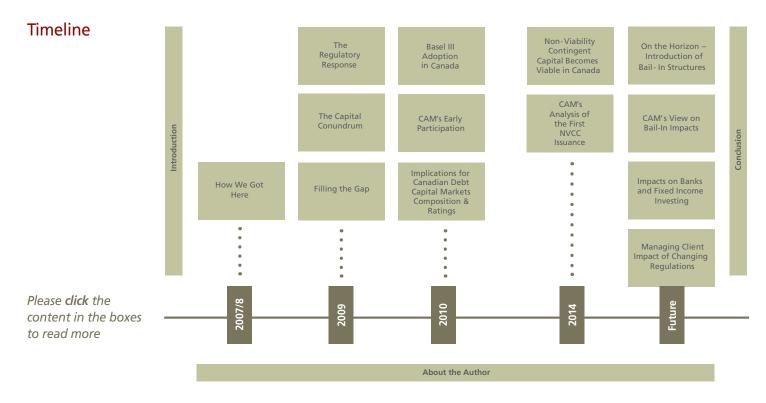
Shifting Sands – Basel III and the Impact for Canadian Fixed Income Markets



Introduction

A meaningful consequence of the financial crisis has been a regulatory landscape in flux, especially in the financial sector. As new guidelines and rules are implemented globally, it is imperative that asset managers, consultants and their clients stay ahead of the regulatory curve. This is where having a dedicated team of seasoned credit analysts will help portfolio managers and clients understand and assess the impact of changing regulatory regimes.

As part of our commitment to thought leadership, our Institutional Advisory Group utilizes the fixed income expertise of our portfolio managers and credit analysts to share relevant topics with the institutional community. We achieve this goal through our "Technical Series". In our first edition, Marisa Jones, CFA, Vice-President and Senior Credit Analyst at CAM, has authored an overview of the evolution of Basel III and its impact on Canadian fixed income markets. Marisa and the fixed income team have worked with national regulators to help inform the proposed regulatory changes in Canada, as well as with CAM's Client Relations team to help our client's understand the shifting regulatory landscape and its impact on their portfolios and investment policies.





About the author: Marisa Jones, CFA, Vice-President, Global Fixed Income

Joined CIBC Asset Management Inc. in June 2008. Marisa performs credit analysis of investment grade corporate bond issuers, high yield bond issuers, money market issuers and preferred share issuers. Master of Business Administration from York University (Toronto) and Honours Bachelor of Arts from Queen's University (Kingston). Marisa is also a CFA charterholder.

Various roles in the Corporate Debt Research department at BMO Capital Markets (Toronto) from 2001 to 2007, including Director.

How We Got Here

It has been eight years since initial troubles in the U.S. subprime debt market turned into the greatest financial crisis since the Great Depression. One aspect of the crisis which had a lasting impact on market participants was how the scale and global inter-connectedness of the world's largest banks, which had been touted as a force of strength and growth, turned into the Achilles heel of economic and capital markets and threatened to bring down banks at an alarmingly fast pace.

What the financial crisis and its aftermath made clear was that the capital structure of major banks did not perform the way most participants would have expected. Even securities which were issued with features intended to convert to capital and share in a bank's losses during a distressed scenario failed to work in the intended way as the conversion to equity capital could not be implemented quickly enough to be effective. Further, the relatively thin capital cushion and high leverage prevalent at banks in many jurisdictions meant that, even had these instruments been converted into equity capital as intended, there still would not have been enough new equity to sufficiently recapitalize the failing banks. Effectively, in part because of this inadequacy, taxpayer money was put at risk to the benefit of capital holders. The question post-crisis would be how to address these weaknesses going forward.

The Regulatory Response

In response to the global financial crisis, the Basel Committee on Banking Supervision put forward a framework for an enhanced set of regulatory guidelines in December 2009, termed Basel III. These guidelines attempted to solve the problem of financial weakness experienced during the crisis by addressing both the amount of capital held by financial institutions and its composition.

