

# Margining for Non-Centrally Cleared Over-the-Counter Derivatives

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## Introduction

Over-the-counter (OTC) derivatives markets are an important area in the reforms launched by the G-20 leaders in response to the global financial crisis.<sup>1</sup> Although the crisis did not originate in these markets, their size and interconnectedness and the opacity of their exposures served to amplify and spread the financial stress. The primary objective of the OTC derivatives reforms is to reduce systemic risk by strengthening these markets so that they can remain open in the face of severe shocks, thus limiting the risk of contagion from the failure of a large financial institution. The reforms also aim to make the network of exposures among participants in these markets more visible to authorities, and to improve transparency and protect against market abuse.

To achieve these objectives, the G-20 agreed that:<sup>2</sup>

- trades in OTC derivatives should be reported to trade repositories;
- all standardized OTC derivatives should be cleared through central counterparties (CCPs) and traded on organized trading platforms, where appropriate; and
- non-centrally cleared OTC derivatives should be subject to higher capital and margin requirements.

Higher capital and margin requirements for non-centrally cleared derivatives will help to reduce systemic risk while promoting the standardization of OTC derivatives and the use of CCPs.<sup>3</sup>

This report explains the margin requirements for non-centrally cleared derivatives developed by the Working Group on Margining Requirements (WGMR) and published in September 2013 (BCBS-IOSCO 2013a).<sup>4</sup> These requirements balance the benefits of mitigating systemic risk against the costs of regulation, including the increased demand for collateral. Achieving this balance is important because, while derivatives are necessary for hedging risk exposures, they also pose risks that need to be properly managed. The report begins by describing the market for non-centrally cleared derivatives. It then discusses the framework for margining these derivatives and the likely effects on Canada and the global financial system. The report concludes by highlighting future work to be done in this area.

## The Market for Non-Centrally Cleared OTC Derivatives

Although a key objective of the reforms is to encourage the clearing of OTC derivatives through CCPs, this will not always be possible. Some derivatives are not suitable for clearing because they are not sufficiently standardized or liquid enough to enable CCPs to price them reliably and manage their risks. In addition, some market

<sup>1</sup> For a recent update on the progress of the financial reforms, see the September 2013 letter from the Chair of the Financial Stability Board to the G-20 (FSB 2013a).

<sup>2</sup> The commitment to undertake the OTC derivatives reforms was first made in September 2009 (G-20 2009) and reaffirmed at subsequent G-20 summits. The FSB regularly provides updates on the progress in implementing the reforms (FSB 2013b). Wilkins and Woodman (2010) describe how these reforms can strengthen the infrastructure of OTC derivatives markets in Canada.

<sup>3</sup> The benefits of CCPs in mitigating systemic risk are discussed in Chande, Labelle and Tuer (2010).

<sup>4</sup> The WGMR was formed jointly by the Basel Committee on Banking Supervision and the International Organization of Securities Commissions. The WGMR's proposals were developed in consultation with the Committee on Payment and Settlement Systems and the Committee on the Global Financial System.

**Table 1: Centrally cleared and non-centrally cleared over-the-counter derivatives markets for global market participants (notional value outstanding, billions of Canadian dollars, as of 30 June 2012)<sup>a</sup>**

	Interest rate	Foreign exchange	Credit	Equity	Commodity	Total
Centrally cleared	285,169	32	6,796	197	789	292,984
Non-centrally cleared	268,731	69,575	24,665	6,376	2,608	371,956
<b>Total</b>	<b>553,900</b>	<b>69,608</b>	<b>31,462</b>	<b>6,573</b>	<b>3,396</b>	<b>664,939</b>

a. Values are taken from the Working Group on Margining Requirements' second consultative document and converted using the Bank of Canada's midday euro/Canadian-dollar exchange rate on Friday 29 June 2012. Numbers may not add up to totals owing to rounding.

