of the excess collateral in order to meet other losses incurred by them due to the default of that participant.

⁵⁰ As with other losses in excess of available collateral, the defaulting participant nonetheless remains liable for these losses and CME and OCC would attempt to recover these losses as part of the insolvency of the defaulting participant.

⁵¹ In return, CME would have a claim on OCC in bankruptcy as a creditor.

participant's collateral is insufficient to meet the losses on the portfolio, CME will seek indemnification from FICC.

For the 12 months to July 2014, the size of the positions held across the link with FICC were relatively small compared with CME's overall exposure.

19.5 A central counterparty in a central counterparty link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked central counterparty and its participants, if any, fully with a high degree of confidence without reducing the central counterparty's ability to fulfil its obligations to its own participants at any time.

In addition to the link-specific measures outlined below, CME monitors the creditworthiness of its FMI-link counterparties in accordance with its Credit Risk Policy and Risk Management Framework (see CCP Standard 4).

SGX MOS

CME faces current and potential future exposure to SGX in the event SGX defaulted, and margins its SGX exposure at levels consistent with the margin requirements for direct clearing participants.

To limit current exposures, CME exchanges variation margin daily with SGX in both US dollars and Japanese yen. The timeframes for determining settlement prices, and in which variation margin settlements must be made, are set out in the MOS Agreement. Variation margin settlements are settled across accounts established and controlled by SGX at a New York bank for US dollars and a Singaporean bank for Japanese yen. Both CME and SGX have until 8.00 am (in their respective time zones) to pay in variation margin to the account.

Funds are available to each CCP to be transferred out of the account at, or after, 8.00 am in their respective time zone. Because of the mismatch in time zones (which means the settlement account may have a positive or negative balance, reflecting whether CME has net paid in or been paid out, respectively), both CME and SGX issue and maintain a letter of credit to the other CCP – CME's to SGX in an amount equal to the negative balance on the account (if applicable) and SGX's to CME for the positive balance.⁵² These letters of credit are provided by separate banks, both of which are clearing participants of CME. CME only accepts letters of credit from approved banks, and these banks are subject to eligibility criteria, ongoing monitoring and concentration limits (see CCP Standard 5). As discussed in CCP Standard 19.4, the Bank will monitor the acceptance of letters of credit with a view to revisiting this issue in a year or if there is a material increase in exposures across the link.

CME collects initial margin from SGX to cover its potential future exposures to SGX and this collateral is held in a US bank separate from all other funds CME collects (and vice versa). Under the MOS agreement, cash, certain securities and letters of credit are acceptable collateral to meet initial margin requirements. Letter of credit banks are subject to the same requirements and limits as for participant-provided collateral (see CCP Standard 5).

For the 12 months to July 2014, the size of the positions held across the link with SGX was relatively small compared with CME's overall exposure.

The amount of initial margin that is collected is calculated by the 'home' CCP. CME is the home CCP for eurodollar futures and SGX is the home CCP for all other products. The other CCP in the link arrangement must collect at least as much margin from the clearing participant(s) carrying the

⁵² As the party responsible for establishing the settlement account, SGX has also established a line of credit such that the balance in the settlement account can be negative.

position(s) as required by the home CCP. Both CME and SGX use CME SPAN and margin on at least a one-day, 99 per cent confidence basis in calculating the margin requirement for their respective home products (see CCP Standard 6).

As noted in CCP Standard 19.4, an SGX default would be handled consistent with CME default management standards applicable to direct clearing participants. In the event the initial margin collected from SGX was not sufficient, CME would have recourse to the default management waterfall associated with its Base Guaranty Fund. In sizing the Base Guaranty Fund, CME considers exposures that may result due to the default of SGX.

OCC cross-margining

As noted in CCP Standard 19.4, in the event of a participant default, CME and OCC are jointly and equally liable for the positions held in the cross-margining account. Accordingly, CME is exposed to OCC to the extent that OCC must assume half of the risk of those positions.

To limit current exposures to participants using the cross-margining program, CME collects variation margin for the futures products held in the cross-margining account; all of the OCC products eligible for the cross-margining arrangement are options, and therefore do not require daily variation margin settlement.⁵³ Participants designate a bank account at a settlement bank acceptable to OCC and CME to be used for the settlement of variation margin for cross-margining accounts.

