

MAJOR RESEARCH PAPER

Review of the Basel Accords Banking Supervision Framework

**with a Comparative Analysis of Regulatory Implementation
in Canada and the U.S.**

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Abstract

Recognizing the key elements of major global financial crises, this paper provides research and analysis on the Basel Accords, the international regulatory architecture for banking supervision. Specifically, it traces the trajectory of the evolution of the Basel Accords towards the development of Basel III. For Basel I and II, the key components are identified, and there is also discussion of weaknesses that provided the impetus for subsequent and ongoing revisions. This discussion will contribute to explaining why there has been significant progress in implementation of key components of Basel III by national level regulators, including the relationship between the policy development process at the international level and the policy implementation at the national level. To explain challenges that contribute to varying levels of implementation of Basel III, this paper provides a comparative analysis of implementation of Basel III in Canada and the U.S., describing the major differences in the degrees and manner in which specific elements of Basel III have been implemented. This analysis will identify the challenges affecting implementation of Basel III to enhance stability in international finance while also noting apparent areas requiring further work.

Introduction

The financial crisis that started in 2007 was a consequence of massive growth in credit resulting in highly leveraged banks in the United States (U.S.) and Europe, which further increased vulnerabilities in global financial markets (CEPS, 2008; Helleiner and Pagliari, 2010). The crisis unveiled systemic problems within global financial governance and flaws in Basel II, which was itself the product of revisions in the wake of the 1997 East Asian financial crisis (Porter, 2005: 62). As these two major financial crises demonstrated, international financial markets have become highly interconnected, so that a systemic failure in one country can lead to consecutive crises around the world. Recognizing these risks, supranational policy makers and national-level regulators called for enhanced and coherent cooperation to address factors undermining the stability of international finance by developing and implementing prudential banking regulations. Particularly, one of the major policy responses to the highly-leveraged banking sector was to further revise Basel II, which is now referred to as Basel III. This revision was mandated to the Basel Committee on Banking Supervision (the Committee) by the G20 leaders to "strengthen global capital and liquidity rules with the goal of promoting a more resilient banking sector" (BCBS, 2010).

Despite ongoing efforts to establish a supranational framework for banking supervision, there remain questions pertaining to national level implementation that could undermine the effectiveness of the global regulatory framework, which may not address risks for future financial crises and related impacts spreading throughout the global economy. Contemplating the possible roots of the Achilles' heel within the global banking regulations and its policy development and implementation process, there are

major questions that rise to the surface: 1) what are the varying levels of implementation within different national contexts?; and 2) what are the challenges affecting or contributing to the varying levels of implementation?

In the effort to address these two overarching questions, this paper will consist of four major sections. To provide an understanding of the development of Basel III, the first section will chronicle the development of Basel I through to Basel III. Second, there will be a descriptive overview of the major changes in Basel III. Third, since the components of Basel III are calibrated for implementation by national level regulators within their respective domestic regulatory and industry sector contexts, the comparative analysis will focus on national level implementation in Canada and the U.S. who have uniquely distinct financial regulatory regimes and financial sectors, despite the deep interconnectedness of their economies. Finally, this analysis will provide an illustration of challenges that explain why implementation varies within countries adopting Basel III. Part of this analysis will portray the intertwined relationship between domestic policy implementation and the international policy development process.

The Evolution of the Basel Accords

The Committee was established at the end of 1974, with the goals to "be the primary global standard-setter for the prudential regulation of banks" and to provide "a forum for cooperation on banking supervisory matters" aiming to "strengthen the regulation, supervision and practices of banks worldwide with the purpose of enhancing financial stability (BCBS, 2013)." As the world witnessed major bank failures in the 1970s, which contributed to instability and volatility in the world economy, the Committee published "*Principles for the supervision of banks' foreign establishments*",

as a policy response. The final version of this guideline was released in 1983, almost ten years after the financial crises in the 1970s.

Regardless of the time lag between the 1974 crisis and the initial introduction of the banking supervisory framework, this paper played an important role by setting out principles by which supervisory responsibility should be shared for banks' foreign branches, subsidiaries and joint ventures between host and parent (or home) supervisory authorities. These principles were founded upon a recognition that the entirety of a bank's operations both domestic and foreign branches must be adequately assessed and examined through effective supervision so that host and home authorities could monitor the prudential conduct and soundness of not just local but foreign operations including bank holding companies (Helleiner, 1994: 187; BCBS, 1983).

Further developing the initial banking supervisory framework, the Committee distributed the first version of *"The International Convergence of Capital Measurement and Capital Standards"* (hereinafter referred to as Basel I) after extensive consultation and revisions. Basel I reflected the agreement endorsed by the G10 nations (BCBS, 1988/1998) to establish parameters for measuring the minimum standard for capital adequacy. The Committee clarified that Basel I reflected general principles that were agreed upon by members of the Committee (presumably the G10 regulators and international financial institutions (IFIs), while also leaving sufficient consideration for the unique circumstances within each individual nation (BCBS, 1998).

Complementary to establishing broad principles and guidelines, the Committee was also establishing specific measures recognizing the central importance of capital requirements. Fundamentally, a bank's core operations consist of providing liquidity to

entrepreneurs in the economy through loans built upon funds provided by a depositor. At the same time, the bank ensures there are adequate capital reserves to respond to immediate requests by a depositor for a withdrawal. In the event that the value of the bank's assets greatly exceeds its liabilities or deposits to the extent that it can no longer satisfy a request for immediate withdrawal there could be a significant impact on the bank's stability. The lack of capital reserves may prompt other depositors to request immediate withdrawals to avoid incurring any losses thus resulting in a 'bank run'. Ultimately, a bank failure could ensue given that it no longer has capital reserves to satisfy its requests for withdrawal (Peláez and Peláez, 2009: 54-55). As well, an increase in the bank's liabilities could strain the liquidity of the bank. As this pressure on the bank's liquidity elevates to a critical level, the bank must take drastic measures to sustain its solvency, such as selling assets at greatly reduced prices. Ultimately, pressures on liquidity may lead to the bank's insolvency (Laeven, 2011: 19).

After outlining parameters for measuring capital adequacy, a key element of Basel I was that it established a minimum capital ratio of capital to risk-weighted assets of 8%. As part of several transitional measures, Basel I included an interim standard of 7.25% for international banks to meet by 1990 (BCBS, 1998). By 1993, the Committee confirmed that all banks in all the G10 countries had implemented the minimum requirements set out in Basel I (BCBS, 2013: 2).

However, the guiding principles remained within the overall mandate of the Committee, which avoided establishing specific, legislative or regulatory requirements in favour of common principles recommended for implementation by national authorities in a manner that addresses the uniqueness of each situation. A key principle or best

practice to be reflected in domestic implementation was "consolidated supervision". This principle requires that both host and home supervisory authorities of foreign bank operations must assess and monitor the risk levels and internal stability of banks and bank holding companies with a comprehensive understanding of the entirety of the operation's business, regardless of where that business is conducted (Helleiner 1994: 188; BCBS, 1983).

Even though the principles established by the Committee's early work lacked regulatory force and specificity, there were a number of mechanisms containing levers of power for regulatory authorities to effect change and ensure greater stability. One such mechanism was a provision that permitted bank governors to prevent one of their banks from operating in a jurisdiction that was considered to be improperly supervised by host authorities. Second, this provision was further bolstered by permitting host banking authorities to prohibit foreign bank operations if their home authorities did not uphold general Committee principles (Helleiner 1994: 188). However, it is not clear the extent to which these mechanisms have been utilized in practice to further implementation.

While the consistent and comprehensive implementation of Basel I suggests national level regulators faced relatively few challenges impeding implementation, the effectiveness of Basel I raised some questions. Since implementation in 1993, Basel I has contributed to an overall increase in capital levels. However, there were also significant shortcomings that impaired its capacity to enhance the overall stability of international banking. First, Basel I demonstrated an inability to adjust to the changing marketplace and rapidly changing financial mechanisms. Furthermore, Basel I also

created incentives for excessive risk-taking that further undermined the stability of the international banking system (CEPS, 2008: 17).