**Table 2: Centrally cleared and non-centrally cleared over-the-counter derivatives markets for the six largest Canadian banks (notional value outstanding, billions of Canadian dollars, as of 30 April 2013)<sup>a</sup>**

	Interest rate	Foreign exchange and gold	Credit	Equity	Other	Total
Centrally cleared	6,084	2	2	1	2	6,091
Non-centrally cleared	6,857	3,743	145	315	121	11,181
<b>Total</b>	<b>12,942</b>	<b>3,744</b>	<b>146</b>	<b>316</b>	<b>124</b>	<b>17,272</b>

a. Values are calculated using data from major Canadian banks supplied by the Office of the Superintendent of Financial Institutions and adjusted for double counting using October 2010 data from the Canadian Market Infrastructure Committee. Numbers may not add up to totals owing to rounding.

participants (for example, certain corporate end-users) will not be required to clear their transactions, even in standardized instruments. Hence, while there is a strong push to increase central clearing, a portion of OTC derivatives will continue to be bilaterally traded.

The global market for OTC derivatives is enormous, with a total gross notional value outstanding of over Can\$729 trillion, of which approximately Can\$370 trillion is not centrally cleared.<sup>5</sup> The Canadian OTC derivatives market is also significant, with over Can\$18 trillion in notional value outstanding, of which approximately Can\$11 trillion is not centrally cleared.<sup>6</sup> The Canadian financial institutions involved in these transactions actively trade derivatives inside and outside of Canada. For instance, nearly 40 per cent of the notional value of OTC derivatives transactions by the six largest Canadian banks is booked outside of Canada, and many of the transactions booked domestically are with a foreign counterparty (Wilkins and Woodman 2010). **Table 1** and **Table 2** break down the notional value of centrally cleared and non-centrally cleared OTC derivatives markets by asset class.

Customized, non-centrally cleared derivatives play an important role in allowing firms to hedge specific risks.<sup>7</sup> For example, a Canadian firm issuing Canadian-dollar debt to finance a new venture in another country might use a cross-currency swap to simultaneously hedge its

currency risk and interest rate risk. Accordingly, the goal of policy-makers is not to eliminate these products, but to ensure that their risks are properly managed.

The market for non-centrally cleared OTC derivatives is projected to contract as reforms are implemented. For example, based on survey responses, the non-centrally cleared OTC derivatives market is expected to decline to Can\$200 trillion in notional value outstanding globally (a reduction of approximately 45 per cent) and to around Can\$3 trillion in Canada (about a 65 per cent decline).<sup>8</sup> The contraction will be driven by higher capital and margin requirements and the resulting incentives to centrally clear.<sup>9</sup>

## The Margining Standards

### Policy objectives

Margin requirements for non-centrally cleared derivatives have two main benefits: (i) a reduction of risk and (ii) the promotion of central clearing.<sup>10</sup> Margin requirements aim to promote central clearing where feasible and, when clearing is not feasible, to reduce contagion and spillover effects by ensuring that collateral is available to offset losses caused by the default of a counterparty. The margining standards require the exchange of two types of margin that address related but distinct risks (**Figure 1**).

<sup>5</sup> The total global figure as of June 2013 is from the Bank for International Settlements and converted using the Bank of Canada's closing Can\$/US\$ exchange rate for 28 June 2013. The size of the non-centrally cleared market as of April 2012 is based on the WGMR's quantitative impact study (BCBS-IOSCO 2013b).

<sup>6</sup> Based on data from the Office of the Superintendent of Financial Institutions for major Canadian banks.

<sup>7</sup> The International Swaps and Derivatives Association (2013) discusses the role played by non-centrally cleared OTC derivatives in the global economy.

<sup>8</sup> These estimates are derived from Canadian responses to the WGMR's quantitative impact study, a summary of which has been made public in the WGMR's second consultative document (BCBS-IOSCO 2013b).