In order to protect both CCPs from potential future exposures relating to a participant's cross-margining account in the event of participant default, participants are required to post initial margin against the cross-margined positions. Collateral taken as initial margin to cover cross-margined positions is held in an account separate from the collateral held for their positions at either CME or OCC. The amount of initial margin collected against positions in cross-margining accounts is determined using OCC's methodology. Because the size of positions held in the cross-margining account is relatively small compared with CME's overall exposure and because this cross-margining program will not be available to Australian clearing participants under the current scope of CME's CS facility licence, the Bank has not assessed OCC's methodology against CCP Standard 6.

In the event initial margin was insufficient to cover the losses in a cross-margining account resulting from a default, CME would have recourse to the default management waterfall associated with its Base Guaranty Fund. Potential exposures resulting from cross-margining accounts are included in sizing CME's Base Guaranty Fund and, as noted in CCP Standard 4.4, the methodology used to size the Base Guaranty Fund is designed to cover, with a high a degree of confidence, the potential credit exposure resulting from the default of the two largest participants in extreme but plausible scenarios. Exposures to the cross-margining account of clearing participants that utilise the cross-margining arrangement are included in sizing the Base Guaranty Fund.

FICC cross-margining

The FICC program is structured to keep each CCP separately and wholly responsible for the positions clearing participants hold at that CCP. Accordingly, CME manages the current and potential future exposures these participants (and therefore, indirectly FICC) pose to CME through its normal framework – that is, by collecting initial and variation margin, and through the default management waterfall associated with the Base Guaranty Fund (see CCP Standards 4 and 6).

⁵³ CME marks options products to market daily, which is included in initial margin requirements, but options do not have a daily variation margin requirement. CME collects variation margin daily for its futures products.

CME faces potential future exposure to FICC if a participant using the cross-margining arrangement defaulted. In the event of a default, each CCP would separately carry out its default management process. To the extent that either CCP had losses in excess of the collateral available to it, the other CCP agrees to indemnify it up to the amount of initial margin offsets permitted by the CCP incurring the loss (see CCP Standard 19.4).⁵⁴ Therefore, CME may be exposed to FICC in two ways: as a creditor, where CME incurs a loss because it does not hold sufficient collateral; or as debtor, where it must indemnify FICC for (part of) the loss incurred by FICC. These exposures would be met in the same way as if they were due to a defaulting participant – that is: first, with the defaulting participant’s available collateral collected as initial margin or Base Guaranty Fund contribution; and then, by applying the default management waterfall associated with the Base Guaranty Fund (see CCP Standard 12.1).

For both cross-margining arrangements, the relevant CCPs could, as a risk mitigant, suspend or remove a participant from participation in the arrangement, including where that participant’s credit was deteriorating. In doing so, any risks between CCPs would be eliminated and the risks presented by the clearing participant would be brought back into each CCP’s credit risk framework (i.e. its standard margin methodology and default arrangements).⁵⁵

Standard 20: Disclosure of rules, key policies and procedures, and market data

A central counterparty should have clear and comprehensive rules, policies and procedures and should provide sufficient information and data to enable participants to have an accurate understanding of the risks they incur by participating in the central counterparty. All relevant rules and key policies and procedures should be publicly disclosed.

20.1 A central counterparty should adopt clear and comprehensive rules, policies and procedures that are fully disclosed to participants. Relevant rules and key policies and procedures should also be publicly disclosed (including specific requirements relating to CCP Standards 1.4, 2.2, 12.3, 13.4, 15.4, 17.2 and 17.3).

CME’s rulebooks are publicly available on its website. Since the CME exchanges are ‘separate, self-regulatory organisations’, CME maintains three rulebooks – one for CME, one for CBOT, and one combined rulebook for NYMEX/COMEX.⁵⁶ These rulebooks are broadly harmonised; remaining exceptions are explained on the CME Group website. Rules governing CME’s trading, clearing and settlement activities for exchange-traded and OTC products are set out in these rulebooks; in addition, each rulebook has rules concerning products specific to each exchange. The contracts for which CME is seeking a licence in Australia are governed by the CME and CBOT rulebooks.

