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COMMENTARY

FINANCIAL SERVICES

Too Big to Fail:

A Misguided Policy in Times of Financial Turmoil

Clyde Goodlet



In this issue...

International authorities are on the verge of a serious error – failing to address the overuse of Too-Big-to-Fail policies as the most important issue facing them.

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THE STUDY IN BRIEF

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The bailouts carried out by governments for large banks and other financial entities in the recent financial turbulence are often characterized as a Too-Big-To-Fail (TBTF) policy. Proponents of such a policy argue that preventing the failure of large banks (and possibly other financial and non-financial entities) is necessary to limit the impact that such a failure might have on other institutions or on the real economy. Opponents argue that while such a policy might seem attractive in the short run, even given the enormous financial cost to government associated with its intervention, the long-run costs are even larger and are almost always ignored, making TBTF a poor policy choice.

This Commentary contributes to the current debate by examining why the authorities almost inevitably follow TBTF policies. It assesses the short- and long-run benefits and costs of using a TBTF policy and suggests reforms to the regulatory and supervisory arrangements governing banks that could significantly reduce the authorities' perceived need for TBTF policies.

The author recommends a four-step strategy to stabilize the financial system:

- First, the authorities should recognize that they have relied excessively on TBTF when dealing with problem banks and other financial and non-financial entities.
- Second, they must recognize they are "hooked on" TBTF as the current policy of choice despite the fact that it produces significant moral hazard, generates more costs than benefits and is likely to result in more frequent and more severe financial problems in the future.
- Third, ways need to be found to reduce the likelihood of TBTF being used, whether by lowering the likelihood of large bank failures or finding alternatives to help resolve financially troubled large banks.
- Finally, one must acknowledge that there are rare circumstances in which TBTF may be the only appropriate policy response.

While Canada did not experience the same difficulties as other countries, it was hit by the fallout and introduced TBTF-type policies, although there were no bailouts of large banks. And while Canada is fortunate to have a better regulatory framework than most, the authorities still need to address a number of the policy actions suggested in the paper.

The paper concludes with a warning that international authorities now are on the verge of making their most serious error-failing to address the overuse of TBTF as the most important issue facing them.

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INDEPENDENT • REASONED • RELEVANT

The financial sector in many countries with large and sophisticated financial systems has undergone considerable turmoil in recent years. Governments in these countries, when faced with the prospects of the failure of large banks, non-bank financial institutions and even non-financial corporations, have resorted to bailouts. The bailouts for large banks and other financial entities took a variety of forms: government recapitalization of insolvent or non-viable entities, guarantees (explicit and implicit) to uninsured creditors, special central bank programs to provide liquidity well beyond the typical lender of last resort role, relaxed regulation and supervision of financial institutions as well as special programs to provide direct credit or to facilitate access to credit by households and businesses as banks reduced their lending.

In Canada, the Bank of Canada expanded its liquidity framework by lengthening terms to maturity of various facilities, expanding the size of its facilities and transactions and expanding the range of counterparties and eligible securities that could be used to acquire liquidity. The federal government announced measures intended to improve access to financing for Canadian households and businesses at a potential cost of up to \$200 billion.¹ These initiatives included measures to purchase insured mortgage pools, to buy securities backed by loans and leases on vehicles and equipment and increased resources for the Export Development Corporation (EDC) and the Business Development Bank of Canada, temporary expansion of EDC's mandate to support financing in the domestic market and "assurance facilities" to provide insurance on the wholesale borrowings of federally and provincially regulated deposit-taking institutions and federally regulated life insurance companies. Finally, the Office of the Superintendent of Financial Institutions relaxed its capital rules to permit a greater use of preferred shares by federally regulated deposit-taking institutions.²

The Bank of England calculated that the potential cost of such extraordinary interventions amounted to 95 percent of 2007 nominal GDP for the United Kingdom, 75 percent for the United States and 30 percent for the continental euro area.³ Actual interventions, which included capital injections to banks, special purpose vehicles to deal with problem