The first area the members of the Basel Committee focused on was capital amounts held by banks. To this end, Basel proposed new, higher capital thresholds and outlined a transition period within which institutions could reach these levels. Concurrently to the higher minimum capital thresholds, the quality of the capital held became greater under Basel III and the deductions for risk weighted assets more onerous. The guidelines on capital composition pursued the objective of increasing the "Core" or "Tangible Common Equity" component of Tier 1 capital. This meant banks should have more common equity and retained earnings than they previously held and these should comprise a greater portion of a higher Tier 1 capital ratio (See Figures 1 and 2).

Figure 1 - Common Equity Tier 1 Capital Ratio - Basel Guidelines

Metric	Explanation	Minimum Levels Prior to Basel III	2015	2019
Common Equity Tier 1 Capital Ratio (CET1)	Minimum tangible common equity to risk weighted assets ratio	2.0%	4.5%	7.0%

Figure 2 - Tier 1 Capital Ratio - Basel Guidelines

Metric	Explanation	Minimum Levels Prior to Basel III	2015	2019
Tier 1 Capital Ratio	Minimum Tangible common equity plus non-redeemable/non- cumulative preferred stock to risk weighted assets ratio	4.0%	6.0%	8.5%

In addition to these guidelines on capital levels and composition, Basel III also recommended an additional capital buffer for banks deemed to be Global Systemically Important Financial Institutions and Domestic Systemically Important Banks, to reflect the systemic importance and risk of these institutions, which was made evident during the financial crisis.

The Capital Conundrum – Pre-and-Post Basel III

Global banks issue various securities to meet different needs as well as a way to diversify their funding sources and better meet investor demands. Historically, certain features of these different securities determined whether they would be included in the regulated capital ratios of the banks. The further down the capital structure of the bank the instrument (i.e. the more equity-like features are included), the greater capital-weighting the security is granted. The premise is that common equity and retained earnings do not impose contractual obligations on the bank, permitting financial flexibility while taking potential first losses, and are therefore deemed to be loss-absorbing instruments. The higher on the capital structure scale the instrument sits (i.e. the more debtlike the security), the better protection for the holder but the lesser amount of flexibility to the financial institution and the lower the regulated capital weighting.

Under the capital regime that was in place prior to the 2007-2009 financial crisis, senior unsecured obligations issued by the banks were considered debt obligations and received no status as regulated capital. Tier 2 subordinated debt gained some capital status due to their subordinated ranking and Tier 1 capital trust securities were the most equity-like of the debt instruments and were permitted by the regulator to count fully toward Tier 1 capital. Continuing lower down the capital structure, preferred shares and common equity provide a capital cushion for the bank and were considered Tier 1 capital.

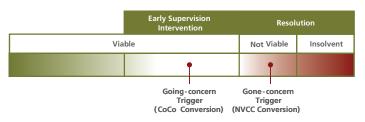
With Basel III, the requirements for instruments to be included in Tier 1 capital took on a stricter framework. Common Equity Tier 1 capital comprised primarily of common equity and retained earnings, is given greater importance than under previous regimes. Certain securities that do not qualify to meet more stringent requirements were recommended to be phased out. In Canada, these instruments include securities which have an incentive for the bank to call them (i.e. an interest rate step-up), including Tier 2A and Tier 2B subordinated debt issued before June 2010 and Innovative Tier 1 hybrids.

Filling the Gap – NVCC and CoCo's

The disallowance of many securities from the banks' capital structure begged the question as to what could replace these disappearing securities. To meet the changing requirements, the Basel Committee introduced the concept of Non-Viability Contingent Capital (NVCC) and Convertible Contingent capital securities (CoCo's). NVCC securities are meant to be loss absorbing instruments which convert into common equity at the point of non-viability (gone-concern). Non-viability is determined as the point where the government has to step in to resolve and effectively run the bank and/or inject liquidity into the bank to ensure the continuation of operations. The proposed benefit of NVCC is that it provides an additional capital cushion while the bank is operating and removes the obligation to pay fixed coupons upon conversion to common equity, thereby providing greater financial flexibility.

CoCo's, on the other hand, are considered to be 'goingconcern' capital which simply means they have contractual triggers which will convert the instrument to common equity (or may be written down in value) while the bank is still operating as a going concern. (See Figure 3)

Figure 3 – Triggers for Contingent and Non-Viable Contingent Capital



Source: Bank of Canada – "Contingent Capital and Bail-In Debt: Tools for Bank Resolution"; Chris D'Souza, Toni Gravelle, Walter Engert and Liane Orsi.