A key shortcoming of Basel I providing the impetus for the Committee's work to develop a revised supervisory framework was its overly simplified approach to risk and definition of risk capital that impaired its capacity to respond to the changing marketplace. Basel I focused extensively on credit risk whereas modern banking operations are exposed to a range of risks, which were better identified within the revisions from Basel I, evolving to Basel II. Furthermore, the risk-levels assigned to specific bank assets were far too broad and offered very little differentiation. As a result, capital ratio calculations (see figure 1) were at times meaningless since the denominator (risk-weighted assets) provided little information and did not accurately reflect the inherent risks in a bank's portfolio (CEPS, 2008:18).

Equation 1. Capital Ratio under Basel I

$$\text{Regulatory Capital} \div \text{Risk - Weighted Assets} = \text{Minimum Required Capital Ratio}$$

A second key limitation of Basel I is its failure to accurately differentiate levels of risk resulting in incentives for excessive risk-taking that further destabilized the international banking system. As the denominator for calculating capital ratios, banks were incentivized to seek a lower or reduced level of risk-weighted assets since a higher level of risk-weighted assets would mean that the bank would have to retain higher levels of capital. One such mechanism to achieve lower risk-weighted assets was the widespread use of securitizing debt in order to transfer the risk to other financial actors in the market. Through this process of debt securitization and trading, banks

were able to significantly reduce the level of risk-weighted assets, and thus the level of required level of capital without reducing actual credit risk in their portfolios (CEPS, 2008:18).

Basel II retained many of the principles of its predecessor, including aiming to create standardization across borders to enhance international banking stability while reducing competitiveness among jurisdictions and ensuring a level playing field for international banking operations. In addition, Basel II did not seek to impose regulatory requirements on member nations rather encouraging member countries to implement measures to ensure capital adequacy in a manner tailored to each specific instance. While Basel II retained the minimum of 8% capital to risk-weighted assets and the standard definition of regulatory capital, the constituent components and calculative methodology of risk-weighted assets were revised along with other risk factors (CEPS, 2008:23).

Basel II also introduced several new features aimed at taking full account of the fast, modernizing financial sector (Peláez and Peláez, 2009: 55). These new measures in the international banking supervisory framework were developed through three key pillars; including minimum capital requirements, supervisory review process and market discipline (CEPS, 2008:22).

Under Basel I, the formula for calculating a bank's minimum capital requirements used risk-weighted assets as the denominator. However, the risks considered in this calculation were limited to credit risk whereas Basel II broadens the scope of risks to include a consideration of credit risk, operational risk and market risk. As such, the

formula for calculating a bank's minimum capital requirements under Basel II can be understood as more robust and comprehensive than under Basel I (Yong, 2001).

Furthermore, Basel I established guidelines for calculating risks whereas Basel II transfers the responsibility for calculating risk levels to credit risk assessments by external agencies. This transfer of responsibility to external agencies that are free from economic and political pressures aims to enhance the objectivity of risk analysis. At the same time, banks could also rely on their own respective internal ratings based approach, provided the institution has sufficient internal expertise. However, while this approach provides options for regulatory architecture that ensures the calculation of capital requirements is more 'risk-sensitive', the responsibility for calculating risks is left to industry, which could open a risk for de-regulating the industry (Kern, 2003).

The second pillar of Basel II, complementary to the measures related to assessing risk, included elements relating to supervisory review processes that set out important principles to enhance the work of internal supervisory capacities within banks in addition to external banking supervisory authorities. Under Basel II, measures are intended to enhance the bank's internal supervisory processes and mechanisms to ensure there are adequate levels of capital to cover the bank's risk portfolio (CEPS, 2008: 34). Specifically, banks are expected to develop and articulate a methodology for establishing their institutional capital adequacy with full consideration of their specific risk profile. This methodology and plan should also articulate how the institutions intend to sustain required levels of capital. Finally, Basel II outlines that these measures require board and senior management oversight, regular monitoring and internal control review (Ojo, 2010: 308). This pillar also included the development of the capacity to act

in quick and meaningful ways in the event that a bank's capital level drops below a minimum threshold (CEPS, 2008: 40).

Finally, Basel II also outlines mechanisms to ensure that market discipline provides enhanced supervision of bank operations, capital levels and the overall soundness of the international banking system. The market discipline is achieved through Basel II guidelines for effective disclosure of information to various stakeholders in the industry to ensure they have the necessary tools to effectively assess the risk level of a bank. This proposed transparency mechanism is addressed in Basel II by establishing a minimum level of data that must be communicated by banks. Furthermore, there must be full disclosure of risk assessment methodologies for internal ratings of risk. The Committee agreed that regular full disclosures by banks would enhance the overall transparency in a bank's risk exposures and ultimately, contribute to greater stability in the banking system (CEPS, 2008: 42). However, in practice, the banks' approaches to risk assessment methodologies were not understood clearly or verified for potential errors, which ultimately contributed to banks underestimating their risk profile as observed during the financial crisis in 2007 in the U.S.

During the credit crunch in the U.S. from 2007-2009, the world experienced the spill-over impacts spreading fast throughout other countries where no crises occurred. Financial regulators around the world realized the necessity for more coherent and binding prudential financial regulations than existing supervisory guidelines leading to the development of BASEL III, which was built upon existing three pillars of Basel II including capital requirements; risk management and supervision; and market discipline.

These three pillars provided a starting point for current revisions and enhancements that are further discussed in the following section.

Development of Basel III¹

The 2007-2009 financial crisis prompted the leaders of major G20 economies to call for overarching regulatory reforms to address weaknesses in the global financial governance regime (Helleiner and Pagliari, 2010: 5). Recognizing the origin of the crisis was in the highly leveraged banking sector, the Financial Stability Board (FSB), an outcome of the G20 Summit in 2009, mandated to enhance oversight of international financial supervisory regime (FSB, About the FSB), listed areas of reforms to Basel II, including capital requirement, liquidity management, enhancing transparency, strengthening authorities, and addressing systemic environment (FSB, 2008).

Basel III has four major components of changes that build upon the existing three pillars established under Basel II. The first significant changes are within pillar I, minimum capital requirement. These changes aim to enhance risk preparedness by revising risk-based capital requirements. After extensive consultations by IFIs, regulatory authorities and industry, the Committee published the guidelines outlining major changes within risk-based capital requirements. According to the Committee's progress report on implementation (2013), most countries adopting Basel III have made progress in implementing this requirement².

¹ Key components of Basel I, II and III are summarized in Table 2 on Appendix page ii.

² Table 4 on Appendix page iii provides overall status of national level implementation by all adopting countries.

The second change includes comprehensive introduction of leverage ratio as a complementary supervisory monitoring tool for minimum capital requirement. Initially, this change was embedded within the pillar I revision, but leverage ratio will be a separate component of Basel III guideline that are currently under an ongoing consultation process, and not subject to implementation until 2018 (BCBS, 2013).

The third change is within pillar II, risk management and supervision. This change aims to enhance review and assessment of consolidated risks and provide the framework to monitor national and international level risk within the banking system. This includes supervisory requirements for global systemically important banks and domestic systemically important banks (G-SIB/ D-SIB).

The fourth significant change introduces the liquidity ratio that aims to ensure there is adequate liquidity within financial institutions. This requirement is subject to implementation from January 2015 (Bech and Keister, 2012), and is under policy development process by the Committee.

In the next section, there will be more detailed discussion of these four changes to provide a background of how Basel III is implemented by the Canadian and the U.S. regulatory authorities.

1. Risk-Based Capital Requirements

Risk-based capital requirements are key components of the capital adequacy requirement that have been a major pillar of the Basel Accords from its initial establishment. As discussed in the previous section, the guiding principles of risk-based capital requirements have been revised over time as the Basel Accord evolved. These

ongoing revisions have contributed to this pillar seeing the most progress in policy development (both at domestic and international level) and implementation for Basel III.

Basel III aimed to revise and standardize the definition of regulatory capital, and increase the capital requirements of banks, recognizing the weaknesses in the international banking system following the onset of the 2007 financial crisis. In terms of revising the definition of regulatory capital, three tiers of capital were established under Basel III. Tier 1 must be comprised primarily of common shares and retained earnings. To ensure a high-quality capital base, the definitions for Tier 2 capital were standardised and specific limits were imposed while Tier 3 were identified for complete phase-out following implementation of Basel III (BCBS 2011: 2).

