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## Funding advantage and market discipline in the Canadian banking sector

Mehdi Beyhaghi<sup>a</sup>, Chris D'Souza<sup>b</sup>, Gordon S. Roberts<sup>c,\*</sup><sup>a</sup> College of Business, University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249-0631, USA<sup>b</sup> Bank of Canada, 234 Wellington Street, Ottawa, ON K1A 0G9, Canada<sup>c</sup> Schulich School of Business, York University, 4700 Keele Street, Toronto, ON M3J 1P3, Canada

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## ABSTRACT

We employ a comprehensive data set and a variety of methods to provide evidence on the magnitude of large banks' funding advantage in Canada in addition to the extent to which market discipline exists across different securities issued by the Canadian banks. The banking sector in Canada provides a unique setting in which to examine market discipline along with the prospects of proposed reforms because Canada has no history of government bailouts, and an implicit government guarantee has been in effect consistently since the 1920s. We find that large banks have a funding advantage over small banks after controlling for bank-specific and market risk factors. Large banks on average pay 80 basis points and 70 basis points less, respectively, on their deposits and subordinated debt. Working with hand-collected market data on debt issues by large banks, we also find that market discipline exists for subordinated debt and not for senior debt.

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## 1. Introduction

Do banks face market discipline when they raise funds from wholesale deposits and bonds? This is an important question because current reform proposals aim to increase the incentive of bondholders to monitor banks more effectively instead of relying on costly government intervention to limit excessive risk taking by large banks. Market-oriented proposals to this end include mandatory subordinated debt, bail-ins and non-viability contingent capital (NVCC) (Evanoff et al., 2011; Evanoff and Wall, 2002; Basel Committee on Banking Supervision, 2010a, 2010b). Under the latter two proposals the debt-holders of a systemically important bank<sup>1</sup> face an administratively imposed or contractual partial conversion of debt into equity should the bank experience distress. NVCC forces the conversion of a bank's subordinated debt, while a bail-in extends NVCC and further enhances a bank's capital buffer by forcing the conversion of part of the banks' senior unsecured debt as well.

In this paper, we study the extent to which market discipline already exists in the Canadian banking sector. We also investigate if large Canadian banks have a funding advantage over other domestic banks after controlling for relevant risk factors, and finally we discuss whether and how a bail-in process would be practical in Canada.

The banking sector in Canada provides a unique setting in which to examine market discipline along with the prospects of enforcing a bail-in mechanism and NVCC because Canada has no history of government bailouts and an implicit government guarantee has been in effect consistently since the 1920s (Brean et al., 2011). In contrast, in the US Flannery and Sorescu (1996) and Balasubramnian and Cyree (2011) argue that market discipline is observed with error as implicit, too-big-to-fail (TBTf) guarantees have waxed and waned over time. In recent years, the perceived guarantee was undermined by the failure to bail out Lehman and again reinforced by subsequent rescues. This inconsistency in the US government approach to assisting large distressed banks makes Canada a more appropriate environment for study of the too-big-to-fail phenomenon.

In contrast with the US, the Canadian government has treated large banks consistently over an extended period of time. By examining anecdotal evidence, Brean et al. (2011) show that since the

\* Corresponding author. Tel.: +1 416 736 2100.

E-mail address: [groberts@schulich.yorku.ca](mailto:groberts@schulich.yorku.ca) (G.S. Roberts).<sup>1</sup> A systemically important financial institution (SIFI) is a financial institution whose collapse would pose a serious threat to the economy.

1920s, the Canadian system has enjoyed stability grounded on an implicit guarantee for large banks. After the failure of a major bank in 1923, successive governments backed forced mergers as an alternative to failure of a weak bank. This was coupled with a TBTF implicit guarantee for surviving banks. During the Great Depression of the 1930s when deposit insurance did not exist in Canada, no banks failed despite deep market-value insolvencies (Kryzanowski and Roberts, 1993, 1999). As a result of this policy, combined with unrestricted national branching, the Canadian banking sector is dominated by the so-called Big Six banks.<sup>2</sup> At the end of our sample period at the fourth quarter-end of 2010, 28 domestic banks were active in Canada and the Big Six accounted for 93% of total assets. In recent years, banks in Canada have attracted favorable attention since they performed dramatically better than their peers in the United States. Canada did not experience a single bank failure during the financial crisis of 2007–2009.

The present study employs a comprehensive data set and a variety of methods to provide evidence on the magnitude of the large banks' funding advantage in Canada in addition to the extent to which market discipline exists across different securities issued by the Canadian banks. To address the first objective, we measure the effective interest rate paid on different types of debt as well as credit spreads at the time of bond issuance. An effective interest rate for a debt item is calculated as the interest expense on that item, from a bank's income statement, divided by the level of that debt item from a bank's balance sheets in the same period. We control for market and bank-specific risk factors including various measures for equity (leverage), liquidity, and performance. In addition, we introduce controls for additional factors drawn from recent research.

