

Bill C-501:

Analysis of Potential Impact on Canadian Credit Markets

Table of Contents

Introduction

Section 1: Prevalence of Corporate Defined Benefit Pension Plans	3
Section 2: Impact on the Availability of Credit	5
Section 3: Impact on the Cost of Credit	8
Appendix I: Impact on the Cost of Credit (Detail).....	11

Introduction

Bill C-501, An Act to amend the Bankruptcy and Insolvency Act and Other Acts (pension protection), would give preferred creditor status to unfunded pension obligations over other creditors in the event of corporate liquidation. Phillips Hager & North has followed Bill C-501 with interest because, as one of the largest fixed income investment managers in Canada, we manage about \$18 billion of corporate bonds on behalf of our clients. We understand and appreciate the importance of providing security to pensions and other employment related commitments. At the same time, analysis undertaken by other parties suggests Bill C-501 would have limited impact on credit markets. Our analysis suggests:

- **The impact is potentially broad.** Of 60 investment grade issuers representing approximately 90% of the market value of corporate bonds outstanding, 54 have defined benefit pension plans. Based on 2009 disclosures, pension plans for 45 of these 54 companies are underfunded, and deficits have likely increased during 2010.
- **The impact is potentially significant.** Defined benefit obligations for the 54 companies referenced above total \$215 billion relative to \$225 billion of total debt outstanding. Given the financial materiality of pension obligations, and the sensitivity of funded status due to changes in interest rates and fluctuations in equity markets, pensions represent a potentially significant contingent liability¹ that would have senior status relative to the claims of other unsecured creditors.
- **Creditors will be less willing to lend particularly when credit is needed most.** Unsecured bondholders will be less willing to lend to a corporation with a large senior claim that could rank ahead of them should the corporation default and have to liquidate. Bondholders will be cognizant of the increased risk of receiving a much lower recovery value and as a result will either not lend to a corporation with a large prior ranking obligation or will at least demand a punitive rate on the new issue.
- **The cost to existing bondholders and corporations is likely in the \$billions.** Based on average credit spreads during the past 10 years, we estimate the financial impact of Bill C-501 to be as high as \$22 billion,² split \$4.5 billion to existing bondholders and \$17.5 billion to corporations. Limited observable market data on the cost of subordination for investment grade credits suggests the financial impact could be even larger.

¹ Pension liabilities typically are backed by assets held in trust however the value of these assets relative to liabilities is subject to material fluctuations owing to equity market volatility and changes in interest rates.

² Assuming this legislation would apply to all corporations in Canada.

- **The costs and impact will not be evenly distributed.** Certain corporations with a historically significant commitment to providing pensions to their employees, and the existing bondholders of these corporations, likely will bear a significant share of the costs. This is particularly true of corporations whose credit rating would be at risk of downgrade if pension and other employee benefit claims were given senior ranking in insolvency. For example, risk premiums on bonds of a BBB rated company that is downgraded to below investment grade status could increase by 150-200 basis points.

This report explores each of the above in further detail, beginning with an analysis of the prevalence and financial materiality of pension obligations among the largest issuers of debt in Canadian investment grade credit markets. We then discuss the potential impact of Bill C-501 on the availability of credit and present an analysis that attempts to capture the range of potential costs to bondholders and corporations.

Our analysis further indicates that lower-rated investment grade (i.e., BBB) corporations, on average, are likely to be impacted to a greater extent than more highly rated (i.e., A/AA) corporations. Of the companies included in our analysis, the value of defined benefit pension obligations for BBB rated companies generally is larger relative to the value of other unsecured obligations than is the case for most A/AA rated companies. The potential for large senior claims reducing recovery rates for the unsecured creditors is therefore greater for many BBB rated companies.

Nonetheless, we also present an analysis of a specific corporation whose debt is currently rated AA, and demonstrate that preferred creditor status of pension and other employment related obligations may affect the cost and availability of credit for corporations with currently strong credit ratings.

