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Committee on Payment and Settlement Systems (CPSS)
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Technical Committee of the International Organization of Securities Commissions (IOSCO)
Email: fmi@iosco.org

Subject: CPSS/IOSCO Principles for financial market infrastructures – consultative report

The Canadian Depository for Securities Limited (CDS) is pleased have the opportunity to provide its comments on the consultative report *Principles for financial market infrastructures*. CDS recognizes the need for and supports CPSS/IOSCO's reassessment of the international standards applicable to financial market infrastructures (FMIs). The proposed strengthening of the international standards for FMIs is appropriate, particularly in light of the global financial crisis and the increasing importance of FMIs in the future.

CDS's perspective

CDS is Canada's national clearing, settlement and depository hub with approximately C$ 4.0 trillion of securities on deposit and processing over 320 million transactions annually. CDS, through its wholly owned subsidiary, CDS Clearing and Depository Services Inc., acts as a central securities depository (CSD), securities settlement system (SSS) and central counterparty (CCP) for Canada's equity, money market and fixed income (government and corporate) cash markets. CDS is among a small number of organizations in the world providing multiple FMI roles and may be unique in that these three FMI roles are offered by a single legal entity. Our clearing, settlement and depository system, CDSX, has been designated as a systemically important system in Canada. CDS is regulated by the Bank of Canada, the Ontario Securities Commission and the Autorité des marchés financiers in Quebec.

CDS also offers cross-border link services to its participants. Of particular note are our links with the Depository Trust Company (DTC) and the National Securities Clearing Corporation (NSCC) in the United States. These links are among the largest and longest established cross-border links in the world.

CDS has actively supported the adoption of international standards for FMIs, primarily through the assessment of its services against the existing international standards. CDS has been assessed against the *Recommendations for securities settlement systems* (RSSS) by the Bank of Canada and has conducted self-assessments against the *Recommendations for central counterparties* (RCCP). These assessments are publicly available. We were pleased to be invited to discuss our experience with these assessments at a meeting of the CPSS in Basel, Switzerland in November 2006. CDS has also explicitly included compliance with the RSSS and RCCP as one of the key principles in its risk management policies that are approved annually by our board of directors.

During the global financial crisis, CDS continued to provide its services to its participants without disruption. In this regard, CDS's experience is similar to many other FMIs that successfully met the challenges of the financial crisis. In addition, our participants met their financial obligations to CDS through the timely delivery of payment obligations and collateral. CDS did not suffer the default of any of its direct participants. CDS also played a critical role in the restructuring of the frozen Canadian asset-backed commercial paper market, highlighting the importance of CSDs and SSSs in the resolution of these types of problems. However, during the financial crisis the collateral requirements of our participants using our CCP services increased dramatically, driven by increases in both the value of transactions and market volatility. From January 2007 to October 2008, the collateral requirements in our equity CCP service increased by almost 500%[1]. This result can be partially attributed to the procyclical nature of the technique used to calculate collateral requirements, a characteristic that is appropriately identified as an area of concern in the consultative report. This is one example of the type of improvement that can be made to risk management practices of FMIs while at the same time acknowledging the fact that they generally performed well during the financial crisis.

CDS is a member of a number of international organizations of FMIs and has participated in the development of responses to the consultative report being provided by those organizations. The comments in this report reflect CDS's own perspective and the characteristics of the Canadian capital markets and may differ in certain respects to those comments provided by the international organizations of which CDS is a member.

Our comments are organized in two parts. The first part is composed of comments of a general nature applicable to broad themes, multiple principles and/or the organization of the principles. The second part is composed of comments specific to individual principles, key considerations and/or explanatory notes and annexes. CDS's recommendations for further consideration or modifications to the principles are <u>underlined</u>.

Part one – General comments

Contingent claims against non-defaulting participants as part of the financial resources to cover the default of participants

The principles dealing with both credit and liquidity risks (principles 4 and 7) describe the requirement for FMIs to cover the current exposure to each of its participants fully using collateral and other equivalent financial resources. The use of contingent claims on surviving participants as a source of financial resources was considered acceptable under the RCCP[2]. However, the proposed principles do not appear to explicitly consider contingent claims, other than noting that similar types of claims should be treated conservatively when a part of an FMI's capital plan (see 3.15.9). While recognizing that contingent claims against surviving participants create the risk of transferring the effects of a default to survivors thereby potentially threatening them (and thereby creating systemic risk), CDS believes that if properly quantified, limited and managed, contingent claims can be an effective and efficient source of financial resources for FMIs. Furthermore,

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[1] Measured using the monthly maximum total collateral requirements of all participants in the equity CCP service.

[2] Paragraph 4.5.6 states that "Resources can include contingent claims on non-defaulting participants, parent organisations, or insurers. For example, a CCP's rules may require non-defaulting participants to provide additional funds to it in the event of default."

excluding contingent claims from the financial resources of an FMI may motivate FMIs to eliminate those claims from the waterfall of default financial resources, thereby having the unintended effect of weakening FMIs. CDS recommends that contingent claims be considered part of the financial resources available to an FMI for both credit and liquidity risk purposes subject to these claims being applicable only after exhausting other sources of financial resources and only if those claims can be limited to amounts which can be predetermined to not likely create systemic, cascading failures of participants.