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- 1 Bank of Canada 2009.
- 2 In the US certain investment banks were given unprecedented access to the discount window at the Federal Reserve, money market mutual fund unit holders were provided with 100 percent government guarantees, non-interest-bearing transaction accounts of businesses were provided with unlimited deposit insurance coverage, deposit insurance coverage was increased from \$100K to \$250K, new government facilities were created to guarantee any new debt issued by financial institutions, and the Fed created a new facility to purchase commercial paper directly from the corporate sector (effectively extending lender of last resort access to the corporate sector). In addition, financial assistance was provided to a number of failing financial and non-financial entities. In the UK, unlimited insurance was provided to all retail depositors of Northern Rock Bank, a recapitalization scheme (cost: 50 billion pounds) was introduced for major UK banks and large building societies, a special liquidity scheme to swap purportedly high-quality (but illiquid) assets for treasury bills was introduced (cost: 50 billion pounds), term repo conditions were changed to allow for large transactions involving an expanded list of securities, and a government guarantee was offered for short- and medium-term debt issues of financial institutions (cost: 250 billion pounds).
- 3 Total costs are based on the potential size of the various packages announced by governments including insurance, investments in financial institutions, and central bank and government lending to financial institutions including direct holdings of various assets. Bank of England 2009.

assets, guarantees of first tranches losses and direct holdings of assets through such things as asset purchase facilities, amounted to 15 percent, 20 percent and 5 percent of 2007 GDP for these countries respectively. (Note that these estimates exclude any unlimited guarantees that are not easily quantifiable.)

The fiscal costs of Canada's interventions were not as large as those of other major countries for a variety of reasons. The Canadian financial economy was less exposed at the start of the crisis – private and public-sector balance sheets were in better shape than most countries. In addition, Canadian banks were much better capitalized than other global banks (well above minimum international standards) and, importantly, Canadian banks had significantly less leverage than many of their international peers. (Large Canadian banks were levered about 18 times versus 25 to 35 times in other countries and 40 times for large US investment banks.)

Furthermore, the Canadian mortgage market did not have a large sub-prime component and there was not the proliferation of products and marketing practices that led to serious problems elsewhere. In Canada, high-ratio mortgage lending must be insured against default and the government largely backs that insurance. Prudent lending standards must be met to qualify for government-backed insurance. In addition, only about 25 percent of Canadian mortgages were securitized at the onset of the global financial turmoil in 2008 compared to 60 per cent in the United States, and these mortgages were typically of a higher quality.

There were a number of other reasons for Canada's relative resiliency, including banks with

a culture of conservative behaviour and a single solvency regulator with a clear mandate that recognizes banks can fail.⁴ In many other countries, there were multiple regulators, often with unclear or conflicting mandates.⁵ In addition, Canada's single regulator practised consolidated supervision and, together with the Canada Deposit Insurance Corporation, had powers to move quickly to address issues including, if necessary, a special bankruptcy regime for financial institutions, the absence of which caused considerable difficulties in England. And, of course, there was some good luck.

The variety of actions taken by governments and their agents vis-à-vis financial institutions in the recent financial turbulence is often characterized as a Too-Big-To-Fail (TBTF) policy. Proponents of such a policy argue that preventing the failure of large banks (and possibly other financial and non-financial entities) is necessary to limit the impact that such a failure might have on other institutions or on the real economy. Opponents argue that while such a policy might seem attractive in the short run, even given the enormous financial cost to government associated with its intervention, the long-run costs are even larger and are almost always ignored, making TBTF a poor policy choice.

This *Commentary* contributes to the current debate by examining why the authorities almost inevitably follow TBTF policies. It assesses the short- and long-run benefits and costs of using a TBTF policy and suggests reforms to the regulatory and supervisory arrangements governing banks that could significantly reduce the authorities' perceived need for TBTF policies.⁶

4 See Ratnovski and Huang 2009. The authors identify two main factors underlying Canadian banks' relative resilience during the recent turmoil: a higher share of liabilities in depository funding (as opposed to wholesale, market-based funding), and a number of regulatory and structural factors in the Canadian market that reduced banks' incentives to take excessive risks.

5 See Dickson 2010a.

6 To understand why TBTF is almost always used to resolve failing large banks requires a consideration of what it is that banks do and why their potential failure is usually seen as a more catastrophic event than is the failure of a large non-bank entity. The appendix to this commentary discusses why banks are considered special in the financial system, why the way in which they carry out their intermediation operations leave them potentially vulnerable to runs by their depositors and other creditors, and the private- and public-sector arrangements that have been used to promote the safety of banks. In particular, it explains why the nature of banking in most countries, which involves "borrowing short and lending long" and acting as a delegated monitor for its depositors in the lending of their funds, has led governments to provide a financial safety net for banks.