Deposit withdrawals together with required interest rate increases are the two main vehicles available to debt-holders to prevent banks' excessive risk taking. Accordingly, we analyze the marginal impact of risk factors in order to determine whether interest rates act as a monitoring device. If so, changes in firm risk factors should immediately be reflected in a changing interest rate curve. Further, we examine the impact of bank risk on the growth of non-core, wholesale deposits. When market discipline is in force, we expect to see non-core deposit-holders withdraw their funds or (at a minimum) deposit less when the deposit-taking banks take on more risk, controlling for other factors.

In the next stage, we investigate the impact of seniority of a debt instrument on its sensitivity to issuers' risk factors for the "Big Six" systemically important banks.<sup>3</sup> For this purpose, we extract market data on debt (bond) issues. We expect junior debt to be more sensitive to the issuer's risk factors than more senior debt because in case of an asset liquidation, junior debt is paid only after senior debt. Pooling subordinated and senior debt in the same sample when examining sensitivity to bank risk (market discipline) could create a bias toward accepting the null hypothesis. If market discipline truly exists, we expect, first, the credit spread on each debt to be sensitive to the issuer's riskiness; and second, to the seniority of debt to be priced. If the market believes that some banks are so systemically important that the government would do anything to protect them from failure (TBTF), then the cost of raising debt for

these banks must be generally lower and less sensitive to their riskiness.

We investigate the determinants of market credit spreads in various securities issued by the Big Six banks over a period of 21 years from 1990 through 2010 hand-collecting a comprehensive sample of their debt issuances and controlling for a host of variables, some of which are related to the banks' risk characteristics, while others reflect general market and economic conditions. We group issues by banks into senior and junior buckets using a five-stage bucketing algorithm after studying their contractual features including, but not limited to, their collateral types, maturity, stated seniority, coupon type, redemption features, and ratings. Our findings suggest that large banks enjoy a funding advantage over small banks after controlling for bank-specific and market risk factors. Large banks on average pay 80 basis points and 70 basis points less, respectively, on their deposits and subordinated debt. In general, bank debt in Canada is exposed to some degree of market discipline. Tests on levels and changes in the cost of debt, and also on wholesale deposit growth, show that during the sample period, the market reacts weakly to banks' risk taking and, large banks have an advantage in terms of the effective interest they pay on debt and also enjoy more rapid non-core deposit growth.

In addition, the recent financial crisis provides an opportunity to examine if government actions dealing with failed/close-to-failure banks had an impact on banks' cost of debt. As discussed above, unlike the US, the Canadian government never rescued banks during our sample period (1990–2010). Rather, we examine the impact of a posited change in market perception of an implicit government guarantee on the risk-sensitivity of banks' cost of debt. Such a change in perception, we believe, might have occurred during the recent financial crisis, as there was likely less ambiguity in the market perception that the Canadian government would step in, as other members of the G7 did, should an action become necessary to stabilize the market.<sup>4</sup> Our results show that bank-specific risk factors lose their significance in explaining funding costs during the crisis, especially for deposits. This finding is consistent with the argument that market awareness of government guarantees heightened during the crisis. We cannot, however, rule out an alternative explanation that during times of financial crisis returns on different assets tend to become positively correlated, because they all move together. Therefore, there might be less sensitivity to firm-specific risk factors across asset returns.

Working with hand-collected market data on debt issues by large banks, we also find that market discipline exists for subordinated and not for senior debt. This is important in light of the heavy reliance of banks on senior debt as a source of funding in the context of resolution plans that are based on the conversion of debt into equity or debt haircuts. The lack of sensitivity to banks' risk of large banks' senior-unsecured debt suggests that a bail-in might be appropriate in encouraging senior debt-holders to engage in monitoring banks more effectively. If senior debt-holders face credible losses once the bank is judged to be non-viable, there will be increased incentives to monitor bank risk taking ex ante and to charge riskier banks higher interest rates.

Our contributions to the literature are fourfold. First, we consider risk sensitivity (market discipline) for different levels of debt seniority. Second, this study encompasses most of the previous research in this field by drawing on both financial statements and market data to conduct its tests. Third, we shed light on the unique characteristics of Canadian banking, a system that is considered one of the soundest in the world. Fourth, our paper provides important policy implications for the design of bail-ins. The rest of this paper is organized as follows: the next section presents a

<sup>2</sup> These are the Royal Bank of Canada, Canadian Imperial Bank of Commerce, Bank of Nova Scotia, Bank of Montreal, Toronto-Dominion Bank, and National Bank of Canada.

<sup>3</sup> We assume the Big 6 banks are the most systematically important banks in Canada due to their relative sizes. Among the Big 6, National Bank of Canada is the smallest. However, its total assets (equal to 153 billion Canadian dollars at the end of 2010) are more than the sum of assets of all other than big-6 domestic banks cumulatively. After the close of our sample period, Canada's federal banking regulator, the Office of the Superintendent of Financial Institutions, validated our assumption by naming the Big 6 as "domestic systemically important banks" and subject to a 1% surcharge on risk-weighted capital (Robertson, 2013).

<sup>4</sup> As will be discussed later, members of G7 stated they would take all necessary actions to stabilize financial markets after their October 2008 meeting.

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