Covering the default of multiple participants

As noted above, even during the financial crisis, CDS did not suffer the default of a participant. However, based upon the experience gained during the crisis and in particular the circumstances in September 2008 where the default of Lehman Brothers created legitimate concern for the potential of cascading failures of important global financial institutions, in our opinion it is appropriate to give consideration to dealing with multiple defaults as the new international standard. This is not simply based on the notion that covering the potential default of the two largest participants is more conservative and therefore better. It is based on the fundamental role of FMIs to help contain systemic risk, a large part of which is the risk of cascading multiple failures. There would seem to be an apparent disconnect in the notion of robust FMIs providing a bulwark against systemic risk and then only testing this bulwark against a single (albeit the largest) defaulter. This systemically important role is only going to grow as additional financial products are moved to central clearing and the possibility of an FMI failure becomes even more important to avoid. Therefore, CDS recommends that the principles require that FMIs maintain financial resources to cover the default of the two participants that would potentially cause the largest aggregate credit or liquidity exposures.

On the spectrum of "cover one" to "cover all", covering the first defaulter likely goes a long way in addressing systemic risk by mitigating a substantial portion of the potential losses of the largest defaulter. In CDS's experience, this conclusion is based on our own stress testing, as described later in this letter, which indicates that the potential losses associated with a second defaulter tend to be relatively small compared to the first defaulter. It is on this basis that CDS supports the recommendation determining the additional credit and liquidity resources required to cover multiple defaulters should be based on stress testing. Furthermore, the nature of the resources used to cover the second defaulter, as distinct from the nature of the resources to cover the first defaulter, should be considered. More specifically, allowing contingent claims against non-defaulting participants and the use of common or pooled resources as eligible financial resources to cover the second defaulter should be considered.

Principles 4 and 7 regarding credit risk and liquidity risk also refer to the need to cover not only the one or two largest defaulters, but their affiliates as well. CDS notes that in Canada (and likely in other jurisdictions) regulatory tests for financial soundness applied to many of its participants account for the provider of capital and require that regulated entities be capable of functioning independently and that the default of a provider of capital would not prevent the entity from continuing as a going concern. At the same time, CDS recognizes that certain interdependencies may be implied by a market as a result of the failure of related entities and that these effects should be considered. CDS recommends that regulatory capital requirements of affiliates as separate and distinct entities from their parents be considered in the principles.

Recognizing the constraints on the timing of settlement for cash market CCPs

The timely settlement of a security trade between a seller of securities and a CCP requires that the seller have a sufficient quantity of the security in question in order to meet its delivery obligation to the CCP[3]. As a consequence, the ability of the CCP to fulfill its obligation to a purchaser of the security at any point of time on the originally agreed settlement date is dependent on the timely delivery of the security to it by a seller. Likewise, constraints on the ability of a purchaser to accept delivery of securities from the CCP (such as limits imposed by the SSS on the size of the payment obligation of the purchaser or the requirement for the payment obligation to be fully collateralized) can result in the CCP delaying the receipt of securities from a seller through a process of "managed settlements". These delays in settlement, either on an intra-day basis or across settlement dates, are managed through the use of incentives to promote prompt settlement such as penalties for settlement failures and the collateralization and mark-to-market of settlement fails.

The default of a CCP participant also creates circumstances that can delay the timely settlement of obligations between the CCP and the remaining non-defaulting participants. In order to replace the obligations of the defaulter, the CCP is required to enter into the market to purchase and/or sell securities positions to either acquire securities to deliver to non-defaulting buyers or sell securities received from non-defaulting sellers. The execution and settlement of these transactions with non-defaulting participants can take several days[4]. In fact, CCPs typically recognize the potential for these timing delays by providing for multiple days in the liquidation period when calculating margin requirements.

The point of highlighting these two sources of potential delay of the settlement of obligations between a CCP and its participants is not to cast doubt on the ultimate settlement of these obligations, but to recognize that the settlement may not occur at a particular point in time on the settlement date or indeed at any point in time on the originally agreed settlement date. Assuming that the CCP remains viable, participants can rely on the CCP to meet its obligations. It's not a matter of if the trades will settle, but of when.

CDS has participated in discussions where the notion of conditionality surrounding the timing of settlement of CCP obligations has been equated to "not being a true CCP". It is our judgment that it is necessary and appropriate to recognize the reality of the constraints on securities settlement in cash markets and the impact of that reality on CCPs. As a result, <u>CDS recommends that CPSS/IOSCO explicitly consider this issue in the principles and confirm that the fundamental role of a CCP is to reduce the counterparty credit risk faced by market participants and not to take on the unachievable (and potentially disruptive) role of providing settlement of obligations at an absolute point of time, regardless of cost. Naturally, this is not to suggest a cavalier attitude towards settlement timing. Proper incentives must be in place to ensure the desired market behaviour.</u>

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[3] Possession by the seller of an adequate quantity of securities to meet its delivery obligation is required in order to avoid creating a short position in securities. This is consistent with the prohibition of overdrafts or debit positions in securities in CSDs described in principle 11.