Basel III Adoption in Canada

With more prudent regulation, higher capital standards and lower leverage, Canadian banks fared relatively well through the crisis. Canadian banks benefited from stronger assets on their balance sheets and a greater portion of funding comprised from deposits compared to many U.S. and European institutions, reflecting large retail operations and conservative mortgage underwriting rules.

This "head-start" in the quality of capital structure meant that in 2010 all the Canadian banks were able to affirm they were in a good position to meet the upcoming Basel III capital targets well ahead of the 2019 proposed final deadline (See Figure 4). It is important to note that each jurisdiction is responsible for setting its own regulatory requirements and minimums and that Basel III remains a set of guidelines for the international banking community. However, the Office of the Superintendent of Financial Insitutions (OSFI) prescribed capital regime is largely in-line with the minimums outlined by the Basel Committee.

Figure 4 – CET1 Ratios of the "Big Six"

	FYE 2014	FYE 2013	FYE 2009 ¹
BMO	10.1%	9.9%	10.7%
BNS	10.8%	9.1%	8.0%
CM	10.3%	9.3%	7.6%
NA	9.2%	8.7%	10.0%
RY	9.9%	9.6%	9.2%
TD	9.4%	9.0%	7.5%
Average	10.0%	9.3%	8.8%

¹F 2009 CET1 ratios were estimated by RBC CM pro forma expected Basel III adjustments to reported results. Sources: RBC Capital Markets estimates, company reports.

CAM's Early Participation

CAM was invited to meet with regulators as early as 2009 to discuss Non-Viability Contingent Capital. That early introduction was an important step for our understanding of the changing regulatory landscape and marked the start of active and ongoing dialogue with the regulator. As a member of the Canadian Bond Investors' Association, our firm participated in member forum calls to discuss NVCC developments and concerns pertaining to the institutional fixed income community in particular. We also monitored developments in other jurisdictions to see how different markets adopted Basel III guidelines and how capital changes have been implemented.

As Canadian issuers began to structure NVCC security deals, CAM worked with the sell-side dealer community and bank Treasury teams to discuss details of what potential NVCC securities could look like.

On February 4, 2011, OSFI published an Advisory outlining its specific requirements for non-qualifying capital instruments and a Draft Advisory on NVCC. OSFI accepted the same transitioning period as recommended by Basel III for those securities no longer permitted. Under the new capital rules, all outstanding non-common Tier 1 and Tier 2 securities became subject to a 10-year phase out period beginning on January 1, 2013. OSFI noted a new NVCC conversion feature, which would be automatically triggered at the point the bank is deemed by the regulators to be non-viable, would be

required on any new non-common Tier 1 or Tier 2 securities issued starting January 1, 2013. As a result, outstanding bank preferred shares (which counted as Tier 1 capital for the Canadian banks under the previous regime) without the new conversion language became subject to phase out on the same schedule as other Tier 1 and Tier 2 non-qualifying instruments.

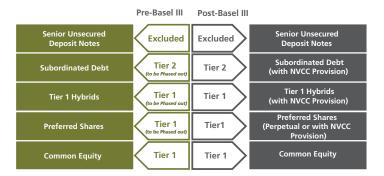
From the perspective of systemic importance, Canadian authorities determined that none of the domestic Canadian financial institutions meet the standards to be designated a Global Systemically Important Financial Institution. However, all of the "Big Six" Canadian banks were classified as Domestic Systemically Important Banks (D-SIBs). Because of the designation as D-SIBs, the banks are required to hold higher capital, in the form of an additional 1% capital "surcharge" to achieve a CET1 minimum of 8% as opposed to the 7% Basel III base guideline.

See Appendix I for a detailed breakdown between Basel III and OSFI guidelines.

Implications for Canadian Debt Capital Markets Composition and Ratings

OSFI's adoption of the guidelines put forth by the Basel Committee marked a significant change for the holders of bank securities as it introduced a completely different capital structure for the banks, effectively removing the existing securities with which the Canadian and global markets were familiar and replacing them with wholly new instruments. *In particular, the requirement for NVCC conversion meant all existing securities that rank below senior deposit notes (i.e. subordinated debt, preferred shares and innovative hybrid securities) will disappear.* The introduction of the NVCC conversion language in new securities make them markedly different from earlier subordinated debt and preferred shares, but this key feature is effective only at the point where the bank is deemed non-viable by the national regulator.