CME’s key policies are reflected in information publicly available in its Financial Safeguards brochure,⁵⁷ CME rulebooks, CME bylaws and on its website more generally. This includes the expected coverage of initial and variation margin requirements, the process for managing a clearing participant default, acceptable collateral and haircuts, governance arrangements, participation

⁵⁴ If one CCP has variation margin gains in the defaulting participant’s portfolio, these are passed through to the CCP with variation margin losses. The cross-margining agreement contains a number of further scenarios and caveats, including the amount of the indemnity in cases where both CCPs have insufficient resources; however, the indemnity is capped by the amount of the margin offsets.

⁵⁵ However, this removal would result in an increased margin call for the affected participant because it loses the benefits of the cross-margining.

⁵⁶ CME also maintains a SEF rulebook, which would allow for trading of regulated swaps (as required under the Dodd-Frank Act). However, CME does not, at the time of writing, have an operational SEF.

⁵⁷ Available at <<http://www.cmegroup.com/clearing/files/financialsafeguards.pdf>>.

requirements, and segregation and portability arrangements. Further, CME provides detailed procedures and policies to clearing participants prior to membership, and on an ongoing basis when changes are made. CME also provides details on some policies, such as its Investment Policy, to clearing participants on request.

Specific disclosure requirements are dealt with under CCP Standards 1.4, 2.2, 12.3, 13.4, 15.4, 17.2 and 17.3.

20.2 A central counterparty's rules, policies and procedures should clearly identify the nature and scope of the risk exposure assumed by the central counterparty, such as by novation, open offer or other similar legal devices. A central counterparty's rules, policies and procedures should clearly identify the point in the clearing process at which the central counterparty assumes the risk exposure.

The CME rulebooks outline the nature and scope of novation.⁵⁸ Specifically, Rule 804 specifies that novation is deemed to occur upon successful matching of trade data submitted to the exchange by the clearing participants on the long and short sides of a trade. The exceptions to this are block trades, EFRPs⁵⁹ and transfer of trades or customer accounts. For these trades, novation occurs at the time initial margin and the first variation margin payments are confirmed by the settlement banks for both clearing participants. From the point of novation, each clearing participant is deemed to have entered into the trade with CME, and CME assumes the risk exposure with respect to the transaction.

Rule 8G05 specifies that novation is deemed to occur when an IRS product is submitted to CME that satisfies all relevant rules and procedures. A back-loaded IRS trade will be guaranteed by CME at the time that payment of initial mark-to-market, margin and any other applicable OTC cash flows are confirmed by the appropriate settlement bank for both IRS clearing participants.

20.3 A central counterparty should disclose clear descriptions of the system's design and operations, as well as the central counterparty's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the central counterparty (see CCP Standards 2.8 and 9.5).

CME provides a description of its system design and operations on its website, including the structure of default waterfalls, tools to aid clearing participants in calculating margins, swaps customer protection (i.e. LSOC) standards (see CCP Standard 13), margin model information, information on how the clearing process for OTC and exchange-traded products works and the daily operational timeline.

CME publishes the rights and obligations of participants in its rulebooks and in the Clearing Membership Handbook.⁶⁰ CME also provides an overview of clearing participation requirements on its website⁶¹ and offers more detailed procedures to clearing participants on a non-public basis.

20.4 A central counterparty should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the central counterparty's rules, policies and procedures and the risks they face from participating in the central counterparty.

⁵⁸ Rule 804 and Rule 8F005 (for cleared OTC Derivatives), Rule 8G05 (for cleared IRS) and Rule 8H05 (for cleared CDS).

⁵⁹ An EFRP transaction is a privately negotiated and simultaneous exchange of a related position (e.g. cash, OTC swap, OTC option, or other OTC derivative) for an Exchange contract. Rule 538 outlines the permitted EFRP transaction arrangements.

⁶⁰ Available at <<http://www.cmegroup.com/company/membership/files/cme-group-clearing-membership-handbook.pdf>>.