[4] In fact, delaying the execution of the trades to replace the defaulter's obligations may be desirable in order to avoid larger than necessary losses caused by forcing transaction in extremely volatile or illiquid markets (provided that the CCP has other means of adequately hedging its market risk exposure). Indeed, the forced liquidation of these positions could exacerbate the stressed market conditions.

Treatment of selected RSSS marketwide recommendations in annex C

The treatment of selected RSSS marketwide recommendations by including them in an annex to the report is not consistent with the intention of integrating all of the minimum standards for FMIs into a single, comprehensive set of principles. It is unclear how the assessment of an FMI against the recommendations in annex C would affect its compliance status with the rest of the principles in the document. Furthermore, the fact that RSSS recommendation 4 regarding CCPs and recommendation 6 regarding CSDs remain in effect seems duplicative at a minimum and potentially contradictory or inconsistent. <u>CDS recommends that the content of the recommendations in annex C be incorporated and integrated within the main document or removed from the document entirely.</u>

Recommendation for a further round of consultation

Recognizing the magnitude and nature of the changes proposed in the consultative report and the likely volume and variety of responses that the consultative report will generate, <u>it is recommended that CPSS/IOSCO consider providing a further round of consultation to follow the distribution of a revised version of the report</u>. While a further round of consultation will lengthen the time required to prepare the final version of the principles, it will almost certainly result in benefits that could reduce the overall time required to implement the principles (which clearly is the ultimate objective). These benefits include (i) being able to include assessment criteria in the second round which will identify and allow resolution of issues in implementing the principles; (ii) providing an opportunity to seek further input regarding issues identified in the comments which may not have been previously considered; (iii) providing additional opportunity for FMIs to work with their participants to quantify the impact of the changes (given that it is these participants who will ultimately bear the cost of improvements to the FMIs risk management practices). The effects of the proposed principles are going to be profound and widespread. Taking the time necessary to ensure that these effects are identified and understood is essential.

Stress testing

CDS is aware that CPSS/IOSCO is interested in comments regarding the use of stress testing by FMIs, particularly as it relates to principle 4 on credit risk and principle 7 on liquidity risk. To that end, we provide below a summary of the current application of stress testing to CDS's SSS and CCP activities.

CDS implemented a formal stress testing program in 2006. Our stress testing program incorporates both credit, market and liquidity stress conditions and quantifies the resulting potential losses and liquidity pressures that would be placed on CDS and its participants. More specifically, our stress testing program simulates the default of each participant in all of the CDS services that they use (credit risk stress scenario) and applies market prices and rates to their actual positions and obligations based on a series of market conditions (market risk stress scenarios). The stress testing program is run each month and simulates the default of each of CDS's approximately 100 participants based on their end-of-day positions and obligations for each day during that month using over 80 different historical and theoretical market risk scenarios (95 participants x 80 scenarios x 21 business days per month results in 159,600 stress testing results per month). The results of this stress testing are included in a report that includes other risk management metrics provided to participants and regulators each month.

The historical stress scenarios that are used by CDS have been selected based on the largest absolute multiple-day movements in the market risk factors that affect the positions of its participants. These market factors include changes in equity prices, interest rates at various points on the yield curve[5] and CAD/USD exchange rates. For example, one historical scenario is the decline in equity prices in October 1987 together with the interest rate and exchange rate changes that historically occurred during this period. CDS has also developed a series of theoretical scenarios that model arbitrary but plausible changes in market risk factors that have not been historically observed. These theoretical scenarios are particularly useful to measure the sensitivity of participants' positions to market risk factor changes. The scenarios used by CDS are reconsidered as market conditions warrant (an additional set of scenarios were added during the global financial crisis) and can be run more frequently (as was the case during the crisis). Because historical position and obligation data are retained, CDS is able to apply new stress scenarios to historical positions retroactively.

CDS's current stress testing method uses actual positions and obligations of participants. These positions are often a fraction of the maximum position and obligation size that participants could create within the limits enforced within the system. CDS is planning to further enhance its stress testing method to quantify the potential losses that could occur based on theoretical positions.

An interesting and surprising result of our stress testing is that the additional resources required to cover the two largest defaulters is not materially larger than the resources required to cover the single largest defaulter. In fact, uncollateralized losses of any defaulter are a fairly rare occurrence even under stress conditions. Of approximately 100 participants, there is on average approximately one uncollateralized potential default each day. This result may be particular to a feature that has been built into CDS's risk model and Participant rules in that any excess collateral available to cover the payment obligation of a defaulter in our SSS is available to reduce the losses that same defaulter may have created in a CCP services of which they are a member.

CDS considers stress testing to be a vital tool in assessing the potential risk exposures that could result from participant defaults. Stress testing allows for the combination of a credit event (default of the participant with the largest exposure) with the market conditions that would likely be present in that event. In other words, the stress testing program recognizes that the default of our largest participant will not be a "normal" day in the markets in which CDS provides its various FMI roles, and the stress scenarios from a credit and market risk perspective, reflect that fact.