Building upon enhanced standardization and transparency in defining capital, Basel III also included provisions that increased the minimum level of capital banks would be required to hold. Under Basel III, the minimum capital requirement increased to 4.5% from the existing 2% established under Basel II. Subsequently, the Committee further approved an increased minimum capital requirement of both Tier 1 and Tier 2 to a summative total of 8% by the beginning of 2015. The Committee also identified further annual increases beginning in 2016 to 2019 that will result in minimum total capital requirements of 10.5% at the end of the three year period of implementation (Getter 2012: 13).

In addition to increased minimum capital requirements, Basel III also established principles to ensure that banks maintain adequate levels of capital to act as buffers during periods of financial downturns that place stress on a bank's balance sheet. Under Basel III, such capital conservation buffers must be comprised entirely of Tier 1 capital

recognizing its higher level of quality thereby enhancing its value in responding during periods of financial stress. The Committee agreed that the capital conservation buffer at implementation of Basel III must be 2.5%. However, the Committee acknowledged the challenges for banks and recommended transitional measures to support implementation that included establishing the capital conservation buffer at 0.625% in 2016 with annual increases over a period of three years leading to 2.5% in 2019 (Getter 2012: 14).

A limitation of Basel II was the pro-cyclical effect of capital requirements such that liquidity became constrained during periods of financial stress, particularly at a time when increased liquidity is most needed. Such pro-cyclicality was highlighted in the 2007 financial crisis so that Basel III aims to ensure minimum capital requirements include a "countercyclical buffer". The Committee agreed that the countercyclical buffer should be comprised of Tier 1 capital and imposed within a range of 0-2.5%. By recommending a range, local or domestic authorities retain the discretion to establish a specific requirement that can spur lending growth in periods of financial stress or constrain liquidity during periods of economic expansion (Getter 2012: 14). This range ensures that local authorities have the capacity and discretion to respond appropriately to local conditions.

2. Leverage Ratio

The financial crisis of 2007 illustrated the degree to which highly leveraged financial institutions can negatively impact on the international banking system. As a result, the Committee's revisions to Basel II aim to include a mechanism to monitor and

measure leverage in order to ensure an appropriate degree of leverage in financial institutions that allow for continued operations without being overly constraining.

As described by Adkins (2011: 186) leverage ratio in its simplest form measures two components: capital and assets, then imposes a limit or ratio between these two components. Under Basel III, the leverage ratio would be calculated as gross capital divided by on-balance sheet assets. A key distinguishing factor from the capital adequacy ratio described under Basel I, II and III, is that the assets used as the denominator in the leverage ratio are not risk-weighted. One reason for eliminating the use of risk weighting is that the measures for risk-based approaches can become excessively complex and create counter-productive incentives for excessive risk-taking which ultimately undermine confidence in risk-based approaches and the soundness of financial institutions (Adkins 2011: 190). For example, risk-based measures may incentivize lenders to seek out financial innovations that allow institutions to achieve a lower-risk assessment while effectively masking underlying risks. This example was illustrated most clearly during the sub-prime lending crisis in the U.S. Lenders were incentivized to bundle loans or securitize assets allowing for a lower risk-based measurement, while masking the excessive, underlying risk associated with each individual mortgage. In this instance, the risk measures provided a counter-productive incentive for lenders to pursue excessive risk-taking, which ultimately undermined the stability of the financial system. The leverage ratio is a complementary mechanism to be used alongside risk-based capital ratios. The leverage ratio helps to establish standardized base levels of required capital and ensure that leverage ratios do not fall below a specified level. This mechanism assists in constraining any development of

excessive leverage and protects against incentives for institutions to seek benefit or gain through risk-based requirements. Therefore, the leverage ratio is a supplementary tool that provides a simple, transparent measure that can contribute to the overall stability of international financial system (Getter 2012: 14-15). The leverage ratio is also an important tool particularly given that highly leveraged financial institutions were a key contributing factor in the financial crisis beginning in 2007 and 2008, both in U.S. and Europe.

3. Requirements for Systemically Important Banks

Another new development in Basel III responds to an element made clear during the 2007 financial crisis. It became apparent that certain institutions are closely integrated as a key component within the international financial system and as such, negative impacts at that individual institution can be highly contagious to the entire international financial system (Collins and Rule 2011: 289). Recognizing this key point, the Committee established under Basel III considerations to address G-SIB/ D-SIB. The goals for establishing regulatory requirements for G-SIB/ D-SIB are to reduce the risk of failure and mitigate any negative impacts in the event of failure by G-SIB/ D-SIB. To this extent, the Committee would aim to increase loss absorbency for G-SIB/ D-SIB, and to improve global recovery and resolution frameworks (BCBS, 2013: 3). However, these considerations are still under development and no specific recommendations are published for implementation. Prior to establishing specific policy measures, the Committee will face challenges in defining 'systemically important' and determining which specific institutions would qualify. Reasonably, the Committee could consider absolute size as criteria for systemically important. Since a larger institution is more

likely to have impacts that spread throughout the financial system. In addition, the Committee could also consider the institution's degree of interconnectedness, recognizing that those institutions with greater linkages throughout the system will likely impact the system as a whole in the event of stress or failure. Finally, the Committee may also consider the degree to which consumers have access to reasonable substitutes in the event of an institution's failure. Clearly, an institution would have greater systemic importance if there are very few or no reasonable substitutes (Collins and Rule 2011: 292-293).

In 2011, the Committee and the FSB committed to ongoing collaborative work to develop specific policy measures to respond to G-SIB/ D-SIB. Such measures may include increased capital ratios or a capital surcharge for G-SIB/ D-SIB. The Committee may also develop measures to strengthen liquidity ratios for G-SIB/ D-SIB, which may include a liquidity surcharge. The Committee may also consider mechanisms that allow for greater disclosure requirements and intensive supervision of G-SIB/ D-SIB (Collins and Rule 2011: 292-293). Currently, the Committee is undertaking studies and a consultative process to determine standard requirements to set the regulatory framework for G-SIB/ D-SIB that propose "higher loss absorbency requirements will be introduced in parallel with the Basel III capital conservation and countercyclical buffers, i.e. between 1 January 2016 and year end 2018 becoming fully effective on 1 January 2019" (BSBC, 2013).

4. Liquidity Coverage Ratio (LCR)

The 2007 financial crisis illustrated the importance of ensuring adequate levels of capital and sufficient liquidity. However, the challenges in maintaining adequate levels

of liquidity illustrate that minimum capital requirements are a necessary but not a sufficient component of a regulatory framework that will ensure the stability of international banking. As described by Trevisan (2011: 207), liquidity can be understood as the bank's capacity to support increases in loans while continuing to meet liabilities without incurring destabilizing losses. For example, banks can increase their capital levels by borrowing money from other financial institutions and taking deposits. This capital can be understood as a bank's liabilities to its lenders and depositors. Provided a bank has enough readily accessible reserves to cover its liabilities to depositors and lenders, that institution has sufficient liquidity. However, when a bank has insufficient readily accessible reserves to respond appropriately to withdrawals or debt payments, that institution faces liquidity problems, despite having high levels of capital on their accounting book. Recognizing the importance of liquidity, the Committee sought to "manage a balance between incentivizing prudent liquidity risk management and containing the potential restrictive impact on the financial system and the economy as a whole." (Trevisan 2011: 208)

In its simplest form the LCR presents the ratio of the stock of high-quality liquid assets to the total cash outflows over the next 30 days. The ratio must be at least 100%, so that the minimum level of liquid assets must be sufficient to cover the total cash outflows over the short-term in a period of financial stress. While the LCR focuses on monitoring adequate liquidity for the short-term, the Committee also aimed to address the medium to long-term by establishing the net stable funding ratio (NSFR). The NSFR is the ratio of available amount of stable funding to the required amount of stable funding. This measure aims to encourage banks to rely more on medium to long-term

funding rather than solely short-term highly liquid assets and similar to the LCR, the NSFR must be at least 100%. As part of other transitional provisions, implementation of the LCR is required from January 2015 (Trevisan 2011: 208).

Implementation of Basel III in Canada and the U.S.