TBTF Benefits and Costs

Despite financial safety nets and special regulatory frameworks, banks will fail, either due to bad management or bad luck. An institution may become weak because it has made bad loans that threaten its solvency, because it has failed to adopt new technologies that allow it to offer a greater range of financial products and services at a lower cost or because it experiences bad luck from unforeseeable circumstances. The consequences of a bank failure are not all bad. Failure serves a valuable purpose in that it eliminates weaker institutions and allows more successful ones to fill any void left by the failure.

The failure, or impending failure, of a large bank will draw the attention of the authorities in part because of its impact on numerous creditors and debtors. However, the primary reason why the authorities fear large bank failures is the threat to the solvency of other financial institutions, the soundness of the financial system as a whole, the well-being of the economy or, in extreme cases, to the social order. These fears almost inevitably lead the authorities to respond by protecting uninsured creditors of banks from all or most of the losses they otherwise would face.⁷

The Too-Big-To-Fail concept applies to banks whose uninsured creditors are perceived as being very likely to benefit from discretionary government support to which they are not formally entitled (as would be the case for insured depositors, for example) and for which

they do not pay. TBTF is typically seen as an implicit government guarantee that goes beyond explicit deposit insurance programs since governments usually do not state in advance which creditors will benefit from the application of TBTF, nor do they charge for the guarantee.^{8,9}

TBTF, however, is a bit of misnomer. First, TBTF is aimed at benefiting a bank's creditors, not its shareholders (although such actions allow the bank and often its current management to continue operating). Second, it is not always the size of the bank that determines whether its creditors will be the beneficiaries of discretionary government assistance. The authorities often extend TBTF support to the creditors of a bank that offers a unique or important financial function such as providing special services to the securities markets or payment systems, or is a key participant in interbank markets or other markets with a limited number of participants. In these circumstances, some commentators refer to such banks as Too Complex To Fail, Too Big To Liquidate Quickly, Too Important (or Special or Political) To Fail or Too Difficult to Fail and Unwind.¹⁰ But whatever the practice is called, it results in the same outcome—uninsured creditors of the bank benefit from discretionary government support provided at the expense of the taxpayer.¹¹

For the purpose of this *Commentary*, TBTF is discussed as it is applied to large failing banks where the authorities are uncertain and fearful about the consequences for other banks, the financial system as a whole (referred to as systemic concerns in the

7 It is interesting to note that the application of TBTF to a pending large bank failure is quite universal among the authorities whether they operate in democratic societies or dictatorships, or operate in economies with large and sophisticated financial sectors or relatively primitive financial sectors. The authorities apparently value the benefits of TBTF very highly.

8 TBTF policies can also be thought of as including special arrangements for bank borrowers since it unwinds losses arising from a problem bank and reallocates them across society more generally. (Kane 2009a).

9 Not all TBTF actions involve an overt action or direct financial costs. During the financial turmoil in the 1980s, it was believed that banks in Canada and other countries were near insolvency because of their large exposure to developing countries (so called LDC loans). In this case, covert TBTF actions involved forbearance on the part of supervisors regarding the valuation of loans (through delayed recognition of loan losses and provisioning), reduced or suspended enforcement of capital rules, etc. These covert actions benefit creditors of large banks in exactly the same manner as a public statement guaranteeing creditors of a large failing bank.

10 Kane (2009a).

11 One has to be careful when identifying the creditors who benefit from TBTF. In almost all cases, uninsured depositors of large banks will be protected by TBTF. To a lesser extent holders of subordinated debt or other liabilities of the bank may be protected. Rarely will equity holders benefit from TBTF; in fact, the authorities usually make a point of denying existing shareholders of a failing large bank any direct government support (although shareholders may have profited by the perceived existence of TBTF because their institution has avoided market discipline and continued to operate well beyond its useful life).

Appendix) or the economy.¹² Economists have often described these effects as contagion among financial institutions, or negative externalities. More recently, “interconnectedness” has been used to describe these potential spillover effects, and the Bank of England has used the term “network risk,” resulting in some institutions becoming “too important to fail (Bank of England 2009).” These newer terms may give the impression that negative spillover effects are associated only with recent developments in the financial system. Such is not the case. Concerns about the fallout from large bank failures have been present for a long time.¹³

Like any policy regime, the application of TBTF will have benefits and costs. This section of the paper examines these benefits and costs.