Conclusion

The objective for this report is to help inform policy debate on Bill C-501 by providing an analysis and opinion on the potential impact on credit markets in Canada. Based on average default risk premiums during the past 10 years, we estimate the impact across all investment grade issuers will be higher credit risk premiums of as much as 29 basis points, which is 15 times higher than that suggested by other reports.³ Further, the range of impacts on individual corporations with defined benefit pension obligations will be much wider, and for some the increase could conceivably be as high as 150-200 basis points. We further estimate that a 29 basis point increase in credit risk premiums for investment

³ Induced Bankruptcies Cost Canadian Taxpayers Billions of Dollars – Diane Urquhart, November 19, 2009

grade bonds translates to a total cost to existing bondholders and corporations of approximately \$22 billion.

Section 1: Prevalence of Corporate Defined Benefit Pension Plans

Defined benefit plans are very common among the predominant issuers of investment grade corporate debt in Canada. Approximately 90% of the 60 issuers representing 90% of investment grade debt outstanding⁴ support defined benefit obligations.⁵ Table 1 below illustrates the prevalence of defined benefit pension plans among these 60 issuers.

Table 1: Top 60 Canadian Investment Grade Issuers

Type of Issuer	All Issuers		Issuers with DB Plans	
	Number	Market Value of Debt Outstanding	Number	Market Value of Debt Outstanding
Corporate	49	204,500	48	202,900
Quasi Public ⁶	7	24,700	6	21,700
ABS ⁷ Trusts	4	6,300	0	0
TOTAL	60	235,500	54	224,600

Corporate Issuers

Rating	All Issuers		Issuers with DB Plans	
	Number	Market Value of Debt Outstanding	Number	Market Value of Debt Outstanding
AAA/AA	9	105,200	9	105,200
A	21	58,400	20	56,800
BBB	19	40,900	19	40,900
TOTAL	49	204,500	48	202,900

Recognizing the unlikelihood of a quasi-public entity to enter liquidation, we also examined corporate entities within this group and found that all but one has defined benefit obligations. The prevalence of defined benefit plans suggests that the impact of Bill C-501 on credit markets in Canada has the potential to be broad.

⁴ Based on the DEX Investment Grade Corporate Bond Index

⁵ Some quasi-public entities participate in government plans. We could not verify the nature of contingent obligations that these organizations have to the plans in which they participate.

⁶ Quasi-public entities include: Greater Toronto Airport Authority, Hydro One, Highway 407, NAV Canada, Aeroport de Montreal, Nova Scotia Power, Toronto Hydro Corp.

⁷ For example, debt issued by trusts created by financial institutions backed by credit card receivables.

Funded Status of DB Pension Obligations

As at the end of the 2009 reporting period, pension plans for 45 of the 54 companies included in the above analysis were in deficit, with unfunded obligations totalling \$30 billion.⁸ Deficits for many plans have likely increased during 2010 due to declining interest rates and generally weak equity markets.

Table 2: Funded Status of Defined Benefit Pension Obligations

Accounting Funded Ratio	Non Financials			Financials		
	# Issuers	Pension Obligations	M.V. CAD Debt Outstanding*	# Issuers	Pension Obligations	M.V. CAD Debt Outstanding*
< 75%	11	6,300	17,700	4	31,800	6,300
75-79%	1	1,500	5,100	1	16,100	11,100
80-89%	10	34,700	18,700	6	76,100	22,800
90-99%	10	22,200	32,100	2	10,900	32,400
>=100%	4	1,300	17,500	5	15,200	61,000
TOTAL	36	65,900	91,100	18	150,100	133,600

We provide separate data for non-financial and financial organizations in order to separately identify the impact of the big five Canadian banks, which collectively represent a significant share of the total debt issued in Canadian markets and each of which has funded their plans to nearly (or beyond) 100% of the accounting measure of their defined benefit pension liabilities.

⁸ Public reporting does not identify separately the unfunded obligations that are in respect of Canadian vs. foreign pension plans.

Section 2: Impact on the Availability of Credit

Providing preferred creditor status to unfunded pension obligations could potentially have a significant impact on the availability of credit because unsecured bondholders will be less willing to lend to a corporation with a large senior claim that could rank ahead of them should the corporation default and have to liquidate. Bondholders will be cognizant of the increased risk of receiving a much lower recovery value and as a result will either not lend to a corporation with a large prior ranking obligation or will at least demand a punitive rate on any new issuance of debt.

Unavailability or increased cost of credit will increase default rates. For example, the funded status of corporate pension plans worsened considerably during 2008 due to lower equity prices and the increased settlement value of pension benefit obligations. In such an environment, unsecured bondholders might not provide further funding in fear that should the company default, their interests could be wiped out.