⁶¹ Available at <http://www.cmegroup.com/company/membership/files/Clearing_Membership_Options-Summary_Sheets.pdf>.

CME publishes its rulebooks and clearing system user guides on its website; some procedures are also provided to clearing participants privately. CME offers online training to clearing participants. In addition, CME provides hands-on training for personnel of new clearing participants, and on an ad hoc basis as required.

20.5 A central counterparty should complete regularly and disclose publicly responses to the CPSS-IOSCO *Disclosure Framework for Financial Market Infrastructures*. A central counterparty also should, at a minimum, disclose basic risk and activity data, as directed by the Reserve Bank from time to time.

CME has published a document that provides responses to the CPSS-IOSCO *Disclosure Framework for Financial Market Infrastructures*, and describes its approach to meeting the Principles.⁶² The document will be updated every two years, or when there are material changes to CME's risk management framework.

CME's Disclosure Framework document contains data on the value of open interest, volumes, Guaranty Funds and assessment powers. In addition, CME makes available on its website: daily volume and settlement data; monthly reports on volume data; quarterly reports with information on trading highlights, average daily volumes, open interest and historical volatility; clearing fee information; a list of its settlement banks; a list of its clearing participants; and information about its financial condition in its annual report.

CME publishes monthly and quarterly reports on volume data across its product offerings.

Standard 21: Regulatory reporting

A central counterparty should inform the Reserve Bank in a timely manner of any events or changes to its operations or circumstances that may materially impact its management of risks or ability to continue operations. A central counterparty should also regularly provide information to the Reserve Bank regarding its financial position and risk controls on a timely basis.

21.1 A central counterparty should inform the Reserve Bank as soon as reasonably practicable if:

- (a) it breaches, or has reason to believe that it will breach:
 - (i) a CCP Standard; or
 - (ii) its broader legislative obligation to do, to the extent that it is reasonably practicable to do so, all things necessary to reduce systemic risk;
- (b) it becomes subject to external administration, or has reasonable grounds for suspecting that it will become subject to external administration;
- (c) a related body to the central counterparty becomes subject to external administration, or if the central counterparty has reasonable grounds for suspecting that a related body will become subject to external administration;
- (d) a participant becomes subject to external administration, or if the central counterparty has reasonable grounds for suspecting that a participant will become subject to external administration;

⁶² Available at <http://www.cmegroup.com/clearing/risk-management/files/cme-clearing-principles-for-financial-market-infrastructures-disclosure.pdf>.

- (e) a participant fails to meet its obligations under the central counterparty's risk control requirements or has its participation suspended or cancelled because of a failure to meet the central counterparty's risk control requirements;
- (f) it fails to enforce any of its own risk control requirements;
- (g) it plans to make significant changes to its risk control requirements or its rules, policies and procedures;
- (h) it or a service it relies on from a third party or outsourced provider experiences a significant operational disruption, including providing the conclusions of its post-incident review;
- (i) any internal audits or independent external expert reviews are undertaken of its operations, risk management processes or internal control mechanisms, including providing the conclusions of such audits or reviews;
- (j) its operations or risk controls are affected, or are likely to be affected, by distress in financial markets;
- (k) it has critical dependencies on utilities or service providers, including providing a description of the dependency and an update if the nature of this relationship changes;
- (l) it proposes to grant a security interest over its assets (other than a lien, right of retention or statutory charge that arises in the ordinary course of business);
- (m) it proposes to incur or permit to subsist any loans from participants or members unless such loans are subordinated to the claims of all other creditors of the central counterparty; or
- (n) any other matter arises which has or is likely to have a significant impact on its risk control arrangements (see also CCP Standards 1.6, 16.10 and 19.3).

21.2 A central counterparty should also provide to the Reserve Bank, on a timely basis:

- (a) audited annual accounts;
- (b) management accounts on a regular basis, and at least quarterly;
- (c) risk management reports, including detailed information on margining and stress testing, on a regular basis, and at least quarterly;
- (d) periodic activity, risk and operational data, as agreed with the Reserve Bank; and
- (e) any other information as specified by the Reserve Bank from time to time.

CME has undertaken in the Bank's favour to meet the reporting requirements set out in this CCP Standard.