Prior to the comparative analysis of national level implementation, it is important to understand the definition of implementation by the Committee, which junctures with the Committee's ongoing policy development process. This will help illustrate the intertwined relationship between international policy development process and domestic implementation. This analysis is based on the review of sequence of the Committee's consultative documents regarding Basel III implementation, publications by BIS, and studies done by national authorities regarding Basel III consultative papers.

The policy development process at the international level is the responsibility of the Committee as depicted in Figure 1. Upon receiving a policy mandate from the FSB or G20 nations, the Committee formulates policy proposals based on internal research and analysis which are broadly distributed as consultative documents to engage in stakeholder consultations. Through the consultative process, stakeholder feedback leads to revisions in the policy proposals, and may lead to new consultative documents. This feedback cycle concludes when the Committee agrees to and adopts the proposed guidelines, which are then published as final policies, and distributed to national regulators for implementation at the domestic level.

As depicted in Figure 2, domestic implementation of the Committee guidelines includes an extensive domestic consultative process prior to regulation adoption. After regulation adoption, the national level regulator publishes final rules for implementation

by banks, which constitute a final rule in force³. These stages of the national level process are defined as implementation, and used by the Committee to monitor progress in national level implementation among Basel III adopting countries.

Figure 1. BCBS Basel III Policy Development Process⁴

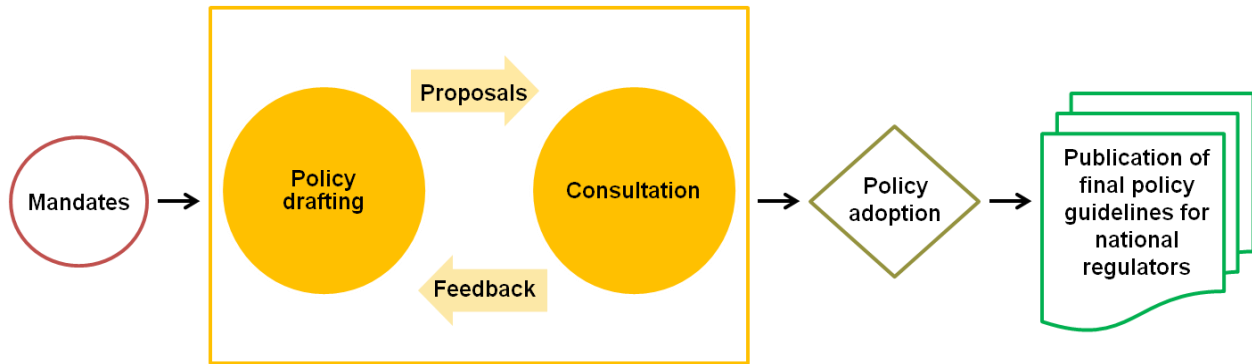
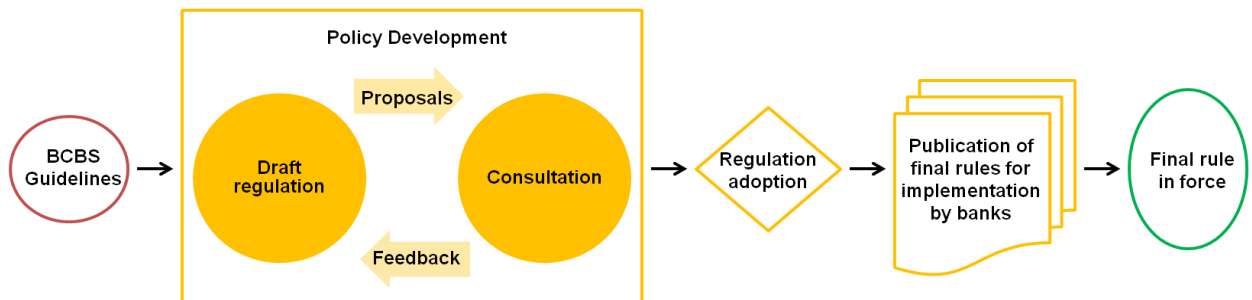


Figure 2. National Level Implementation Process: Assessment Defined by the Committee⁵



It is important to note that the activities of the Committee's policy developments moves parallel to domestic policy development process as the national level regulators conduct

³ In EU, the policy development process and implementation of BASEL III is different than Canada and the U.S. The policy development for BASEL III is done collectively by the regulators within the EU member states and the EU Commission. The implementation is at the national level, only after the adoption of the policies into the EU Law (Howarth and Quaglia, 2013).

⁴ This process diagram is a conceptual summary created by the author of this paper.

⁵ This process diagram is a conceptual summary created by the author of this paper.

feasibility testing and impact analysis on the interim guidelines to provide comments and feedback during the consultative process by the Committee. This activity of the national regulators provides the basis upon which they implement Basel III.

As described above, the policy development of Basel III is the responsibility of the Committee in collaboration with national regulators, IFIs and industry. However, implementation is the responsibility of national level regulators of adopting countries so that the progress of implementation should be discussed within a domestic context. Therefore, the following section will analyze the progress of Basel III implementation in Canada and the U.S. by contrasting levels of implementation. For this comparative analysis of implementation, the paper will focus on risk-based capital requirements under Capital Adequacy Requirement (CAR) guideline for Canada and under Regulatory Capital Requirements (RCR), the subpart of the Banks and Banking Regulation for the U.S. since this is the only component of Basel III revisions that have been adopted as final guidelines, and both countries have made some progress in implementation according to the Committee's standards of implementation. Even though the final guidelines for leverage ratio have not been agreed or adopted by the Committee, there will be a discussion of leverage ratio implementation as a complementary tool to minimum capital requirements.

Finally, there will be an analysis of the responsible regulators in Canada and the U.S. since the implementation of Basel III in Canada and the U.S. must be situated within the appropriate regulatory context. This section will highlight the distinctly different characteristics of the financial services sector and regulatory frameworks within

each country prior to discussing the challenges affecting implementation within each regime and other shortcomings that may undermine overall effectiveness of Basel III.

Risk-based Capital Requirement

In terms of implementation of risk-based capital requirements, both Canada and the U.S. made significant progress through CAR Guidelines issued by the Office of Superintendent of Financial Institutions (OSFI) in Canada and through RCR rules issued by the Office of the Comptroller of the Currency and the Department of Treasury as the regulatory entities in the U.S. While leverage ratio is contained in both of these regulatory measures, implementation of this component of Basel III will be addressed independently in the subsequent section.

On December 10, 2012 OSFI issued a revised CAR Guideline that came into effect on January 2013. The revisions intend to incorporate agreed upon measures established by the Committee as part of Basel III. As such, these revisions to the CAR Guideline strengthen the regulatory framework in order to enhance the overall resiliency and stability of the global banking sector. The following provides a summary of the most significant changes presented in the CAR Guideline representing implementation of Basel III in Canada.

A key revision in the CAR Guideline pertains to changes to minimum and target capital levels to better align with Basel III. The revised CAR Guideline requires Common Equity Tier 1 capital ratio to increase from 3.5% in 2013 to 4.5% in 2015 and Total Tier 1 capital ratio to increase from 4.5% in 2013 to 6.0% in 2015 (OSFI, 2013: Chapter 1-9). Furthermore, revised target capital levels require all institutions to have a capital ratio plus a conservation buffer total of 7% by the first quarter of 2013. This ratio target of 7%

had previously been identified for 2019 (OSFI, 2013: Chapter 1-12). The current CAR Guideline also includes revisions pertaining to the definition of capital to be used in calculating these ratios in order to include more rigorous standards for capital instruments.

Another revision in the current CAR Guideline relates to the standardized approach to credit risk, including enhanced risk weights to better reflect Basel III guidelines (OSFI, 2013: Chapter 3-4). The CAR Guideline assigns varied risk weights to a range of parties, including claims on: sovereigns; unrated sovereigns; public sector entities; multilateral development banks; and, deposit taking banks and institutions. In addition there are risk weights assigned to a range of on- and off-balance sheet lending instruments such as mortgages; repurchase and reverse repurchase agreements; and mortgage-backed securities (OSFI, 2013: Chapter 3-12).

In regards to settlement and counterparty risk, the CAR Guideline includes revised requirements for the Internal Model Method; a capital charge for credit valuation adjustment and capital requirements for exposures to central counterparties. These revisions also include important guidance relating to derivatives (OSFI, 2013: Chapter 4).