Corporations with large pension obligations relative to the amount of debt outstanding stand to be most affected because of the potential for large emerging senior claims in stressed market conditions such as those of 2008/09. Table 3 illustrates that BBB rated companies stand potentially to be most affected by Bill C-501.

Table 3: Defined Benefit Pension Obligations Relative to Debt Outstanding⁹

Rating	Number	Par Amount of Debt Outstanding	Projected Benefit Obligation (PBO)	PBO / Par Amount of Debt	Companies with PBO > Par Value of Debt	Largest PBO / Par Value Ratio
AAA/AA	6	71,100	24,400	29%	1	116%
A	17	51,500	20,700	47%	2	175%
BBB	20	39,000	45,900	118%	7	825%
TOTAL	43	170,100	106,200	59%	10	NA

⁹ Foreign issuers with significant pension obligations outside of Canada were removed from this analysis.

On average, the value of pension obligations of BBB rated companies exceeds the par value of outstanding debt, the impact of which is to increase the potential for significant senior claims during periods when plans are under funded. By comparison, pension obligations on average represent less than half the par value of outstanding debt for AA and A rated companies.

Bill C-501 could potentially result in ratings downgrades for some organizations, and for BBB rated companies that are downgraded to below investment grade status, the impact could be a 150 – 200 basis point increase in risk premiums.

Notwithstanding the specific attention drawn to BBB rated companies in the preceding discussion, Bill C-501 also has the potential to impact higher quality companies. The following analyzes a AA rated infrastructure issuer. This is a non-share entity with the mandate to set its rates such as to cover all expenses (i.e., essentially non-profit). As of the end of fiscal year 2009, the balance sheet looked as follows:

Balance Sheet Summary (MLNs):

Total assets: \$3,204

Secured debt: \$700

Unsecured debt and other obligations: \$2,081

Pension plan status (MLNs):

Benefit obligation: \$3,023

Fair value of plan assets: \$2,525

Deficit: \$498

Even though default of this issuer is unlikely, it is evident how providing pension plans with preferred status could impact the availability of credit to even high quality issuers. In the situation above, the plan was 83% funded as of the end of August 2009. If we assumed a deterioration of the funded status to 70%, Table 4 below illustrates that the recovery value to senior unsecured bondholders, should liquidation occur, is impacted significantly by providing preferred funding to pension plans. For example, if asset recovery in liquidation were to be 50% given the current creditor status of unfunded pension obligations, then the recovery value for unsecured bondholders would reduce to 7% if unfunded pension obligations were given priority status.

Table 4: Impact on Recovery Rate in Liquidation Pension Obligations Assuming 70% Pension Plan Funded Status

Assumed Recovery % in Liquidation	Recovery Value of Assets (\$MLNs)	Recovery Value to Senior Unsecured Bondholders	
		No Priority to Pension Plans	Priority to Pension Plans
90%	\$2,884	77%	69%
75%	2,403	60%	46%
50%	1,602	32%	7%

Section 3: Impact on the Cost of Credit

Preferred status for unfunded pension and other employment related obligations will result in wider overall spreads in the marketplace, impacting on the value of bonds outstanding as well as the cost of credit for new issues. In our opinion, estimating the financial impact is difficult because theoretical models of default risk premiums tend to underestimate the actual cost of credit, and market data on the cost of subordination is limited. Our concern is that such a key policy decision might be based on a model that may underestimate the true cost of implementation.

Theoretical Models

Diane Urquhart employs a theoretical model to analyze the potential impact of Bill C-501 on credit markets,¹⁰ and estimates that the additional default risk premium demanded by investors in the debt of an average investment grade corporation with a pension plan in deficit, would be 16 basis points. Based on this analysis, she further concludes that the overall impact on the investment grade credit market would be 2 basis points.