Benefits

As discussed below, the use of TBTF is very expensive, both financially and in terms of the perverse incentives it creates that are likely to result in a financial system that is less stable and less efficient over time. Assuming that the authorities act in a rational and consistent fashion, the benefits from TBTF must be perceived as being large enough to outweigh the costs. So what are these benefits?

To answer that question, it is first necessary to identify the authorities’ objectives. The primary ones are the stability and efficiency of the financial

system.¹⁴ A stable financial system is one that not only operates smoothly in tranquil times, but is also one that is robust and resilient in turbulent times. It will be characterized by incentives that result in prudent risk-taking by banks and other regulated institutions, with creditors of banks applying market discipline that is consistent with the achievement of a stable financial system. Such a system has well-designed supervisory arrangements that create incentives for bank supervisors and other authorities to act in the best interests of society as a whole when dealing with failing large banks. Users of the services provided by a stable financial system can be confident of having their expectations met, whether this involves the repayment of funds lent to banks or the availability of funds to borrow from banks at competitive prices. An efficient system is one that is competitive and produces the widest range of financial products and services at the least cost and is capable of innovating new products and services.

In light of these objectives, the most important benefit that the authorities likely perceive from TBTF is that it will promote stability (at least in the short-run), preventing spillovers into the rest of the economy. Instability in the financial system is likely to influence the availability and the allocation of credit since large banks play an important role in the provision of short-run credit to the non-financial sector, especially households and small- and

12 TBTF can be applied to banks of any size and for reasons that have nothing to do with potential contagion. Recall that the Canadian government repaid all uninsured creditors of Northland Bank and Canadian Commercial Bank in the mid-1980s even though each bank accounted for less than 0.25 per cent of total bank assets and did not offer any special or unique services. In the US, between 1979 and 1989 when roughly 1100 commercial banks failed, 99.7 per cent of all deposit liabilities were fully protected through the discretionary actions of the US authorities (Feldman and Stern 2009). Such bailouts, although not driven by systemic or contagion concerns, do serve to reinforce the expectation of TBTF being applied to large banks, since creditors and others will reason that if a government cannot tolerate the failure of an inconsequential bank, it will never allow a large bank to fail.

13 TBTF is a term that has mostly been used in the US, and appears to have its origins there. It became popular in the mid-1980s during the bailout of Continental Illinois Bank and again in the early 1990s when legislation was introduced to try to limit the extent of discretionary government protection offered to the creditors of potentially insolvent large banks (the so-called prompt corrective action regime). The Continental Illinois bailout marked the first time that US banking supervisors publicly stated that a bank was TBTF. Indeed, the bank supervisor at the time was drawn into stating that creditors of the 11 largest banks in the US would receive the same bailout as Continental Illinois’ creditors should those banks become insolvent. However, the idea had been discussed publicly at least a decade earlier by commentators in reference to US government loan guarantees offered to Lockheed Corporation and to the US government bailout of Chrysler. See also Kaufman (2003).

14 In addition to safety and efficiency, policy makers’ objectives might also include: (i) domestic control and ownership of major players in the financial sector; (ii) the establishment of a level playing field among competitors from different jurisdictions (foreign or domestic) or among institutions operating under different legislation; (iii) limiting concentration of economic power; (iv) limiting concentration of financial market power; (v) safeguarding the impartiality of the credit granting process; (vi) protecting domestic institutions from foreign competition; (viii) promoting a favoured sector in the economy, such as small businesses or residential mortgage lending and home ownership; and, (viii) promoting the reach of a given jurisdiction.

medium-sized businesses. Financial problems at large banks could raise the costs of intermediation at all banks, increase the cost and reduce the supply of credit and ultimately affect aggregate demand, which in turn could have significant effects on output and employment.

Banks are also involved in the provision of day-to-day liquidity to other financial-system participants. If this liquidity disappears, markets will not function near their usual capacity or at their normal prices, again resulting in a negative impact. The authorities see bailing out uninsured creditors of large failing banks as a means of stabilizing the financial system, keeping credit flowing and maintaining the level of economic activity.¹⁵

A second TBTF benefit that the authorities may perceive is that bailing out large bank creditors may serve to protect their careers.¹⁶ Instead of evaluating the benefits and costs of using TBTF from society's overall perspective, the authorities calculate from a personal perspective. Having large banks fail on their watch is not something that most authorities welcome. Indeed, TBTF bailouts are usually well received, especially by the creditors but also by the general public, because the authorities always emphasize the avoidance of looming short-run "disasters" and ignore the longer-run costs.¹⁷