For credit risk management, the CAR Guideline provides additional information on the range of eligible guarantors to better reflect provisions in Basel III. For example, the list has been expanded to include sovereign entities, public sector entities, security firms with a lower risk weighting than the counterparty and entities with risk weightings higher than BBB- (OSFI, 2013: Chapter 5-22).

The Internal Ratings Based Approach for credit risk has been enhanced under the current CAR Guideline to include additional clarity for the calculation of the materiality threshold on equity exposures. Previously, a bank's equity exposures were calculated as material if their value exceeded 10% of bank's total capital. Under the revised guidelines, this threshold has been lowered to 5% to better reflect guidance in Basel III (OSFI, 2013: Chapter 6-38).

In the U.S., current risk-based capital requirements are provided in Title 12: Banks and Banking, Subpart B of Part 167-Capital of Federal Regulations, hereinafter referred to as the RCR rules. On July 2, 2013 the Federal Reserve agreed upon amendments and revisions to the final rules pertaining to regulatory capital in order to implement risk-based capital elements to more closely align with Basel III. The revised RCR rules include several significant changes. Notably, the revised RCR shifts the transitional periods for implementation forward to January 2014 for revised capital minimums, definitions of capital and adjustments to capital (PwC, 2013).

Under the revised RCR rules the minimum capital requirements remain unchanged with Common Equity Tier 1 capital ratio of 4.5%, Tier 1 Capital Ratio of 6%, and Total Capital Ratio of 8%. Similar to implementation in Canada, these ratios are consistent with Basel III guidelines. However, revisions in the RCR rules impact the definition of capital such that some securities are identified for phase out by 2016. The phasing out of securities with higher risks is intended to enhance the rigor of the definition of capital (PwC, 2013: 3).

Similar to implementation in Canada, the revised RCR rules also impact the standardized approach to risk in order to more closely align with Basel III guidelines. For

example, risk weights assigned to sovereigns, foreign banks and public service entities are enhanced to better reflect risk levels. In addition, risk weights assigned to various financial mechanisms are also revised. Most notably in the U.S., the proposed risk weights assigned to residential mortgages, derivatives and securitizations are revised in a manner to better mitigate risk while ensuring the set of requirements relating to minimum capital requirements do not become overly burdensome (PwC, 2013: 4).

Unique in the U.S. context, the revised RCR rules also include important revisions to disclosure requirements relating to risk-based capital measures to better reflect Basel III guidelines. Specifically, the RCR rules specify the information that must be disclosed by top tier banking institutions defined as those with \$50 billion or more in total assets (PwC, 2013: 4). This represents another example of domestic implementation of Basel III guidelines where the national regulator intends to enhance the strength of capital ratio requirements through public reporting and disclosure requirements in a manner tailored to the specific circumstances.

Leverage Ratio

While not as far advanced as implementation of risk-based capital regulations, Canada and the U.S. have made steps forward in implementing measures pertaining to leverage ratio. Indeed, Canada and the U.S. are the only two jurisdictions to have used leverage ratio as a regulatory tool within its relevant capital requirement rules. However, at the international level, the Committee is currently finalizing the leverage ratio with full implementation scheduled for 2018.

Since the development of Basel III, Canada has undertaken domestic processes to align with Basel III leverage ratio recommendations. Remaining unchanged from

previous versions, the current CAR Guideline defines the leverage ratio, referred to as the asset to capital multiple ratio, as "total assets should be no greater than 20 times capital, although this multiple can be exceeded with the Superintendent's prior approval to an amount no greater than 23 times (OSFI, 2011: 4)." However, the calculation of the asset to capital multiple ratio has changed. Previously, the assets to capital multiple was calculated by dividing the institution's total assets, including specified off-balance sheet items, by the sum of its adjusted net Tier 1 capital and adjusted Tier 2 capital. The assets to capital multiple has been simplified under the current CAR Guideline such that it is now calculated by dividing the institution's total assets, including specified off-balance sheet items, by total capital. By increasing the size of the denominator i.e. total capital, there is a higher requirement for asset to capital multiple ratio (OSFI, 2013: Chapter 1-13).

In the U.S., final rules on Basel III Leverage Ratio will become effective January 1, 2014 with reporting to begin in 2015. Subsequently, the U.S. will have compliance with minimum requirements that will become mandatory beginning January 1, 2018. However, according to a July 2009 report by the U.S. Government Accountability Office (US GAO, 2009), the various U.S. federal bank regulators already impose certain level of leverage ratios on national and state level banks and thrifts. Notably, the Federal Reserve regulation states that only member banks and state banks should meet the capital requirement and the Tier 1 leverage ratio guidelines. It is also important to note that minimum leverage ratio guidelines have been implemented since 1980's (US GAO, 2009: 30). Furthermore, in addition to the Federal Reserve, leverage ratio regulation has also been implemented by the OCC and the Federal Deposit Insurance Corporation

(FDIC) suggesting that U.S. regulators have been regulating individual bank's leverage over the last thirty years.

Somewhat different than the calculation in Canada, the leverage ratio in the U.S. outlined in the Federal Reserve regulation is calculated by dividing Tier 1 capital by its average total consolidated assets. The minimum leverage ratio for strong banking institutions is 3% whereas for all other institutions, the minimum ratio is 4%. By way of comparison, the minimum leverage ratio of 4% and 3% in the U.S. would equal an asset to capital multiple in Canada of total assets not to exceed 25 and 33 times greater than capital, respectively. All those financial institutions with weaknesses in supervisory, financial, operational, or managerial areas are expected to maintain capital ratios well above the minimum leverage ratio. However, "Advanced Approaches Banking Organizations" (those with assets greater than \$250 billion or on-balance sheet foreign exposures of at least \$10 billion) will be required to adhere to a minimum supplementary leverage ratio of 3% starting in January 2015 with mandatory compliance beginning in 2018 (PwC, 2013: 3).

The current CAR Guidelines and RCR rules illustrate implementation of Basel III in the domestic contexts of Canada and U.S. In reviewing the general structure of rules in both countries, particularly in the broad categories and requirements it is clear there are similarities and overlap between Canada and the U.S. However, more in-depth analysis reveals there are unique differences within some of the details such as calculation formulas like leverage ratio versus assets to capital multiple ratio (see Table 1 below for summary). In understanding these similarities and differences in implementation within each domestic context it is important to understand the relevant

institutional framework for banking supervision. Therefore, the following section will analyze, contrast and compare the financial sectors, responsible authorities and institutional/regulatory frameworks in Canada and the U.S.

Table 1: Summary of Implementation in Canada and the U.S.

	Canada	U.S.
Capital Ratio	<p>Common Equity Tier 1 capital ratio: 3.5% in 2013 and 4.5% in 2015</p> <p>Total Tier 1 capital ratio: 4.5% in 2013 and 6.0% in 2015</p>	<p>Common Equity Tier 1 capital ratio: 4.5%</p> <p>Tier 1 Capital Ratio: 6%, effective in January, 2014</p>
Risk Weights	Enhanced risk weights assigned to a range of parties and financial mechanisms including, mortgages; repurchase and reverse repurchase agreements; and mortgage-backed securities	Enhanced risk weights assigned to a range of parties and financial mechanisms, specifically addressing residential mortgages, derivatives and securitizations
Leverage	<p>Asset to capital multiple (domestic process underway to consider alignment with Basel III)</p> <p>Formula: Total Assets/Total Capital</p>	<p>Minimum leverage ratio (mandatory compliance in 2018)</p> <p>Formula: Tier 1 Capital/Average Total Assets</p>

Responsible Regulators for Basel III Implementation in Canada and the U.S.

A clear distinguishing factor between the banking sector in Canada and the U.S. is the profile of institutions as indicated below in Table 2. The overall size of the sector in Canada is comparatively small with only 81 federally regulated institutions. These institutions include all banks, bank holding companies, federally regulated trust and loan companies and cooperative retail associations. With such few institutions the regulatory framework will be more straightforward and simple with clear indication of responsible authorities.