- However, theoretical models that estimate default risk premiums demanded by creditors are far from precise and often underestimate actual market experience. Appendix I of this report addresses two specific points related to Ms. Urquhart's analysis in order to illustrate our concerns with theoretical models:
- The model employed assumes that default risk premiums (i.e., spreads) only reflect expected loss. The reality is that the average spread in the market tends to be significantly wider than such models predict; and
- The model appears to grossly underestimate the percentage of corporate bond issuers with pension plans (25% of corporations vs. 90% (see Section 1) among the most significant issuers of investment grade credit).
- Adjusting Ms. Urquhart's model for market observed default risk premiums, and for a much higher prevalence of defined benefit plans, we arrive at an overall impact on credit markets of 29 basis points based on average credit risk premiums over the past 10 years of 120 basis points,¹¹ nearly 15 times Ms. Urquhart's estimate of 2 basis points. We estimate the cost to existing bondholders and investment grade corporations associated with a 29 basis point increase in credit risk premiums to be \$22 billion.

¹⁰ Induced Bankruptcies Cost Canadian Taxpayers Billions of Dollars – November 19, 2009.

¹¹ Adjusted for estimated liquidity premiums (see Appendix I).

- The above analysis is based on a 120 basis point average credit risk premium during a 10-year period when risk premiums reached a low of 48 basis points and a high of nearly 450 basis points. To test the sensitivity in the results, we repeated our analysis using the lowest credit risk premiums during the period of 48 basis points, and arrive at a 12 basis point increase in default risk premiums associated with Bill C-501, still a 6-fold increase over Ms. Urquhart's estimate and representing a \$9 billion cost. Therefore, even using a very conservative estimate of future baseline default risk premiums,¹² the financial impact of Bill C-501 is likely to be in the billions of dollars.
- To be clear, the 12 and 29 basis point estimates represent an indication of the impact across the investment grade credit market in Canada. The range for individual corporations with pension funds will be much wider, for example the impact for a BBB rated corporation that becomes downgraded to below investment grade status could be an increase in credit risk premiums of as much as 150-200 basis points.
- Also important to note is that the 29 basis point estimate is based on average credit risk premiums over the past 10 years. However, as the chart in Appendix I highlights, credit risk premiums can fluctuate considerably, and we would expect similarly that the impact of Bill C-501 could vary considerably depending on market conditions.

Observable Market Data

The effect of Bill C-501 is to subordinate much of the outstanding investment grade debt to the more senior claims associated with unfunded pension and other obligations. Although relatively common in the high yield market, there are relatively few examples, outside the financial sector, of investment grade issuers with senior and subordinated debt. We nonetheless offer the following data points that may be used to gain some insights into the market-based cost of subordination:

Bank Sub-Debt. The long run additional credit risk premium paid on subordinated vs. senior unsecured bank debt issues is in the range of 25bps – 30bps.

Industrial Sub-Senior. In the case of high yield issuers that have subsequently been upgraded to investment grade status, a typical differential in spreads between the senior and subordinated (often convertible) debt is in the order of 50bps – 75bps.

¹² With the exception of two periods, mid-1984 to mid-1985, and mid-1995 to mid-1997, investment grade credit risk premiums very rarely have been as low as 48 basis points during the past 30 years.

Therefore, our estimate of the impact on future financing costs for impacted issuers may understate the market's perception of risk premiums for subordination (based on several market-based examples).

Conclusion

We illustrate above and in Appendix I, the potential limitations of theoretical models to forecast the effects of Bill C-501 on credit markets. Adjusting a theoretical model to reflect average conditions in credit markets during the past 10 years increases the indicated impact of Bill C-501 on credit risk premiums by a factor of 15 times. Further, market observed data while limited, suggests that the market price of subordination could be even greater than that indicated by theoretical models when adjusted for average market conditions.

Determining precisely how the overall market will react to implementation of such a measure is difficult. What is evident, however, is that there are going to be large and significant costs borne by a number of different parties. Costs across the credit market in Canada will be in the billions of dollars, and individual corporations will be impacted very differently. While we estimate an average spread impact across investment grade credit markets of 29 basis points, it is also conceivable that default risk premiums for some corporations could increase by as much as 150-200 basis points in the event of downgrade to below investment grade status.