<sup>9</sup> The Bank of Canada designated LCH.Clearnet's SwapClear as a systemically important CCP under the Payment Clearing and Settlement Act, effective 2 April 2013, making SwapClear subject to regulatory oversight by the Bank of Canada. The only Canadian clearing service for OTC derivatives is an OTC equity clearing service offered by the Canadian Derivatives Clearing Corporation.

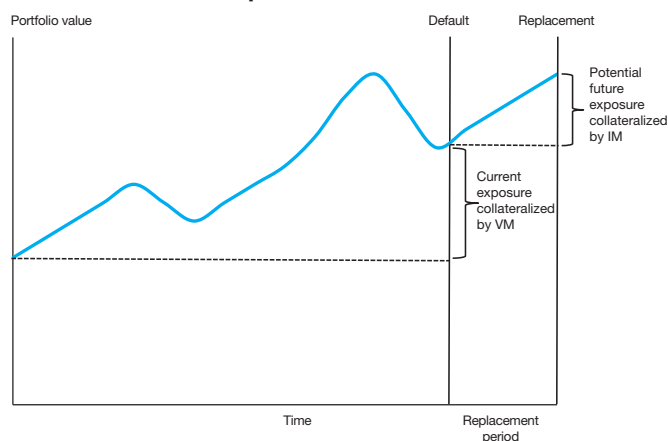
<sup>10</sup> The Committee on the Global Financial System (2010) discusses the role of margin requirements in mitigating procyclicality and other issues pertaining to systemic risk.

(i) **Variation margin (VM).** As the mark-to-market value of a portfolio of derivatives transactions between two counterparties changes over time, one party's obligation to the other increases. As a result, the party whose portfolio has grown in value becomes exposed to potential losses in the event that its counterparty defaults. A regular and full exchange of VM between counterparties will compensate for these changes in net positions so that large uncollateralized exposures will not develop over time. If a default were to occur, the current exposure of the surviving firm would then be limited and would more likely be covered by the initial margin, even if there has been a significant move in the market.

(ii) **Initial margin (IM).** This second form of margin also provides protection against credit risk in the event that a counterparty defaults. Specifically, the surviving firm could face losses resulting from an increase in replacement costs from the time of default to the time when the positions with the defaulted counterparty are replaced or liquidated (Murphy 2013). The exchange of IM to cover this potential future exposure ensures that the defaulting firm has provided at least some collateral to help the surviving firm manage the costs associated with replacing trades.

Under the margining standards, VM will be fully adopted, whereas IM will be adopted with some limits. Requiring both VM and IM represents a shift from the scenario in which surviving firms fully absorbed losses from the default of a counterparty toward a regime in which the defaulter also pays. In a default situation, collateral provided by the defaulting firm is first used to cover losses. Further loss absorbency is then provided by capital from the surviving firm, since margin and capital work in a complementary manner.<sup>11</sup> Moving away from a purely “survivor-pay” model should reduce the moral hazard problem that can lead to excessive risk taking by better aligning incentives (Biais, Heider and Hoerova 2012). It also promotes more resilient markets, because a firm that has received collateral from its derivatives counterparties may feel less pressure to withdraw from trading in times of stress.<sup>12</sup> Finally, higher capital and margin requirements for non-centrally cleared derivatives will also provide incentives for the standardization of OTC derivatives and central clearing where possible.

**Figure 1: How variation margin and initial margin manage the credit exposures of OTC derivatives**



### Key elements of the framework

Having covered the broad objectives, we now discuss the margin requirements in greater detail, specifically: (i) the entities that are affected; (ii) the instruments that need to be collateralized; (iii) the types of collateral that are permitted; and (iv) the process to introduce the requirements.

Under the framework, all financial firms and systemically important non-financial firms that trade non-centrally cleared OTC derivatives will be required to exchange VM and IM. Firms with only small amounts of derivatives activity are exempt from the requirements, as are sovereigns (Box 1). During the two public consultations undertaken by the WGMR, there was almost unanimous support for a requirement to exchange VM, but some parties raised concerns about a requirement to exchange IM.<sup>13</sup> A number of elements in the final margining framework reflect efforts to strike a reasonable balance between safety and efficiency. VM requirements will apply broadly, whereas IM requirements will be phased in over time, will be required only above a minimum exposure and will not be required for certain foreign exchange (FX) derivatives.