Stress testing results need to be accompanied by proper visibility, timely analysis and appropriate responses. While there may be certain characteristics of stress testing that should be included in the principles, <u>it is CDS's position that appropriately responding to the results of stress testing is an equally important part of the overall stress testing program as indicated by explanatory note 3.4.12.</u>

Part two – Comments on specific principles and annexes

Principle 1 – Legal basis

Explanatory note 3.1.5 – Among other things, this note requires that the legal basis under which the FMI operates should protect the assets and positions of a participant's customers in order to achieve fully the benefits of segregation and portability. In Canada, the ultimate beneficial ownership of assets is not known by the FMI due to the omnibus holding model used in the

[5] Interest rate scenarios including parallel shifts, steepening, flattening and twists in the yield curve.

Canadian marketplace. Therefore, it is not possible for CDS (and likewise other CSDs operating in markets using omnibus arrangements) to be aware of the identity of its participants' customers or to determine the legal relationship between its participants and their customers and the impact that this relationship may have on the ownership of the assets. CDS recommends that this explanatory note be modified to acknowledge the existance of the omnibus holding model with respect to the identification and protection of assets of participants' customers.

Principle 2 – Governance

Key consideration 5 – CDS supports the requirement that an FMI's "board should establish a clear, documented risk-management framework that includes the FMI's risk tolerance[6] policy." A well-articulated risk tolerance statement allows the FMI and its stakeholders to know the boundaries of acceptable risk taking and to ensure that there are processes and controls to contain its risk exposures within those boundaries. It also promotes efficiency by eliminating the need to introduce costly controls that reduce the risk exposure of an FMI to a level that is not cost justified. Providing for the input of various stakeholder groups, particularly users of the FMI, into the definition of the FMI's risk tolerance is an important consideration. CPSS/IOSCO should recognize that while many organizations have developed or are in the process of developing a risk tolerance statement, this is a relatively new aspect of enterprise risk management and is therefore still evolving.

Explanatory note 3.2.5 – This note suggests that FMIs that provide services that present a distinct risk profile from its primary function may need to legally separate those services. The note does not explicitly address an FMI providing more than one FMI service within a single legal entity. As noted earlier, CDS provides multiple FMI services from within a single legal entity, including acting as a CSD, SSS and CCP. We have carefully considered the risk implications of this arrangement and have satisfied ourselves, and our regulators, that the risk profiles of the various FMI roles are consistent (given how CDS manages its financial and operational risk exposures in these roles) and can be offered from a single legal entity. Our interpretation of the purpose of this explanatory note is to legally isolate services that are not core to the FMI role and that have a greater risk exposure than the risks associated with the FMI role. CDS recommends that CPSS/IOSCO provide further guidance on what constitutes a "distinct risk profile" and explicitly acknowledge that it may be possible to offer multiple FMI roles from within a single legal entity. CDS's view on this issue is based, in part, on the results of its stress testing program. We have observed, based on over five years of observations, that our single legal entity offering multiple FMI roles would have benefited considerably from excess financial resources from one FMI role reducing (and often eliminating) the losses that would have been suffered by surviving participants using other FMI services, even under extreme market scenarios and multiple defaulters. For example, we often find that excess collateral to cover payment obligations to CDS as SSS can eliminate collateral deficiencies (i.e., those losses not covered by the 99% margin requirement) in our CCP services.

Explanatory note 3.2.9 – This note implies that it is necessary to have separate audit, risk and compensation committees without describing the roles that those committees would be expected to perform (other than the roles implied by the names of the committees). CDS recommends that the explanatory note be revised to describe the roles and responsibilities of committees of the board but provide flexibility on the actual composition of the committees themselves (for example, a

[6] While different organizations use various terms to describe this concept (e.g., risk appetite, risk tolerance, etc.), the basic concept is a description of the amount and types of risk that an organization is willing to take in order to achieve its objectives.

combined audit and risk committee should be acceptable so long as the committee's mandate includes the appropriate roles and responsibilities).

Explanatory note 3.2.13 – While it is appropriate to have independent validation of the models used by an FMI to measure and manage its risk exposures, CDS believes that the requirement to have the independent validation process *itself* subject to an independent review of its adequacy and effectiveness is redundant and unnecessary and should be removed from the principles.

Explanatory note 3.2.14 – The note describes one of the roles of the board as "establishing and overseeing internal controls and audit." While the board clearly has an oversight role, including oversight of the design and effectiveness of internal controls, it cannot be expected to establish those controls, which implies a much greater level of detailed involvement in the design of process-level controls than is appropriate. CDS recommends that the note be amended accordingly.

Principle 3 – Framework for the comprehensive management of risks

Explanatory notes 3.3.1, 3.3.4 – These notes include requirements related to the risks borne by and posed to the FMI from the customers of its participants. As described more fully in the comments on principle 19 (tiered participation), the practical ability to identify, measure and respond to risk exposures related to the use of an FMI's participants' customers is extremely limited. This can be contrasted with the risk exposure borne by an FMI as a result of linked FMIs, settlement banks, liquidity providers and service providers over which an FMI has considerable control and influence and has, in most cases, a direct legal/contractual relationship to form the basis for managing the associated risk exposures. CDS recommends that the reference to customers of an FMI's participants be removed from the principle but supports the inclusion of other entities such as linked FMIs, settlement banks, liquidity providers and service providers.