Furthermore, this relative simplicity resulting from a smaller financial services sector is complemented by a more straightforward and consolidated regulatory framework. While the banking regulatory framework in Canada is comprised of multiple organizations with apparently varying mandates and responsibilities, there is significant oversight in the regulatory framework of bank activity in Canada. In fact, as noted by Canada's Auditor General, the particular strength of the regulatory framework within Canada is that the coherent overlay of regulatory bodies, legislation and regulation create a relatively consolidated, comprehensive regulatory framework led primarily by a Financial Institutions Supervisory Committee (AG Report, 2010: 8).

Table 2: Banking Sector Regulators in Canada and the U.S.

	Canada		The. U.S.	
Total Number of Banks⁶	81		6,900	
Supervisory Regulators	OSFI	81	OCC	1,704
			FDIC	4,352
			Federal Reserve	844
Chartering Agent	OSFI	81	OCC	1,704
			State Regulators	5,196

Source: Canada Deposit Insurance Corporation, retrieved on October 18, 2013
 Federal Deposit Insurance Corporation, retrieved on October 11, 2013

The legislation in Canada establishes the key authorities in this regulatory framework. First, the Bank of Canada has the lead role in monitoring the economy, inflation rates and utilizing monetary policy to control inflation and promote economic growth. Second, the Canadian Deposit Insurance Corporation (CDIC) insures deposits

⁶ Total number of banks includes non-bank deposit taking institutions that are either the member of Canada Deposit Insurance Cooperation or Federal Deposit Insurance Cooperation. Total number of banks in Canada is as of August 2013 and that of the U.S. as of June, 2013.

thereby contributing to the overall stability of financial markets and banking system in Canada. Third, the Financial Consumer Agency Canada (FCAC) supervises financial institutions to ensure compliance with the federal consumer protection measures. Finally, OSFI is the primary authority in the regulation and supervision of financial institutions⁷.

All of these organizations contribute to the Financial Institutions Supervisory Committee, which as a central cooperative body, illustrates the consolidated, comprehensive nature of the regulatory framework in Canada. Furthermore, the direct allocation of responsibility to OSFI for banking regulation and supervision including capital standards indicates a high degree of accountability and clarity in the regulatory framework (AG Report, 2010: 10). Finally, the ultimate and sole regulator to implement and monitoring the implementation of Basel III is OSFI.

In stark contrast to the relative simplicity of the smaller Canadian financial services sector, the financial services sector in the U.S. is vastly larger. Specifically, there are about 6,900 deposit-taking financial institutions⁸ as compared to only 81 in Canada. Moreover, more than 4,300 are deposit-taking institutions primarily regulated by FDIC. However, there are also more than 1,700 institutions regulated by the OCC and more than 800 regulated by the Federal Reserve. With such a large number of institutions and overlapping regulatory authorities the U.S. system is clearly complex and disaggregated as compared to Canada.

⁷ The mandates and key roles of each financial authority are from their website. For more information, please visit:

FCAC: www.fcac-acfc.gc.ca

Bank of Canada: www.bankofcanada.ca

OSFI: http://www.osfi-bsif.gc.ca/osfi/index_e.aspx?ArticleID=3DI

CDIC: <http://www.cdic.ca/CDIC/Pages/default.aspx>

⁸ This only includes deposit-taking financial institutions who are member of FDIC.

Also in contrast to the relatively consolidated simplicity and coherence of the regulatory framework in Canada, the Bank of International Settlement (BIS) lists six regulatory authorities in the U.S. as registered members of the BIS including the OCC, FDIC DC, Board of Governors of the Federal Reserve System (Federal Reserve), Federal Reserve Bank of New York (FRBNY), New York State Banking Department (NYBD) and Office of Thrift Supervision (OTS)⁹. To varying degrees, each of these regulators has authority and oversight for banks, bank holdings, and thrifts operated in the U.S. or market activities within its own respective mandated domain. However, since the roles, responsibilities and authorities are also divided into state and federal level for chartering financial institutions and supervising certain financial products or transactions, there are state level regulators (i.e. NYBD), as well as numerous self-administered associations with some level of delegated authorities. Therefore, banks, banks holdings and thrifts in the U.S. may be regulated by an array of financial supervisory authorities based on their corporate structure, products, and location.

Apparently, identifying the exact supervisory authorities for each financial institution can be a challenge. For some aspects of Basel III implementation, it may be both the Federal Reserve and the OCC (at least), particularly for those assessed as G-SIB/ D-SIB. The Federal Reserve has the mandate of providing stability in the banking sector through the regulation of bank reserves and also conducts national monetary policy as well as safety and soundness examination authority for the majority of lending institutions (Jickling and Murphy 2010:16). In fact, the Federal Reserve is the primary regulator of all financial firms, including the responsibility for capital

⁹ OTS was dissolved in 2011 and merged into OCC. However, BIS still lists OTS as one of the U.S. financial regulators (http://www.bis.org/regauth.htm#letter_U).

requirements set out in Basel III. In addition, the Federal Reserve also has responsibilities in regards to systemic risk (Jickling and Murphy 2010:16).

The OCC was established to supervise federally chartered banks and provide a single national currency. While the OCC regulates a variety of financial functions, it only applies to federally chartered banks. Within the OCC's regulatory authority, it has strong powers in terms of enforcement and examination but only as it relates to federally chartered banks (Jickling and Murphy 2010:15). In addition to regulating individual banks, the OCC also assesses systemic risks as it relates to federally chartered banks. For example, the OCC compares underwriting standards over time and determines whether the credit risk of federally chartered banks is rising or falling (Jickling and Murphy 2010:15).

The Challenges to Basel III Implementation

Considering the similarities and variances between Canada and the U.S. in terms of Basel III implementation, financial sectors and institutional frameworks, the following section provides a discussion of the challenges that affect or shape implementation of Basel III in domestic contexts.

The first challenge affecting implementation of Basel III can arise within countries where there is a complex, overlapping and disaggregated institutional framework such as in the U.S. As described above, there are numerous overlapping regulatory authorities who have responsibilities for several thousand different institutions. Clearly, such a complex situation may create a loophole that will diminish cohesive implementation of Basel III as compared to the relatively simple, consolidated and straightforward regulatory framework in Canada. Particularly, when the systemically

important banks are located within a jurisdiction where the implementation of Basel III is being delayed, or not as effectively monitored, there may be considerable risk for another crisis.

In relation to the complex institutional framework, the second challenge to implementation in the domestic context relates to the process for making changes or regulatory amendments. As the primary authority in the regulation and supervision of financial institutions in Canada, OSFI issues guidelines and rules pertaining to risk-based capital requirements for a comprehensive range of financial institutions including banks (schedule I, II, III), bank holding companies, federally regulated trust or loan companies and cooperative retail associations. These requirements are established within the existing legislative framework since OSFI has authority to issue guidelines without seeking Cabinet or Parliamentary approval. As such, this process is relatively quick allowing for evolving regulation to readily adapt to changing circumstances without having to proceed through a more lengthy or onerous legislative process.

Generally, the process for amending capital regulatory requirements in the U.S. is similar to Canada. For example, the Federal Reserve approves revised RCR rules, while other federal or state level regulators also have guidelines that overlap RCR (i.e. leverage ratio). Presumably, as regulatory entities, these other regulators would have some level of authority to make revisions for their supervisory activities. In addition, if any new guideline published by the Committee should be issued as a separate act, rather than revision, this will have to go through legislative procedure at the Congress. This is a far more onerous and lengthy process that risks being significantly impacted or diluted. However, it is not clear through research to what extent a revision would be

considered as an act. In addition, it is also not clear how newly introduced acts on banking supervision would affect implementation of Basel III.

The third important challenge is the persistent time lags inherent to the international policy development process demonstrating an important link between domestic implementation and the international policy making process. While a policy is under development for many years the pace of implementation within each domestic situation can vary substantially. This time lag is evident for Basel III. For example, after more than two years of consultations the Committee released "*Basel III: International framework for liquidity risk measurement, standards and monitoring*" in December 2010. This document established the LCR which is intended to monitor the bank's capacity to adapt in periods of significant financial stress over a period of 30 days. The extensive policy development process and consultations relating to the LCR has impeded full implementation in Canada and the U.S. In addition, the other major components of Basel III including G-SIB/ D-SIB and leverage ratio are not subject to implementation for another 3-5 years.