**Treatment of foreign exchange.** Physically settled FX swaps and forwards, as well as the physically settled FX transactions associated with the exchange of principal for cross-currency swaps, have been exempted from IM requirements, although they are subject to VM requirements. This special treatment is motivated by a number of factors:

- **Replacement risk:** The risk that a counterparty defaults and leaves the surviving party to face replacement losses would typically be addressed by IM. However,

<sup>11</sup> Although not the subject of this report, the capitalization of OTC derivatives counterparty credit exposures is an important aspect of the reform. There are higher capital requirements for non-centrally cleared OTC derivatives transactions under Basel III; for centrally cleared transactions, the BCBS (2013a) is finalizing an approach to capitalizing exposures to CCPs. In related work, the BCBS (2013b) is developing a new methodology for capitalizing counterparty credit risk associated with derivatives transactions.

<sup>12</sup> The flip side is that, in times of stress, the party providing the collateral may be more hesitant to continue trading with a counterparty if it has concerns over that entity's creditworthiness and the strength of the collateral-segregation arrangements.

<sup>13</sup> See, for example, a joint letter from the International Swaps and Derivatives Association, the Institute of International Finance, the Association for Financial Markets in Europe, and the Securities Industry and Financial Markets Association (2013).

## Box 1

## Margining and Sovereigns

Under the internationally agreed margining framework, central banks and sovereigns do not face mandatory margining requirements. Rather, these entities have the autonomy to decide the extent to which they will margin their over-the-counter (OTC) derivatives transactions. Historically, the agreements in place between sovereigns and their derivatives counterparties required either no exchange of margin or dealers to post variation margin (VM) to sovereigns, but not the reverse (i.e., “one-way” agreements) (OECD 2011). For both cost and risk considerations, a number of sovereigns, including the United Kingdom, Denmark and Sweden, have decided to move to a two-way exchange of VM.

The cost considerations arise from the dealer’s cost of funding collateral and the regulatory capital charges for uncollateralized OTC derivatives, both of which may be passed on to sovereigns through higher pricing. Under one-way agreements, if the value of a derivatives contract moves in favour of the dealer, the dealer receives no VM from the sovereign. However, the dealer would typically

have entered into an offsetting contract under a two-way collateral agreement with another counterparty. Since the offsetting contract would have moved in favour of the hedging counterparty, the dealer would need to provide collateral. The dealer’s cost of posting this collateral would typically be passed on to the sovereign. By entering into two-way agreements, sovereigns can eliminate this charge. Instead, the sovereign will have to fund the collateral it posts to the dealer, but it can typically do so at a lower cost. Similarly, the dealer’s regulatory capital charges are also significantly lower for two-way agreements.

Sovereigns and derivatives dealers that had previously not exchanged any VM could also realize risk-reduction benefits by moving to two-way agreements through lowering their uncollateralized exposures. Some sovereigns have also required dealers to post initial margin to mitigate the replacement costs they could face in the event of the default of a derivative’s counterparty.

since FX swaps and forwards tend to have short terms, the time frame for a potential default is also short. In addition, the market for FX swaps and forwards tends to be highly liquid, particularly for major currency pairs and shorter durations. Thus, if there were a default, the surviving entity would likely have access to a liquid market, enabling it to quickly enter into replacement contracts.