Figure 5 – Pre-and-Post Basel III Capital Treatment of Securities



A direct impact of this changing regulation on bank securities were rating downgrades. As new information on how changing rules impact different securities, the rating agencies revised their criteria to rate these securities. Simply speaking, the rating agencies generally incorporate assumptions of government support when determining the final rating, often providing several notches of "uplift". Several rounds of methodology revisions removed any assumptions of implied government support for the subordinated securities of banks, resulting in multiple-level downgrades depending on the bank. The majority of downgrades of Canadian bank securities over the past five years reflected rating methodology changes undertaken by the agencies and were not due to credit quality deterioration of the bank itself. For the most part, the downgrade's effect on bond prices were muted, reflecting the market's understanding of the reason underlying the lowered rating.

Non-Viability Contingent Capital Becomes Viable in Canada

The long wait for issuance of NVCC securities in Canada ended on January 21, 2014 when Royal Bank of Canada (RBC) came to market with a \$500 million, 4.00% Non-Cumulative 5-Year NVCC Rate Reset Preferred Share (Series AZ) offering. There was strong receptivity for the issue which was upsized from the announced \$200 million. Quickly following the RBC deal, National Bank and Canadian Western Bank tapped the market with NVCC preferred share issuance before the end of January.

At the time of writing, five of the six largest Canadian banks have issued NVCC preferred shares, with the exception being the Bank of Nova Scotia.

On July 11, 2014, RBC also became the first Canadian bank to issue subordinated Tier 2 NVCC bonds. The ratings were in line with expectations and the transaction was well-received by the bond market. The new issue came to market at a spread of 145 basis points (bps), roughly 45 bps wider than comparable non-NVCC bank bonds. Since the inaugural RBC issue, Bank of Montreal and CIBC have tapped the market with NVCC subordinated debt. The dearth of bank issuance in the preferred share and subordinated debt markets in Canada created pent-up demand for new product and as a result we have seen strong receptivity of the new structure and product.

Our Analysis of the First NVCC Issuance

We believe RBC was a first mover in NVCC issuance because it is the largest bank in Canada and is highly-rated. Further, it was able to set precedence with the structure it viewed as best for itself and acceptable to market participants. The definition of the trigger for the RBC preferred share conversion was as we expected and as prescribed by OSFI at the point of non-viability.

After we reviewed the issue, we recognized the merit of the conversion mechanism. The mechanism achieves greater common equity dilution than other

formulas presented to CAM and therefore is a more favorable structure for subordinated debt and preferred share investors. We believe the instrument meets OSFI's core requirement to respect the hierarchy of claims, thereby achieving "significant dilution" of the original common shareholders. We believe the structure is relatively simple and noted that prospective Tier 2 NVCC subordinated debt would be able follow the same conversion mechanism but preserve hierarchy by increasing the multiplier (grossing up) the par value of the debt.

See Appendix II for an explanation of the NVCC conversion mechanism.

On the Horizon – Introduction of Bail-in Structures

Beyond NVCC securities, regulators across jurisdictions also introduced the Bail-in structure to provide a quick and effective means to recapitalize a failing bank in an effort to minimize taxpayer risk and a wide-spread market disruption. While NVCC helps to replenish the Common Equity Tier 1 levels of capital on conversion, it does not inject new capital into the bank. Bail-in, on the other hand, provides new capital for the bank to replenish CET1 and return it to viability.

In the Canadian context, Bail-in will be a new tool in the Canadian Deposit Insurance Corporation's (CDIC) toolkit for resolving a failed Canadian bank. It is intended to have senior wholesale funding play a role in the recapitalization of a bank at the Point of Non-Viability (PONV). Bail-in will allow for the permanent conversion of all or part of the eligible liabilities into common equity. The concept of "sharing the pain or burden" of a bank failure among unsecured lenders is intended in part to reduce moral hazard of senior lenders who may have benefited from implied government support in reducing the perceived risk of the security (which also resulted in inflated ratings of the senior-most debt). By exposing these notes to potential losses prior to potential liquidity injections or government bailout, Bail-in is intended to incent additional monitoring of bank risk by the credit markets by reducing an implied government backstop.