Principle 4 – Credit risk

Please see general comments regarding multiple defaulters and contingent claims on non-defaulting participants in part one.

Key consideration 3 – The consideration requires a payment system, CSD or SSS to cover its current exposures to each participant fully and with a high degree of confidence using collateral and other equivalent financial resources. When acting as an SSS, CDS requires participants to collateralize their payment obligations through the application of a real-time edit on transaction settlements. The collateral used by participants is composed of the securities being purchased, other securities available to CDS for collateral purposes and common pools of collateral pledged directly to CDS by multiple participants. Our interpretation of the requirement to cover exposures "to each participant fully" would disallow the use of common pools of collateral whereby each contributing participant benefits from the full amount of collateral in the pool contributed by all members. This interpretation would have a significant impact on the cost to participants of collateralizing current exposures[7]. In order to achieve a balance between the cost and efficiency of mitigating current exposures on one hand against the risk of burdening surviving participants with a portion of the

[7] Without modification to the formula for the calculation of collateral requirements to the common collateral pools, the largest participants would be required to pledge five times the current collateral requirement.

cost of the default of another participant, CDS recommends allowing common pools of collateral[8] such that the risk of loss to surviving participants be limited to a known amount (measured under stress conditions) agreed to by the participants exposed to the potential loss and acknowledged by their respective regulators.

Explanatory note 3.4.7 – This note requires a CCP to measure and monitor its credit risk exposure throughout the day. This requirement assumes that the risk exposure faced by the CCP could materially increase during the course of a day. While this assumption is valid in the case of most CCPs, in the case of CDS's cash equities CCP, the risk exposure declines during the day as settlements of outstanding positions occurs on settlement day. In this case, measuring risk exposure intraday (after having assessed and collected margin based on the opening of day positions) would be unnecessary. Therefore, CDS recommends that the note be amended to require intraday measurement and monitoring in those cases where the risk exposure faced by the CCP could materially increase during the course of the day.

Explanatory note 3.4.14 – This note describes the requirement for reverse stress testing but does not seem to correctly describe what is meant the by term "reverse stress tests". Our understanding of reverse stress testing is that the unacceptable outcome is taken as a given and then the potential causes of that outcome are identified and analyzed. The notion of this type of testing being "reverse" comes from the fact that the outcome is the starting point of the exercise whereas with "normal" stress testing the extreme scenarios (changes in market factors) are the starting point and the outcomes are the result. The note seems to describe reverse stress tests as simply more extreme stress tests. While CDS supports the use of reverse stress tests, it recommends that the description of reverse stress tests be reconsidered.

Principle 5 – Collateral

Explanatory note 3.5.2 – This explanatory note requires FMIs to limit acceptable collateral to assets with low credit, liquidity and market risks. The note further provides for allowances for collateral with above minimum levels of credit, liquidity and market risks subject to appropriate haircuts and concentration limits. When acting as an SSS, CDS routinely accepts equity securities as collateral for the purposes of securing certain participants' payment obligations, subject to haircuts based on a 99% one-tailed confidence level with a holding period that reflects the liquidity of the individual equity security. This is particularly important for our participants whose settlement activity is primarily in equity securities. CDS recommends that the principles be amended to explicitly recognize the use of equity securities (and other securities that might be considered to be significantly higher risk), subject to appropriate haircuts and concentration limits. It may also be appropriate to consider limiting the use of equities and other potentially higher risk securities to participants that do not represent a systemic risk upon default.

Explanatory note 3.5.3 – This explanatory note requires that the haircuts used by FMIs to value collateral *incorporate* stressed market conditions. It is unclear how this incorporation is to take

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[8] The use of "pooling-of-resources" is contemplated in the principles within footnote 40 on page 35 with respect to default funds for CCPs. Similar consideration should be given for pooled resources for other FMIs for current credit risk exposure.

place. CDS recommends that the note be modified to explain how stress testing is expected to be incorporated in haircuts for collateral valuation purposes.[9]

Principle 6 – Margin

Explanatory note 3.6.10 – This note describes the need for limiting procyclicality in a CCP's margin requirements and correctly recognizes that it may be impractical or imprudent for a CCP to establish margin requirements that are independent of cyclical changes in price volatility. CDS supports the example provided in the note which looks to the default fund (presumably based on requirements established based on stress testing) as a means of "smoothing" the peaks and valleys of margin requirements in periods of high volatility. This is also an area where predetermined responses to spikes in volatility should be documented and included in the CCP's procedures.

Explanatory note 3.6.12 – This note describes portfolio margining and provides for the recognition of diversification effects based upon significant and reliable correlations. CDS supports this recognition and the important caveat in the note regarding how those correlation can change in periods of market stress. These changes in correlations must be incorporated in the stress tests used to determine the size of a default fund to cover those periods of market volatility not expected to be covered by initial margin.

Explanatory note 3.6.14 and 3.6.15– These notes describe the backtesting and stress testing required to test the sufficiency of a CCP's financial resources. CDS recommends that the principles include the requirement for making the results of this testing available to the participants of the CCP. This is particularly important where contingent claims on non-defaulting participants (whether they are formally considered part of the financial resources of the CCP or not) can be used to mitigate losses that exceed the defaulter's margin and contribution to the default fund. This transparency is an important source of confidence in the CCP's risk framework for its participants and will help support continued use of the CCP in periods of market stress.