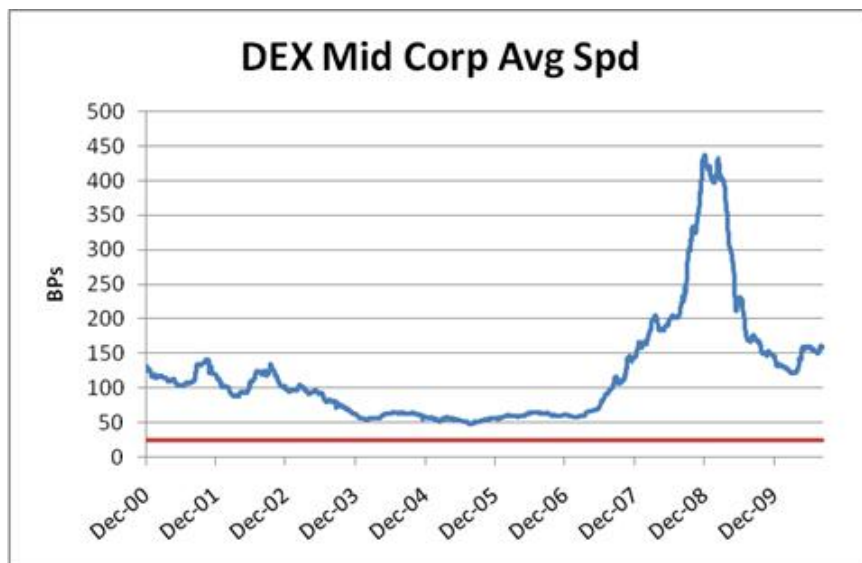
Appendix I: Impact on the Cost of Credit (Detail)

The following illustrates the effect of making the following adjustments to the model Ms. Urquhart uses to estimate the financial impact of Bill C-501 on credit markets:

- The model employed assumes that default risk premiums (i.e., spreads) only reflect expected loss. The reality is that the average spread in the market tends to be significantly wider than such models predict; and
- The model appears to grossly underestimate the percentage of bonds issued by corporations with pension plans (25% of corporations vs. 90% found in Section 1 of this report among the most significant issuers of investment grade credit).
- Using the low end and average of mid-term investment grade credit risk premiums during the past 10 years respectively, we estimate that Bill C-501 will increase credit risk premiums by 12 basis points and 29 basis points respectively. By comparison, Ms. Urquhart estimates the impact on investment grade credit markets to be 2 basis points. The financial impact associated with a 12 basis point and 29 basis point increase in credit risk premiums is estimated to be \$9 billion and \$22 billion respectively.

Default Risk Premiums

Ms. Urquhart’s model predicts an appropriate credit default risk premium of 25 basis points (bps) for 10-yr investment grade bonds. Since the end of 2000, mid-term corporate spreads have averaged closer to 120bps, and in fact were never as low as 25 basis points during that time (the low was 48 basis points in August 2005).



That

Ms. Urquhart's model grossly underestimates the true spread in the corporate market is confirmed by a research piece titled "The credit spread puzzle" written by Jeffery Amato as part of the BIS Quarterly Review, Dec 2003. Mr Amato states that "expected losses in the event of default", such as those calculated by Ms. Urquhart, "can account for only a very small fraction of spreads" and that "spreads magnify expected losses". Mr Amato cites a number of studies that attempt to identify factors explaining spread levels.¹³

After tax effects, Mr. Amato identifies liquidity premiums, which offsets the costs of trading corporate bonds, as the most important factor. Using Canadian Mortgage Bond spreads as a proxy for the cost of liquidity, we estimate that since 2004, liquidity premiums have accounted for approximately 25% of total corporate spreads. Mr Amato states there is a range of estimates for the size of liquidity premia, however Driessen (2003) estimates liquidity accounts for 20% of total spreads, in line with our estimates.

Thus, using the 120bps average mid-term corporate bond spreads over the past 10yrs, 25% or 30bps, has been to provide compensation for illiquidity. If defaults are expected to cost bondholders 25bps, as calculated by Ms Urquhart, then 65bps (120bps overall spread less 30bps for liquidity, less 25bps for expected losses) appears to be unexplained.

- Mr Amato attributes unexplained spread premium to difficulties in diversifying credit risk. "In corporate bond portfolios, there is often a chance that actual losses from default will exceed expected losses". Models such as Ms Urquhart's "implicitly assume that investors can diversify away unexpected default risk by holding a sufficiently large portfolio". He then argues that given corporate bond returns are negatively skewed (i.e., "small but significant probability of a large loss without any chance for a comparably large gain"), "diversification is difficult in the sense that the size of the portfolio required to reduce unexpected losses to a minimum is very large... in practice such large portfolios are not attainable." Without full diversification, Mr Amato argues spreads will reflect unexpected losses, and account for most of the unexplained spread.