A white paper from the Department of Finance outlines the potential scope, circumstances and sequencing of the Bail-in proposal. The Department of Finance proposes that existing senior unsecured debt would be grandfathered. All wholesale senior unsecured notes ("deposit notes") with an original term to maturity greater than 400 days issued after a yetto-be-determined implementation date would be subject to Bail-in. Senior secured liabilities (covered bonds, credit card ABS, NHA MBS) would be excluded from Bail-in. See Appendix III for an explanation of the Bail-In conversion mechanism.

Our View on Bail-in Impacts

CIBC Asset Management views Bail-in as a significant change to the bank capital structure in Canada. The suggested changes to the senior unsecured debt instruments will be legislative, which is why the Department of Finance is responsible for the White Paper and not OSFI which has led the charge on NVCC and other liquidity and leverage rules. For Bail-in to be implemented, the Bank Act has to be opened and changed through a change in law. Currently in Canada, senior unsecured Deposit Notes rank pari passu with uninsured deposits. The proposed legislation will permit Deposit Notes to be exposed to potential losses ahead of uninsured deposits. At the end of fiscal 2014, the largest six Canadian banks had over \$200 billion of senior unsecured debt with maturities greater than one year, which could be an indication of the size of the future Bail-in market. Deposit notes comprise roughly 7% of the FTSE TMX Canada Bond Universe Index and 23% of the FTSE TMX All Corporate Index (formerly DEX).

We have maintained discourse with regulators to understand the impacts of Bail-in on the credit quality of the banks themselves and on the specific instruments we hold on behalf of our clients.

CAM anticipates an immediate rating impact when the final details of Bail-in are finalized (See Figure 6). S&P and Moody's already took the step of placing the senior unsecured deposit note ratings for the Canadian Big Six banks on negative outlook. We expect actions will reflect the removal of some government 'uplift' incorporated into the ratings of the senior notes of the banks. Lower ratings may impact some investor mandates with requirements for very high quality corporate debt. It is important to note that downgrades related to Bail-in should not affect the subordinated or junior ranking securities of the Canadian banks as criteria revisions over the past five years have removed support at this level. Similar to our comments on NVCC, we view Bail-in deposit notes to be debt in all regards, except at the point of non-viability, and in the case of Bail-in, conversion would only occur on a pro rata basis should there be a shortfall in the capital levels determined by the regulator after NVCC converts and pre-existing common equity is significantly diluted.

Coincidentally to the determination of bank non-viability which automatically triggers NVCC conversion, the CDIC evaluates what level of capital is needed to recapitalize the bank and allow it to be viable. Should there be a shortfall in capital to meet this threshold even after NVCC is converted, the CDIC holds discretion to require Bail-in to convert, and the magnitude of conversion. The conversion of Bail-in eligible deposit notes would occur on a pro-rata basis across the asset class, with the amount determined 'ex post' and tied to the specific magnitude of losses (asset devaluation) and the desired recapitalization level.

Figure 6 – Removing the Uplift in Canadian Deposit Note Ratings Possible Migration of Deposit Note Ratings After Removal of Implied Government Support

	вмо	BNS	CIBC	NA	RBC	TD
DBRS						
Deposit Notes	AA	AA	AA	AA (low)	AA	AA
Notches Uplift	1	1	1	1	1	1
Removal of All Support	AA (low)	AA (low)	AA (low)	A(high)	AA (low)	AA (low)
S&P						
Deposit Notes	A+ "	A+ "	A+ ⁿ	A n	AA- "	AA- "
Notches Uplift	2	1	2	1	1	1
Removal of All Support	A-	А	A-	A-	A+	A+
Moody's						
Deposit Notes	Aa3 n	Aa2 n	Aa3 n	Aa3 n	Aa3 n	Aa1 ⁿ
Notches Uplift	2	2	2	3	2	2
Removal of All Support	A2	A1	A2	A3	A2	Aa3

Notes: n=Negative Outlook. Moody's and S&P have revised the outlook for the senior unsecured ratings for the Big 6 banks to Negative to reflect the proposed Bail-in legislation and removal of implied government support. (Moody's has a Negative outlook on Bank of Nova Scotia also reflecting the agency's view that the bank has increased its risk tolerance; this action applies to all Bank of Nova Scotia debt securities).