- *Cross-border funding:* Because FX swaps and forwards are important for foreign currency funding, the impact of imposing IM requirements on this core funding market is a consideration. This issue is particularly significant for small, open-market economies such as Canada.
- *Settlement risk:* Since these transactions involve the delivery of large payments in multiple currencies, they pose a high degree of settlement risk (the risk that one party will fail to deliver its currency after delivery by the other). Most FX swaps and forwards are already settled through the CLS Bank, an important global financial market infrastructure that mitigates FX settlement risk.
- *Regulatory arbitrage:* The margining framework does not require IM to cover the exchange of principal in cross-currency swaps. This exemption was also motivated by the important role played by cross-currency swaps in foreign currency funding and by the need

to be consistent with the exemption for physically settled FX forwards and swaps. To do otherwise would create incentives for regulatory arbitrage.

**IM thresholds.** IM will not have to be exchanged for potential future exposures below €50 million. This focuses margin exchange on larger exposures and reduces both the burden associated with margining small exposures and the number of firms that are subject to IM requirements. Globally, the IM threshold is expected to reduce the demand for collateral resulting from IM requirements by approximately 60 per cent.

**IM rehypothecation.** Under strict conditions that protect the customer’s rights in the collateral, the margining framework allows a one-time reuse of IM collateral, provided that it is segregated from other assets and is intended only for purposes of hedging a dealer’s derivatives position resulting from transactions with customers. There are no restrictions on the reuse of VM, since the exchange of VM essentially represents the settlement of the current profit or loss on derivatives positions between the parties.

**Eligible collateral.** Assets collected as collateral to cover VM and IM requirements must be liquid so that they can be sold reasonably quickly, if needed, and an appropriate haircut must be applied to reflect the potential decline in market value upon liquidation. Subject to these principles, the margining framework provides a broad, non-exhaustive list of eligible collateral, which includes cash, high-quality government and corporate

## Box 2

## The Macroeconomic Assessment Group on Derivatives

In February 2013, the chairs of the Financial Stability Board, the Committee on Payment and Settlement Systems, the International Organization of Securities Commissions, the Basel Committee on Banking Supervision, and the Committee on the Global Financial System commissioned a quantitative assessment of the macroeconomic impact of the proposed over-the-counter (OTC) derivatives reforms. The Macroeconomic Assessment Group on Derivatives (MAGD) sought to quantify the benefits and costs of the move to central clearing, the increased capital charges under Basel III and the minimum margin requirements established by the Working Group on Margin Requirements.

The MAGD concluded that improved management of counterparty risk would reduce the probability that derivatives markets would act as a propagation channel for financial shocks and trigger a financial crisis. The resulting reduction in the probability of a crisis would lead to an increase in

expected global GDP. This effect on GDP is partially offset by the costs of increased capital and collateral requirements and other costs of reform, which will increase funding and hedging costs. These costs vary considerably, depending on the amount of central clearing achieved, the netting efficiency obtained, and the costs of funding capital and collateral. Considering all of these factors, the estimated net benefit of the OTC derivatives reforms was between 0.09 per cent and 0.13 per cent of global GDP, with a central estimate of 0.12 per cent (equivalent to approximately US\$85 billion). A number of issues that the group could not quantitatively address (e.g., the effects of reforms on hedging practices, the size of the OTC derivatives market post-reform and the costs of indirect clearing) were discussed qualitatively in its report.

For further information, see BCBS (2013c).

securities, equities included in major stock indexes, and gold. The standards do not stipulate where this collateral must be held, but do require that it be readily available in the event of a default.

**Phase-in period.** IM requirements will be phased in gradually between 2015 and 2019, based on firms' notional exposures.<sup>14</sup> This gives market participants time to access central clearing services, seek regulatory approval of their IM models for non-centrally cleared trades, renegotiate agreements with counterparties, and develop processes to post and collect margin. Only new trades with other phased-in counterparties will require IM, thus reducing the potential for a sudden large increase in the demand for collateral. Based on the WGMR's quantitative impact study, major Canadian banks are not expected to be captured in the first wave of the phase-in. The exchange of VM will be required for all trades entered into after 1 December 2015.