In essence Mr Amato is arguing that spreads reflect the expected loss (as calculated by Ms. Urquhart) but also include an unexpected loss, which exists given the inability for most investors to create a portfolio with sufficient diversification. Although it is difficult to calculate exactly what the unexpected loss amount is, we estimate for over the past 10 years it was approximately 65 basis points; that is, the amount unexplained by the liquidity premium and expected losses.

¹³ A key factor, state level taxation of corporate bonds, does not apply to Canada given corporate and government bonds are taxed at the same rate.

Thus, the combined expected and unexpected loss components of spreads account for 90bps of the total 120bps average, or 75% of the total over the past 10yrs. Using 48 basis points, the lowest level of risk premiums observed on mid-term corporate bonds during the past 10 years and assuming the expected and unexpected loss components make up 75% of the observed spread; the combined cost equals 36 basis points.

We use these expected and unexpected loss amounts to determine the cost of providing preferred status to pension, given both loss amounts will increase as a result of subordinating the claims of unsecured bondholders. Ms. Urquhart's model underestimates the true cost, given it only measures the extent to which the expected losses increase.

Estimating Bill C-501 Impact on Credit Risk Premiums

If we use Diane Urquhart's model, and only change the assumption that 90% of issuers have pension funds (using the findings from Section 1 of this report as a reference point) rather than the 25% used, the spread change as a result of providing preferred status increases from 2 basis points (bps) to 8bps.¹⁴ Thus, under the theoretical model employed by Ms. Urquhart, total credit risk premiums would increase from 25bps to 33 bps, and the default risk associated with preferred creditor status represents 24% of the total credit risk premium (i.e., 8bps / 33bps). However this captures expected losses only.

If the expected loss increases from 25bps to approximately 33bps, or by over 30%, we know that actual spreads will widen by more than this amount, given the unexpected costs will also increase (recall Mr Amato's conclusion that spreads magnify losses). If we assume that the expected and unexpected costs both increase by the same percentage amount, then the combined expected and unexpected losses referenced in the preceding section will increase from 36bps to 48bps (12bps increase) based on the lowest level of credit spreads during the past 10 years, and from 90bps to 119bps (29bps increase) based on average spreads for the past 10 years.

- It is impossible to determine the exact amount by which spreads will widen; however, what is evident is that even based on the lowest level of credit spreads during the past 10 years of 48 basis points, the costs incurred as a result of Bill C-501 is in the billions.

Wider spreads will impact the market in two ways. First, it will cause a decline in the value of outstanding bonds, and is therefore a cost to existing bondholders, and second, it will cause an increase in the cost of future funding, which is a cost to corporations. We

¹⁴ To arrive at 2 bps, Ms. Urquhart's analysis also assumes that only 60% of pension plans are underfunded. Company reporting as at the end of 2009 suggests that 90% of plans currently are underfunded. Recognizing the variability in funded status of plans over time, we have not adjusted for this effect.

quantify the total cost to existing bondholders and future funding costs to corporations, using 12 basis points and 29 basis points, to be \$9 billion and \$22 billion respectively. These costs will be 80% borne by corporations through higher funding costs, and 20% by bondholders (who in many cases are pension funds and individuals saving for retirement) through a decline in the value of existing bonds:

Table 5: Estimated Financial Impact of Bill C-501

<u>1. Decline in value of bonds due to spread widening:</u>	
- 12bps	\$1.8 BLN
- 29bps	\$4.3 BLN
Assuming:	
Current value of corporate bonds in DEX Universe:	\$272 BLN
Average corporate duration:	5.5 yrs
<u>2. Increased future funding costs for corporations:</u>	
Assuming:	
- Future Annual Issuance*	\$75 BLN
- Average Term	~8yrs
Increase in interest costs after 1yr if risk premiums increase by:	
- 12bps	\$91 MM
- 29bps	\$218 MM
Present value of future higher interest costs if risk premiums increase by:	
- 12bps	
- 29bps	\$7.2 BLN
<i>*Equal to the average issuance over the past 5yrs.</i>	\$17.4 BLN