For illustrative purposes only. We do not necessarily believe all government support would be removed from the senior ratings upon clarification of the Bail-in regime.

As at November 3, 2014

Impacts on Banks and Fixed Income Investing

The impacts of changing regulation can be difficult to measure. Certainly, stricter rules can increase the banks' costs of complying by requiring dedicated personnel and higher investment in compliance related technology. Other less direct costs can be borne in the form of increased funding costs and tighter lending requirements. While Canadian banks commented early on that they were well positioned to meet changing capital requirements, we noted at that time that many banks globally would have a difficult time achieving stricter capital and liquidity standards and would have to sell assets, restrict lending and shrink balance sheets in order to meet higher standards. This could result in higher cost of funds, lower net interest margins and reduced credit availability. Indeed, this has been the case, especially in Europe, where many banks have been forced to divest assets or shrink certain businesses. Additional regulation in some jurisdictions, such as the lengthy

Dodd-Frank Act in the U.S., have changed the way some banks operate and have increased the costs of regulatory compliance.

Specifically, from a fixed income perspective, higher capital, liquidity and leverage standards enhance the already-strong Canadian banking system and reduce risks from a systemic or economic shock. The offset of these higher standards may be muted return-on-equity growth, reflecting a higher cost of capital.

Managing the Client Impact of Changing Regulations

As evidenced in this paper, the regulatory landscape globally and in Canada has undergone meaningful changes that impact the way in which asset managers and plan sponsors construct portfolios and investment policies for their fixed income allocations. With the phase-out of certain securities and the introduction of newly structured NVCC and Bail-In related instruments, plans have been forced to revisit both what instruments they allow in their portfolios and the quality constraints they implement in their investment policies. CAM's Credit Research and Client Relationship team work with our institutional clients to help navigate this changing landscape and measure the impact on plan sponsor's investment policies. We share some common implications below:

Policy Constraints That Could Exclude NVCC and Bail-In

In this regard, CAM worked with our clients to discuss what our expectations were for issuance and market impacts. The issuance of securities with the NVCC and Bail-In conversion features meant that some plans with restrictions on holding fixed income instruments with convertibility features had to reassess these constraints in light of the fact that the non-NVCC compliant Tier 1 and Tier 2 securities market will shrink substantially, limiting the investable universe for plans in Canada. Results from a vote conducted by FTSE TMX Global Debt Capital Markets in July and August 2014, which surveyed 267 users firms to consider eligibility of NVCC for the Canada Universe, indicated participants do not wish to include these instruments. However, Bailin bonds issued by Canada's DSIBs will be eligible. We were disappointed to see only 74 (including CAM) of the 267 firms voted, representing a 28% participation rate. Importantly, the index provider stated that "following [the] inclusion of Bail-in bonds in the FTSE TMX Canada Bond Indices, the eligibility of NVCC bonds will be reconsidered in the light of the market environment at the time." The potential market for NVCC subordinated debt is significant at an estimated \$20-\$25 billion. In our opinion, this is too large a segment of the market to not be included. Clients with policy constraints that restrict bonds with such convertibility features may not only risk excluding active managers from capturing new alpha opportunities within this corporate space, but may also lead to greater tracking error from the index if FTSE/TMX does decide to include NVCC issues in their universe at a future date.

In our opinion, the host instrument, whether a preferred share or subordinated Tier 2 debt, has the same features as the comparable non-NVCC security in all respects while the bank is a going concern. Only at the point where the regulators deem the bank non-viable do the NVCC securities convert automatically into equity. NVCC instruments are not convertible bonds because the investor does not hold the option to convert, nor does the bank/issuer, only the regulator can convert the instruments under a formalized process.

Policy Constraints on Ratings

As discussed earlier in this paper, the introduction of NVCC resulted in ratings downgrades for the "Big Six" banks' subordinated and innovative Tier 1 hybrids as the ratings agencies removed the implied government support from their criteria. Similarly, we expect downgrades for senior unsecured ratings once Bail-in is formalized. This change can impact clients who have more conservative quality constraints on their core Canadian fixed income portfolios. We worked with clients extensively to understand the reasoning behind the rating agency downgrades and whether our fundamental view on these instruments had materially changed in light of the introduction of NVCC or Bail-in provisions.