Principle 7 – Liquidity risk

Please see general comments regarding multiple defaulters and contingent claims on non-defaulting participants in part one.

Explanatory note 3.7.8 – This note describes the requirement of an FMI to maintain sufficient liquidity resources. In particular, the note requires a CCP to maintain sufficient liquidity resources to "meet required margin payments and effect same-day close out or hedging" of one or two defaulters in extreme but plausible market conditions. The requirement to effect same-day close out is not practical and perhaps not even desirable in the case of the cash market CCP services offered by CDS (see general comment regarding recognizing the constraints on timing of settlements for cash market CCPs). It is also unclear why a CCP would be required to use its liquidity facility to meet margin payments (presumably those of a defaulting participant). CDS recommends that the note be reconsidered in light of these comments.

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[9] It is suggested that this can be accomplished by using a modified value-at-risk approach based upon an historical period of market stress relevant to the asset in question. Using a confidence level of 99% would allow for a consistent approach to collateralizing current credit risk and future risk (through risk-based margin rates using a minimum 99% confidence level).

Explanatory note 3.7.16 – Please see comments regarding explanatory note 3.4.14 regarding reverse stress testing.

Principle 8 – Settlement finality

Explanatory note 3.8.1 – This note indicates that transactions should be settled with finality on the intended value date. CDS supports the suggestion that transactions should be settled on the intended value date and that appropriate controls and incentives should be applied to support this practice. However, settlement delays can and do occur for legitimate reasons. CDS recommends that the note be amended to accommodate the practical reality of the potential for settlement delays[10].

Principle 9 – Money settlements

Explanatory note 3.9.2 – This note describes the use of central bank money for an FMI's money settlements. CDS strongly supports the use of central bank money and has had the benefit of the use of central bank money for its Canadian dollar settlements for a number of years. However, settlements in CDSX can occur in either Canadian or U.S. dollars. For U.S. dollars, money settlement occurs through a commercial settlement bank. CDS recommends that the principles strongly encourage the use of central bank money for settlements in any currency used by an FMI and that this encouragement be supported by central banks' willingness to allow foreign FMIs to operate accounts to facilitate these money settlements.

Explanatory note 3.9.5 – This note includes a recommendation for FMIs to diversify the risk of a commercial bank failure through the use of multiple commercial settlement banks. CDS has spent considerable time and resources investigating the potential to diversify its U.S. dollar commercial settlement bank risk. In doing so, CDS identified numerous practical, operational and risk issues which precluded having an effective relationship with more than one U.S. dollar settlement bank. Based on this experience, CDS recommends that the explanatory note and assessment criteria should encourage the investigation of multiple commercial settlement banks but not require it in order to be compliant with the principles and should also give consideration to other arrangements that can reduce the exposure to operational or financial failure of an FMI's commercial settlement banks.

Principle 10 – Physical settlements

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 11 – Central securities depositories

Key consideration 2 – This consideration prohibits overdrafts or debit balances in securities accounts. CDS recognizes that debit balances in securities accounts could result in the participants of a CSD having long positions in excess of the total number of units issued by a security issuer. Nevertheless, circumstances can arise where securities positions of participants need to be reduced

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[10] For clarity, settlement delays refers to the failure of a transaction to settle on the intended value date, not on a delay in the settlement of payment obligations as a result of transaction settlements (i.e., money settlement).

which could result in debit balances[11]. CDS recommends that the key consideration and associated explanatory note be amended to require that the CSD have a documented and legally enforceable means of quickly and completely eliminating debit positions in securities accounts and for allocating the losses that may result from eliminating these positions to the parties responsible.

Key consideration 4 – This consideration requires that a CSD maintain securities in an immobilized or dematerialized form. In Canada, physical securities certificates continue to be used for a portion of the inventory held by CDS as a CSD. CDS has long been a strong advocate for dematerialization and has undertaken numerous initiates to support the elimination of physical certificates. CDS strongly recommends that the principles more aggressively advocate dematerialization and that the regulatory bodies comprising CPSS/IOSCO actively pursue the regulatory and legislative changes required to move to a completely dematerialized environment. This change would have significant positive impacts on the efficiency and risk exposures of FMIs.

A significant source of operational risk for a CSD is the risk of loss resulting from errors in the processing of corporate actions and entitlement events. While this principle mentions "other activities" that might be performed by a CSD, CDS recommends that the principles make specific mention of the risks associated with corporate action processing and require that CSDs appropriately identify, manage and monitor those risks.

Principle 12 – Exchange-of-value settlement systems

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 13 – Participant default rules and procedures

Key consideration 4 – This consideration requires an FMI to engage participants and other stakeholders in periodic testing of its default procedures. CDS has well-established and documented default procedures that were developed together with relevant stakeholders. CDS undertakes periodic internal tests of its default procedures and is planning to begin conducting tests that involve participants and other stakeholders. As a result, CDS strongly supports the proposed requirement for visible and practical testing of an FMI's default processing arrangements.