Due to lengthy policy development processes, a challenge to implementation of Basel III results from the rapid pace of new financial innovations. To keep up with innovation in the financial sector, regulators must move quickly from implementing the current Accords to respond in a timely manner to any new challenges. As observed preceding the financial crisis of 2007-2009, critics noted that Basel II created incentives for financial innovations, including securitization of debts that are highly complex to assess the underlying risk elements (Rosen, 2011:3) despite the revised measures of risk-weighted assets. As noted by Cecchetti et al. (2011: 30) banks vastly increased

loans to not only regular customers (retail and consumer) but also to hedge funds. At the same time, financial institutions dramatically increased their use of securitized assets based on the U.S. mortgages. These innovations contributed to the credit expansion that fuelled the onset of the financial crisis in 2007. Therefore, as regulatory authorities within Canada and the U.S. respond to rapidly emerging innovations within their respective financial sectors, implementation of Basel III will vary greatly. For example, if elements of Basel III address a current priority then implementation will likely be quicker, more comprehensive. However, if an element of Basel III does not immediately address an emerging financial innovation than its implementation will likely be delayed or only implemented in a partial manner.

As a global consensus based policy making process drags on over time, the final products are often diluted from the initial intention as policy focus shifts from achieving concrete actions to securing agreements in principle. As noted by Chorafas (2012: 39), securing agreements on tangible action can be particularly challenging, considering there is "an army of lobbyists always ready to descend on legislators, regulators, central bankers and other government officials who even dare to suggest a change in the status quo." Chorafas also cites a specific example of policy dilution where capital requirements under Basel III started out at 7%, which includes a conservation buffer of 2.5% that does not have to be implemented until 2019, and other various exceptions will not apply until the end of 2022 (2013: 68). As well, the RCR rules in the U.S. were significantly impacted by community banks such that they were able to achieve significant concessions and the insurance industry also managed to avoid any impact

from the revised RCR rules as the Federal Reserve continues to review the applicability of capital requirements (PwC, 2013: 4).

In addition, transitional provisions also contribute to lengthy implementation period. For example, the leverage ratio announced by the Committee as part of Basel III in 2010 included a recommendation for phased-in implementation set to begin on January 1, 2018 (Getter 2012: 15). As such, the Committee has not yet confirmed a specific figure for a leverage ratio as it continues to engage in consultations and development on this matter prior to full implementation in 2018.

The implementation in regards to G-SIB/ D-SIB varies in Canada and the U.S. Canada has published final rules that are expected to take effect in January 2016. Conversely, draft regulation in this regard has not yet been published in the U.S. while key domestic regulatory agencies have announced their intent to issue notice of proposed rulemaking by year-end 2013 as a first step towards implementing a G-SIB framework. However, proposed rulemaking is expected to proceed only after the Committee has finalised its work in establishing the framework.

Neither Canada nor the U.S. have published draft regulation for the Liquidity Ratio as Canada has just started its domestic process, including public consultations in November 2013, and the U.S. agencies have indicated their intent to issue notice of proposed rule-making before the end of 2013¹⁰. However, it is also important to note that banks require reasonable periods to prepare themselves for new compliance requirement without unduly affecting their business. Therefore, it is not an easy task

¹⁰ Table 4 on Appendix page iv summarizes the implementation status for Basel II, II.5 and III in Canada and the U.S.

both for the Committee and national level authorities to find an appropriately balanced approach.

The fourth challenge affecting the implementation of Basel III is that the complexity of each iteration of the Basel Accord has increased substantially resulting in challenges to comprehensive and early implementation. As compared to Basel II and III, Basel I is recognized for its relative simplicity such that by 1993, the Committee confirmed that all banks in all the G10 countries had implemented the minimum requirements set out in Basel I (BCBS, 2013: 2). The enormous expansion from Basel I to Basel II, which went from less than 30 pages most of which included a long list of basic definitions to more than 300 pages of various mathematical approaches, is indicative of the onerous, complexity associated with the revised supervisory framework. In addition, the greatly increased complexity of calculations and assessment methodologies under Basel II means that only the largest, most sophisticated operations can fully adhere to the new requirements (Balin, 2008). The Committee has also acknowledged challenges in defining what elements constitute high-quality liquid assets and encountered challenges in developing proposed stress scenarios that would effectively test or challenge the bank's liquid assets in a realistic and meaningful manner (Trevisan 2011: 216). Given such complexities it is reasonable to expect that implementation will vary within two different domestic contexts, such as Canada and the U.S. Further compounding the complexity of Basel III, Carmassi et al (2009: 978) noted that an abundance of rules can lead to duplication, overlap and confusion.

Finally, an important factor contributing to different degrees of implementation in Canada and the U.S. is a cornerstone principle of all Basel Accords: voluntary

implementation. When Basel I was first released, it provided general principles and a minimum standard. But the Committee was clear in stating that individual nations would retain the discretion to manage implementation timelines and to establish specific plans outlining how Basel I would be implemented within their specific individual context. Furthermore, Basel I also confirmed that it established minimum standards while allowing national regulatory authorities the freedom to set higher capital reserve requirements (BCBS, 1998). This fundamentally voluntary nature has not changed through the development and implementation of Basel I, II and III.

Therefore, implementation within Canada and the U.S. has the scope to vary greatly given the vast differences in domestic financial regulatory frameworks, legislative processes and oversight institutions. Despite the potentially broad scope for variances, there appears to be more similarities and consistencies in the final rules than fundamental or vast differences (see summary table on page 29). Yet, the implementation of final rules following adoption can vary due to a range of challenges. For example, the diffused regulatory authority in the U.S. context can be expected to contribute to less cohesive implementation as compared to the Canadian context where regulatory authority is primarily concentrated within a single body, i.e. OSFI.

Conclusion

This paper set out to address two key questions, 1) what are the varying levels of implementation within different national contexts?; and 2) what are the challenges affecting or contributing to the varying levels of implementation? In order to address these research questions, it was important to initiate the analysis by providing an overview of the policy evolution through Basel I, II and III.

This overview is necessary to illustrate that the banking supervisory framework has evolved incrementally over the past twenty years as evidenced by the trajectory of developments through Basel I and II to the current version, Basel III. The developments over this period have primarily been efforts to respond to financial crises that highlighted shortcomings or weaknesses in existing regulatory frameworks. For example, the relatively simple and straightforward Basel I framework did not adequately consider risk levels. As a result, new risk-based approaches were developed and implemented through Basel II. Yet in the policy development of these approaches, the complexity of Basel II greatly increased resulting in an additional challenge to effective implementation. As well, the financial crisis of the 2007-2009 period illustrated other shortcomings in Basel II such as incentives for excessive risk-taking through securitized assets that were a core feature of the sub-prime lending crisis in the U.S. and Europe. These shortcomings provided the starting point for revisions that were developed for Basel III.

By reviewing the trajectory of policy evolution, this discussion reveals the progression towards the current version of Basel III, which now contains four key components that aim to enhance the stability of the international financial system. The first two key components are risk-based capital requirements complemented by a leverage ratio. The remaining two components include the requirements for G-SIB/D-SIB to address systemic risks within international banking sector and the requirements to ensure sufficient liquidity coverage in a bank's operation.

In developing these four components, this policy evolution has taken place through a policy making process at the international level that also defines the stages of

implementation within the domestic context. As discussed above, implementation is the responsibility of national level regulators of adopting countries. As such, the progress of implementation has been discussed within the domestic contexts respective to Canada and the U.S. Basel III includes four key components, but only one, revisions of risk-based capital requirements, is officially implemented by most of the adopting countries, including Canada and the U.S. Moreover, Canada and the U.S. are the only two countries to have adopted a leverage ratio in their respective domestic regulatory frameworks.

The analysis of risk-based capital requirements and leverage ratio implementation in Canada and the U.S. illustrates there are varying levels and approaches of implementation between the two countries. For example there are differences in the calculation of leverage ratio requirements in the U.S. as compared to the calculation of asset to capital multiple in Canada. In addition to variances in the methods of calculation, there are also slight differences in the requirements. The minimum leverage ratio requirement of 4% implemented in the U.S. appears less stringent than the asset to capital multiple implemented in Canada, which states that total assets are not to exceed 20 times greater than total capital.