In our opinion, Canadian NVCC securities should be treated in the same manner as comparable securities have been in the past. Canadian NVCC preferred shares and subordinated NVCC are gone-concern instruments, in other words, the trigger is when the entity is deemed to be non-viable by the regulators. This is significant in that the trigger is very remote. The process the regulators must follow to declare a bank non-viable may not be fully transparent, but is laid out in the Bank Act and has not changed with the recent shifts in regulation. Pre-Basel III, the regulator (OSFI), CDIC, Bank of Canada and Department of Finance had to follow the same stages as they would today to declare the Point of Non Viability.

By working closely with institutional clients we are able to manage the impact of these key regulatory changes. Our goal has been to keep clients informed of regulatory changes as they evolve and provide independent credit research that reflects the changing nature of these securities as they evolve under the new regulatory regime. By working with clients we ensure that their fixed income portfolios maintain the risk profile they desire in the marketplace despite the shifting regulatory framework.

Conclusion

In our opinion, the financial crisis served as a stark awakening for national regulators who were forced to question not only the strength of financial institutions but also their ability to efficiently manage banks that find themselves in financial distress. Notably, intertwined with the health of the financial system as a whole is each jurisdiction's ability to manage a failing bank and prevent or limit contagion risk and economic ramifications.

In Canada, additional tools to aid OSFI and the CDIC in the efficient resolution of a distressed institution include the introduction of NVCC and Bail-in. Both of these tools recognize the importance of the largest Canadian banks and builds on the concept of D-SIB. Further, these tools will look and 'feel' like the instruments we are familiar with and which they will replace, until the bank is in a distressed situation. NVCC and Bail-in deposit notes are simply tools to make the banks stronger and ensure quick resolutions of the institutions if required. They build on extensive powers and tools already existing for the CDIC, including liquidation, bridge bank (i.e. good/bad bank) and assisted purchases.

The long path to implementation of regulatory changes has allowed the Canadian fixed income market to digest the changing bank instruments in stride. Although rating downgrades have been significant and potentially impact investors' ability to hold new instruments, we argue that more stringent rules have strengthened Canadian banks and enhanced their resiliency to future economic or capital market shocks.

About the Author and our Credit Research Team

Marisa is a Vice President and Senior Credit Analyst at CAM. Marisa's industry coverage includes Financial Services and Public Sector Infrastructure. She is a key member on CAM's Investment Grade Credit Committee and also serves as Director on the Board of the Canadian Bond Investors' Association of which CAM is a member.

Marisa is a member of our seven person Credit Research team (headed by Amanda McPherson, CFA) who conduct proprietary fundamental research on investment grade, high yield, preferred shares and money market securities in Canada and globally. Their research, in conjunction with our Credit Committees and Approved Credit Lists, act as a quality control mechanism for the corporate bonds utilized in our client's fixed income solutions.

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Aaron Young - Associate Institutional Advisory Group - Fixed Income