Explanatory note 3.13.2 – This note includes the requirement for an FMI's default arrangements to address both a financial as well as operational default of a participant. CDS supports the consideration of operational defaults in this note.

Explanatory note 3.13.5 – This note includes the recognition of the importance of management discretion and flexibility when implementing an FMI's default arrangements. CDS supports this appropriate recognition.

Principle 14 – Segregation and portability

The principle as drafted applies only to CCPs. CDS recommends that the scope of this principle be expanded to include CSDs which must also segregate and be in a position to effect the movement of client positions to non-defaulting participants.

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[11] Examples of causes of temporary debit balances in securities accounts include certain corporate action processing and deposits of securities subsequently determined to have been invalid.

For a cash market CCP, risk exposure is associated only with unsettled transactions for the period of time between the CCP guarantee of a transaction to the settlement of the transaction, typically less than three days. After the settlement of the cash trade, segregation and portability issues fall to the relevant CSD (see paragraph above). It is also important to note that from a segregation and portability perspective, the client has not paid for and has not taken ownership of the security position until settlement. In this sense, a client may be exposed to the equivalent of replacement cost risk for unsettled positions. For these reasons, CDS recommends that consideration be given to excluding cash market CCPs from the application of this principle.

Principle 15 – General business risk

Key consideration 3 – This consideration and supporting explanatory notes describe the requirement for an FMI to hold equity capital equal to six, nine or twelve months of expenses. CDS understands that the fraction or multiple of annual expenses is being used as a proxy for the general business risk to which an FMI can be exposed. This proxy is very arbitrary and does not consider variation in the nature of these business risks among FMIs (i.e., the requirement is not risk-based) and does not consider the other types of resources available to an FMI to cover the potential losses resulting from these general business risks (e.g., insurance, funding from participants and price increases). The availability of funding from participants, particularly where they are also the owners of the FMI, is a particularly important consideration. The capital requirement that would be imposed on CDS based on this proxy vastly exceeds any real or reasonably possible general business loss to which CDS has been exposed during its history. Introducing arbitrary minimum capital requirements increases the ongoing cost of providing an FMI's services and reduces efficiency. CDS recommends that if capital standards are to be established, they must be based on an appropriate risk-based assessment of the risk exposures that the capital is expected to address. This can be accomplished by linking the capital requirements to the residual general business risk exposures identified in key consideration #1 using methods like those described in explanatory note 3.15.3.

Explanatory note 3.15.4 and 3.15.5 – These notes describe the identification, measurement and monitoring of general business risks. CDS recommends that reference to the established and documented FMI's risk tolerance be included in these notes. In order for an FMI to be able to make decisions about appropriate levels of general business risks, the established tolerance of the FMI for those types of risks need to be taken into account.

Explanatory note 3.15.9 – This note specifically excludes the use of insurance and indemnity agreements from participants as financial resources as part of the capital plan of an FMI. The typical types of liquidity concerns regarding insurance as a financial resource would not seem to be a material consideration in this case. CDS disagrees with this exclusion and recommends that appropriately constructed and targeted insurance and indemnity agreements be considered part of an FMI's capital plan.

With respect to indemnity agreements with participants, given the systemic importance of an FMI, it is important to ensure that losses that could be incurred by an FMI can be limited to an amount that does not threaten the ongoing viability of the FMI. CDS has operationalized this concept through limits on its liability to its participants. The basis of this approach is that large losses that can threaten the FMI may cause systemic problems while the same loss suffered by a participant without recourse to the FMI may not. Put more precisely, the failure of the FMI is likely a greater systemic risk than the failure of a single participant. Therefore, CDS recommends, where legally

enforceable limits of liability exist, that these limits be accounted for in the determination of the capital requirements of the FMI.

Principle 16 – Custody and investment risk

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 17 – Operational risk

The objective of managing operational risks (or any other risk) should not necessarily be to *minimize* their impact, as indicated in the principle, but to manage the impact within the FMI's capacity and risk tolerance. Minimizing risk beyond acceptable levels increases costs and reduces efficiency without commensurate benefit. CDS recommends that the wording of the principle be amended accordingly.

Other than the comment above, CDS supports the principle and explanatory notes and in particular is pleased with the explicit recognition of the importance of capacity management, business continuity management and physical and information security. As vital as these particular areas of operational risk management are, CDS has found that a coordinated, rigourous and comprehensive system of internal control is the single most important aspect of its management of operational risk. CDS recommends that consideration be given to further enhancing the wording of the key considerations and explanatory notes to elevate the importance of internal controls relative to the importance attributed to specific areas of operational risk management, such as business continuity and operational capacity management.

With respect to interdependencies, for a number of years CDS has worked with the Bank of Canada, and the Canadian Payments Association (CPA) to compare, coordinate and enhance business continuity arrangements. This work is particularly important in Canada due to the interdependencies between the systems operated by CDS and the CPA. CDS has found this group to be particularly valuable in order to fully understand these interdependencies and to develop communication protocols and coordinated response plans, among other benefits. CDS encourages CPSS/IOSCO to make reference to the formation of groups to facilitate the coordination of business continuity arrangements between interdependent FMIs even where these FMIs may not have established a formal linkage.