To better compare, a 4% minimum leverage ratio requirement is equivalent to an asset to capital multiple ratio of 25 times greater than total capital. Indeed, under current guidelines in Canada the asset to capital multiple can only be 23 times greater with the Superintendent's prior approval. A further implementation difference is that the U.S. has indicated mandatory compliance with a leverage ratio by 2018 whereas Canada is

undertaking a domestic process to consider alignment of the asset to capital multiple with Basel III requirements.

In order to understand these variations, it is necessary to recognize differences in their respective financial industry sectors and the relative complexity or simplicity of the institutional framework between Canada and the U.S. In Canada, there is a relatively consolidated regulatory body that supports timely and comprehensive implementation throughout the financial services sector. In contrast, the complex and disaggregated nature of the various regulatory bodies in the U.S. contributes to a more uneven implementation throughout the vastly larger financial services sector. However, despite the potentially broad scope for variances there appears to be a high degree of similarity and consistency in the final rules and proposed implementation within Canada and the U.S. The preceding discussion has highlighted differences in the calculation of leverage ratio while noting broader similarities between implementation of Basel III in Canada and the U.S., such as minimum capital requirements.

In light of challenges that affect implementation there remains considerable work at the domestic level in Canada and the U.S. to fully implement the provisions of Basel III in a manner that enhances the resiliency and stability of the international banking system. However, implementation within a national context can only follow extensive policy development processes at the international level so that full implementation of Basel III may still be some years away.

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Appendix

Table 3: Comparison of Major Pillars of the Basel Accords from Basel I to Basel III

	Basel I		Basel II/ II.5		Basel III	
Major Purpose of Reform	To establish capital adequacy for international banks		To provide the foundation of consolidated basis regulatory implementation for internationally active banks and bank holdings		To strengthen and improve immunity of the banking sector from the external shocks from financial and economic stress	
Major Components of Regulatory Architecture	Credit Risk	Risk-weighted Asset Capital Ratio	Minimum Capital Requirement	Regulatory capital, Risk-weighted assets	Minimum Capital Requirement	Capital: introduction of capital buffer and instruments to increase quality and level of capital Risk coverage: increasing level of risk preparedness Leverage ratio: non-risk based leverage ratio including off-balance sheet items
				Credit risk measure including standardised approach, internal-rating approach and Securitization framework		
				Operation Risk		
				Supervisory Review		
Market Discipline	Components of bank activities subject to disclosure	Market Discipline	Revision to disclosure requirements			
				Liquidity	Introduction of liquidity to ensure healthy level of liquid asset and use it as supervisory monitoring	
Key Outcome	Identified constituents of capitals and developed standard assessment methodologies		Expansion of credit risk regulatory framework beyond the traditional definition of banks including subsidiaries of bank holdings Development of regulatory options and introduction of market discipline components			

Source: BCBS, International Convergence of Capital Measurement and Capital Standards, July 1998

- International Convergence of Capital Measurement and Capital Standards – A Revised Framework, November 2005
- Basel III: A global regulatory framework for more resilient banks and banking systems, December 2010 (rev June 2011)
- Basel III: International framework for liquidity risk measurement, standards and monitoring, December 2010
- Basel Committee on Banking Supervision reforms - Basel III

Table 4: Basel Accords Implementation Matrix by Member Country

Country	Basel II	Basel 2.5	Basel III			
			Risk-Based Capital	G-SIB / D-SIB requirements	Liquidity (LCR)	Leverage Ratio
Argentina	3,4	1,4	3,4	1	1	
Australia	4	4	4	1	2	
Brazil	4	4	4	1	1	
Canada	4	4	4	3,4	1	
China	4	4	4	1		
EU	4	4	3	3	3	
Belgium	4	4	(3)	(3)	(3)	
France	4	4	(3)	(3)	(3)	
Germany	4	4	(3)	(3)	(3)	
Italy	4	4	(3)	(3)	(3)	
Luxembourg	4	4	(3)	(3)	(3)	
Netherlands	4	4	(3)	(3)	(3)	
Spain	4	4	(3)	(3)	(3)	
Sweden	4	4	(3)	(3)	(3)	
United Kingdom	4	4	(3)	(3)	(3)	
Hong Kong SAR	4	4	4	1	2	
India	4	4	4	1	2	
Indonesia	4	1	2	1	1	
Japan	4	4	4	1	1	
Korea	4	4	3	1	1	
Mexico	4	1,4	4	1	1	
Russia	1,4	1,4	3	1	1	
Saudi Arabia	4	4	4	1	4	
Singapore	4	4	4	1	1	
South Africa	4	4	4	3	3	
Switzerland	4	4	4	4	4,1	
Turkey	4	4	3	1	2	
United States	4	3,4	3	1	1	

Note 1: Number means: 1 = draft regulation not published; 2 = draft regulation published; 3 = final rule published; 4 = final rule in force.

Note 2: Colour for each cell means: Green = regulatory adoption completed; Yellow = regulatory adoption in process; Red = no progress.

Note 3: This matrix is reproduced with the information from the source below.

Source: Basel Committee on Banking Supervision, Progress report on implementation of the Basel Regulatory Framework, October 2013

Table 5: Basel II, II.5 and III Implementation Status – Canada and the U.S.

		Canada	US
Basel II		<ul style="list-style-type: none"> Status: Final rule in force and regulatory adoption completed 	<ul style="list-style-type: none"> Status: Final rule in force with regulatory adoption in parallel ongoing process <ul style="list-style-type: none"> - Detail: All Basel II mandatory institutions are required to implement the advanced approaches to credit risk and operational risk. Banks have made significant progress in implementation efforts and those institutions in parallel run are reporting both Basel I and Basel II regulatory capital ratios to supervisors on a quarterly basis. US institutions in parallel run remain subject to Basel I capital requirements.
Basel 2.5		<ul style="list-style-type: none"> Status: Final rule in force and regulatory adoption completed 	<ul style="list-style-type: none"> Status: Final rule published and regulatory adoption in process <ul style="list-style-type: none"> - Detail: Final market risk capital requirements, which incorporate Basel 2.5, became effective on 1 January 2013. Status: Final rule published and regulatory adoption in process <ul style="list-style-type: none"> - Detail: Other Basel 2.5 revisions included as part of the final Basel III rule approved in July 2013, effective 1 January 2014.
Basel III	Risk-Base Capital	<ul style="list-style-type: none"> Status: Final rule in force and regulatory adoption completed <ul style="list-style-type: none"> - Detail: Requiring banks to meet an “all-in” basis – thereby meeting 2019 capital levels but phasing out non-qualifying capital instruments. 	<ul style="list-style-type: none"> Status: Final rule published and regulatory adoption in process <ul style="list-style-type: none"> - Detail: Final Basel III rule approved in July 2013, effective 1 January 2014.
	G-SIB / D-SIB requirements	<ul style="list-style-type: none"> Status: Final rule published <ul style="list-style-type: none"> - Detail: Capital rules take effect in January 2016. Final rules issued and additional supervisory expectations and disclosure obligations in effect. 	<ul style="list-style-type: none"> Status: Draft regulation not published <ul style="list-style-type: none"> - Detail: US agencies currently anticipate issuance of a notice of proposed rulemaking to implement the G-SIB framework by year-end 2013, pending finalisation of this framework by the Basel Committee.
	Liquidity (LCR)	<ul style="list-style-type: none"> Status: Draft regulation not published <ul style="list-style-type: none"> - Detail: Domestic process has begun and public consultation will commence in November 2013. 	<ul style="list-style-type: none"> Draft regulation not published <ul style="list-style-type: none"> - Detail: US agencies currently anticipate issuance of a notice of proposed rulemaking with regard to the LCR by year-end 2013.
	Leverage Ratio	<ul style="list-style-type: none"> Status: Domestic process begun to consider alignment of current Assets-to-Capital Multiple to Basel III leverage requirements. 	<ul style="list-style-type: none"> Status: Leverage ratio included in final Basel III rule approved in July 2013 and effective 1 January 2014. Existing US leverage ratio remains in effect. Basel III leverage ratio reporting begins 1 January 2015, and compliance with minimum requirements begins 1 January 2018.

Note: This matrix is partially reproduced with the information from the source below.

Source: Basel Committee on Banking Supervision, Progress report on implementation of the Basel Regulatory Framework, October 2013