APPENDIX I

			Pre-2013	2013	2014	2015	2016	2017	2018	2019	20	20 2021	2022
CET1 ¹		Minimum Tier 1 Common Equity Capital Ratio Capital Conservation Buffer Countercyclical Buffer Range ² G-SIFI Surcharge ^{2,3} D-SIB Surcharge ^{2,3}	2.0%	3.5%	4.0%	4.5%	4.5% 0.625% 1.0-2.5%	4.5% 1.250% 1.0-2.5%	4.5% 1.875% 1.0-2.5%	4.5% 2.5% 0-2.5% 1.0-2.5%		Minimum CET1 under the Basel III proposal was less than OSFI minimums in 2013	
Minimum	Canadian Banks	Total Ratio Range OSFI Minimum ⁴ Conservation Buffer G-SIFI Surcharge ^{2,3,5} D-SIB Surcharge ^{2,3,5} Total	None	3.5% 4.5% 2.5% 7.0%	4.0% 4.5% 2.5% 7.0%	4.5% 4.5% 2.5% 7.0%	6.1-7.6% 4.5% 2.5% <u>1.0%</u> 8.0%	6.8-8.3% 4.5% 2.5% <u>1.0%</u> 8.0%	7.4-8.9% 4.5% 2.5% <u>1.0%</u> 8.0%	8.0-12% 4.5% 2.5% 0.0% <u>1.0%</u> 8.0%		and 2014 an at 4.5% of ri weighted as 2015 throug	sk sets for
Minimum Tier 1	dian Basel ks Proposal	Minimum Tier 1 Capital Ratio Capital Conservation Buffer Countercyclical Buffer Range ² Total Ratio Range OSFI Minimum ⁴ D-SIB Surcharge ^{2,3,5}	4.0%	4.5%	5.5% 8.5%	6.0% 8.5%	6.0% 8.5% 1.0%	6.0% 8.5% 1.0%	6.0% 8.5% 1.0%	6.0% 2.5% <u>0-2.5%</u> 8.5-11% 8.5% <u>1.0%</u>		Minimum Tier 1 Capital Ratios under OSFI have always exceeded that of the Basel quidelines, even	
Mir	с С	Capital instruments that no longer qualify		Phased out	t over 10 ye	ar horizor	9.5% beginning	9.5%	9.5%	9.5%		in the period Basel III	s prior to
Phase-Out	Canadian Basel Banks Proposal				t over 10 ye	ar horizor	ı beginning	2013					

¹ Common Equity Tier 1 capital, also Tangible Common Equity; ² Discretion of national regulators; ³ G-SIFI and D-SIB - Global Systemically Important Financial Institution and Domestic Systemically Important Bank.

⁴ OSFI's official phase in of TCE and T1 capital ratios are close to Basel 3 guidelines; however OSFI expected all banks to meet capital ratios greater or equal to 2019 minimum (plus conservation buffer) by Jan 2013.

⁵No Canadian banks were deemed to be a G-SIFI; On March 26, 2013, OSFI announced the 5 largest Canadian banks plus National Bank are deemed D-SIBs.

⁶ Non-qualifying instruments lose capital recognition at a 10% rate each year beginning January 1, 2013, up to the effective maturity date.

⁷ In Canada (and many other jurisdictions) NVCC must be issued after Jan, 1, 2013, as needed to fulfill capital requirements in place of non-qualifying instruments.

APPENDIX II

NVCC Conversion Mechanism	NVCC Preferred St	nares	NVCC Subordinated Debt			
Multiplier ¹ x Investment Value (par) =	# common	1.0 x \$25	= 5 common	1.5 x \$1000	= 300 common	
Conversion Price	shares	Max (\$5 or 10-day VWAP)	shares 1	Max (\$5 or 10-day VWAP)	shares 1	
1			,			

¹ Assuming converts at \$5.

APPENDIX III

BAIL-IN CONVERSION MECHANISM

The proposed conversion mechanism is linked to the terms of outstanding NVCC instruments. The Department of Finance White Paper on the subject suggests a conversion multiplier range of 1.1x-2.0x the most favourable conversion formula among the bank's outstanding NVCC instruments. An example using the current RBC NVCC subordinated debt multiplier of 1.5x (the multiplier effectively 'grosses up' the principal value of the bond by 1.5x), which is superior to the 1.0x multiplier in the NVCC preferred share issued by the same bank. Therefore, the proposed conversion multiplier for RBC Bail-in deposit notes would be 1.65x-3.0x. The greater amount of shares on conversion resulting from the higher multiplier functions to preserve the hierarchy of claims represented by the seniority of the notes. The Department of Finance explicitly states it wishes to preserve a relative, not absolute, hierarchy of claims by the multiplier. It is important to note the linkage to the NVCC instruments as the NVCC terms are contractual, which indicate they are market-determined and could change.

Proposed Bail-in Formula		NVCC Subordinated	d Debt	Proposed Bail-in Senior Debt Mechanism			
Multiplier ¹ x Investment Value (par)	= # common	1.5 x \$1000	= 300 common	1.5 x (1.1 to 2.0) x \$1000	= 330 to 600		
Conversion Price	shares	Max (\$5 or 10-day VWAP)	shares ²	Max (\$5 or 10-day VWAP)	common shares ²		

¹ Most favourable conversion formula among the bank's NVCC instruments

² Assuming converts at \$5.

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