Principle 18 – Access and participation requirements

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 19 – Tiered participation arrangements

CDS acknowledges that risk exposures are posed by tiered participant arrangements which, as noted in the report are multi-layered and complex. As further acknowledged in the report, an FMI's ability to identify, understand and manage all such risks is "likely to be limited." CDS has approximately 100 direct participants using its CSD, SSS and CCP services. Almost all of these direct participants use CDS's services on their own behalf as well as on behalf of their clients, some of which in turn offer services to their own clients. Taken to its extreme, the tiered participation structure involves every individual and institutional investor anywhere in the world that invests in Canadian securities on deposit at CDS, and every financial institution acting as an intermediary between CDS and the ultimate investor.

CDS recognizes that the experience of the recent financial crisis has highlighted the lack of visibility that tiered participant arrangements can create. As noted earlier, CDS did not experience the default of a direct participant during the crisis. However, non-Canadian financial institutions that did fail or were under severe financial pressure were, no doubt, clients of our direct participants. During this period, CDS's participants continued to meet their obligations on a timely basis, both for their own activity and that of all of their clients. This is due, in large part, to the effective risk management practices within our participants' operations and the regulatory requirements to which they adhere. CDS believes that this is a critical component of dealing with the risks posed by tiered participant arrangements. In CDS's case, all of our direct participants are regulated financial institutions which are required to appropriately manage their risk exposures, including those posed to them by their clients. CDS recommends that any principle regarding tiered participant arrangements explicitly take this important dimension into account, to the point where it may negate the need for an FMI to be able to explicitly identify "indirect participants".

CDS sees practical, operational and legal concerns with the implementation of this principle as currently conceived. Confidentiality requirements, privacy legislation and the private legal arrangements between the direct participant and their clients would all have an impact on data availability and reliability.

CDS strongly urges CPSS/IOSCO to carefully reconsider the proposed principle, particularly in light of the fact that (certainly in CDS's case) adequate requirements on direct participants for the effective management of risks posed by their clients' activity are already in place. An alternative that might be considered would be to require an FMI to assess the regulatory requirements of its direct participants to ensure that adequate risk management provisions exist to manage the risks posed by indirect participants and to address any potential gaps through regular attestations from the affected participants to the FMI confirming that any regulatory gaps have been addressed.

Notwithstanding that CDS believes that significant revisions to this principle are required, the following comment is provided on the existing text of the key considerations and explanatory notes.

Key consideration 1 – This consideration requires that the risks associated with tiered participation be reported to an FMI's board of directors. CDS notes that any risk that has an appropriately significant potential impact should be reported to the board. The criteria used to determine whether a risk should be reported to the board should also apply to the risks associated with tiered participation, which may result in these risks not being required to be reported to the board. CDS recommends that the consideration be amended accordingly.

Principle 20 – FMI links

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 21 – Efficiency and effectiveness

CDS supports the principle and the recognition of the indirect costs that are imposed on users of an FMI's services, some of which are the result of resources that must be deployed to meet the minimum requirements set forth in the principles. CDS recommends that the principle explicitly take into account the requirement to appropriately balance the effective risk management of an FMIs activities with the associated impact on efficiency as has been noted in other areas of the principles.

Principle 22 – Communication procedures and standards

CDS has no comments on this principle, key considerations and explanatory notes.

Principle 23 – Disclosure of rules and key procedures

CDS strongly supports this principle and the associated key considerations and explanatory notes. For the past several years, CDS has published various documents that describe how it operates its various FMI services in addition to the publicly available rules and procedures that form a part of the legal basis of CDS's relationship with its participants. These additional documents include a comprehensive description of CDS's market, credit and liquidity risk management including the sources of these risks, the mitigation and transfer of these risks and explicit descriptions of the type and magnitude of residual risk exposures of participants as a result of using these FMI services. CDS has found that this documentation has been invaluable in supporting its objective of providing transparency for all stakeholders. CDS is pleased that CPSS/IOSCO has encouraged this type of reporting as described in explanatory note 3.23.6.

Principle 24 – Disclosure of market data

CDS has no comments on this principle, key considerations and explanatory notes.

Annex E: Guidance for CCPs that clear OTC derivatives

This annex includes guidance on CCP emergency actions and market protocols. The scope of the guidance provided by the annex is limited to CCPs that clear OTC derivatives. CDS recommends that the scope of the guidance regarding emergency actions and market protocols be expanded to include cash market CCPs and other types of FMIs.

Conclusions

In conclusion, CDS is supportive of the efforts of CPSS/IOSCO in strengthening the international standards for FMIs. In terms of the individual principles, our comments are largely aimed towards suggestions to improve the proposed principles and supporting notes. In a few cases, we have identified more profound concerns, specifically with respect to portability and segregation (principle 14), capital requirements (principle 15) and tiered participant arrangements (principle 19). We have attempted to bring our unique perspective to bear through our comments which we hope CPSS/IOSCO will find helpful in preparing the next version of the principles.

CDS would be pleased to provide further elaboration or clarification on any of the points raised in our comments. Requests can be made to David Stanton, Chief Risk Officer at dstanton@cds.ca.