## Quantitative Impact of the Margin Requirements

The WGMR worked with financial institutions around the world to perform a quantitative impact study (QIS) to estimate the demand for collateral stemming from the new margin requirements. The results were used to inform and calibrate a number of the elements in the margining framework. For example, the QIS results suggest that by exempting FX swaps and forwards from IM

requirements and introducing a €50 million IM threshold, the total amount of IM required globally would fall from approximately €1.7 trillion to €0.7 trillion.<sup>15,16</sup>

While the margining framework includes measures that will reduce the impact on the demand for collateral, there will still be a significant need for more collateral, in addition to the increased demand arising from other regulatory initiatives. Nonetheless, studies suggest that, in aggregate, the expected rise in demand for collateral should be manageable. For further information, see Cruz Lopez, Mendes and Vikstedt (2013) and Committee on the Global Financial System (2013).

While a global shortage of collateral is not expected, market participants will have to bear the higher costs of funding the necessary collateral, as well as capital and other costs associated with the reforms. To develop additional insights into the overall impact of the derivatives reforms, a cost-benefit analysis was undertaken by the Macroeconomic Assessment Group on Derivatives (MAGD), which was asked to determine the net effect of the complete set of derivatives reforms on the global economy (Box 2). As part of its analysis, the MAGD estimated that the net increase in VM for OTC derivatives will be about €212 billion.<sup>17</sup>

<sup>14</sup> When the average of a firm's aggregate month-end notional exposures for June, July and August exceed a "trigger" amount, the firm will be phased in as of 1 December that year. These triggers decline from €3 trillion in 2015 to €8 billion in 2019 and afterward.

<sup>15</sup> The QIS suggests that IM requirements for Canadian institutions will total Can\$50 billion.

<sup>16</sup> This estimate assumes that all firms receive approval to use an internal model to calculate IM requirements. The totals are substantially higher under the standardized IM requirements.

<sup>17</sup> This estimate includes both centrally cleared and non-centrally cleared OTC derivatives. It assumes that 60 per cent of pre-reform bilateral transactions had VM, and is calculated using a 1-day, 99th-percentile value at risk.

## Future Work

Now that there is global agreement on the framework for margining non-centrally cleared derivatives, authorities need to implement the rules in their own jurisdictions. In Canada, the Office of the Superintendent of Financial Institutions is planning to update its guidance for federally regulated financial institutions. Members of the Canadian Securities Administrators are also planning to draft a set of rules to bring provincial regulation into line with the new international norms.

Work will also continue at the international level. The Basel Committee on Banking Supervision and the International Organization of Securities Commissions will establish a group to monitor and evaluate (and potentially review) a number of aspects of the margining standards. The group will:

- examine the internal IM models used by firms, since a failure to properly calibrate the models could contribute to the procyclicality of margin requirements;
- evaluate whether the models permitted by different jurisdictions differ substantially;
- determine whether related work on capital requirements that is currently under way could have a bearing on the margining standards; and
- monitor the impact of specific aspects of the requirements, such as the exemption for physically settled FX transactions and the limited allowance for IM rehypothecation.

Work is also being undertaken by the industry to develop a standard internal model for determining IM requirements.

## Conclusion

In response to the financial crisis, the G-20 committed to fundamentally reform the global financial system. Much progress has been made, including efforts to make derivatives markets more resilient to stress and reduce the potential for systemic risk. To accomplish these goals, authorities are promoting the use of central counterparties and trade repositories and setting minimum margin and capital requirements for OTC derivatives.

Both capital requirements and margin requirements for non-centrally cleared OTC derivatives play an important role because they create incentives to centrally clear trades and mitigate the systemic risks associated with those derivatives that do not migrate to CCPs. These risk-reduction benefits come at a cost, however, since margin requirements make transactions more expensive. In order to strike an appropriate balance, the global regulatory community consulted with industry in developing the margining requirements described in this report. These standards represent an important milestone in the reform of derivatives markets that will promote a balanced and consistent approach to the collateralization of risks in non-centrally cleared OTC derivatives exposures in Canada and abroad.

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