Further, the authorities can look like heroes by implementing TBTF policies even if their previous actions or inactions were among the causes of the financial instability. It is an unfortunate fact that in most countries attempts by the authorities to take action to prevent potential problems are usually

met with wide resistance, both by those directly affected by such action and by society in general where it is often seen as unwarranted government intrusion in the market. Better to push the problem off into the future and leave it for others to deal with, or wait until the problem materializes and come to the rescue with a TBTF policy.¹⁸

Worse, when the authorities' deliberately decide to not take any or sufficiently strong action to deal with a failing large bank (a practice referred to as forbearance), it is often seen as banking authorities doing their job well, since a failure has been prevented. But forbearance usually just makes the problem bigger, both in terms of the uncertainty of the consequences a large bank failure and in terms of the costs needed to deal with the problem. As a result, TBTF will almost inevitably be used when banking supervisors forbear. Finally, unlike central bankers and the implementation of monetary policy, there is no tradition of bank supervisors "removing the punch bowl just as the party gets going." That is, bank supervisors typically do not step in and interfere with profitable bank activities that could lead to future problems.

While the failure of a large bank undoubtedly has the potential for considerable negative spillover effects, the authorities rarely quantify these effects. Some observers argue that the TBTF benefits are significantly overstated even with very large bank failures. Nevertheless, the authorities know that they will gain more support for TBTF by suggesting that these contagion costs are very large. There is always considerable uncertainty about the consequences of allowing a large bank to fail, and

15 The bailout of creditors can have two dimensions. First, creditors of large banks can be protected from credit risk, that is, the risk of loss of the principal amounts they have lent to a large bank. Second, they can be protected from liquidity risk, since even if they were to recover most of their lent funds via a bankruptcy proceeding, they probably would not see these funds for a number years.

16 See Kane (2000).

17 A classic demonstration of this strategy occurred in the selling of the Troubled Asset Relief Program (TARP) in the US. To pressure Congress into providing \$700 billion to fund TARP, the President, the Fed Chairman and the Treasury Secretary told Congress and the public that the financial system was about to collapse and that the economy was on the verge of something worse than the Great Depression. They offered little information as to how the \$700 billion would be spent or who would benefit. See Cochrane 2009.

18 Kane (2009a) notes that "blame avoidance is a primary objective of bureaucrats." Furthermore, there may be legislative or political barriers inhibiting the ability of supervisors to take preventive actions.

this uncertainty leads the authorities to see very large benefits in avoiding spillover effects. It is hard to do counterfactuals in these situations, and the authorities have no incentives to do them.^{19,20}

When applying TBTF, the authorities typically point only to the short-run benefits. They rarely, if ever, make statements indicating that the application of TBTF will make the financial system more stable and efficient in the longer run. There are three possibilities to explain this phenomenon. First, in a time of financial turbulence the authorities are usually focused solely on short-run concerns and ignore longer-run implications. Second, the authorities might realize that they are making the financial system less stable and less efficient in the longer run, but feel that they have no choice, or that they can deal with these longer-term problems at some future date.²¹ Finally, it could be that the authorities believe that TBTF will not cause the financial system to become less stable and efficient. Whatever the reason, as will be seen below, the longer-run implications of applying TBTF are very important and, if considered, might serve to reduce its ready acceptance.

Given these powerful incentives, it is thus not surprising that TBTF policies are applied in periods of financial turmoil. Publicly guaranteeing creditors against loss at a single large bank sends a signal to creditors at all large banks that they too will be protected and have far less reason to run from their bank. In addition, it allows governments to avoid the disruptions that would occur if a large bank were liquidated through bankruptcy proceedings. What is usually lost in the application of TBTF is any serious discussion of whether the benefits as perceived by the authorities do in fact outweigh the large financial and other economic costs of employing TBTF. The next section discusses these costs.

Costs

The costs associated with a TBTF policy can be seen as short- and longer-run. The short-run costs are the obvious ones that come with a bailout of uninsured creditors—taxpayers' money is used or committed to protect creditors from the losses they would have incurred had the large bank failed and in some cases to acquire equity positions in impaired banks to allow their continued operation. Even if the government does not provide bailout funds to a bank, the existence of an implicit guarantee or supervisory forbearance means resources are transferred to bank shareholders and creditors at the expense of taxpayers, since the latter are not compensated for the guarantee they provide to the former. In effect, bailouts represent a transfer of wealth from taxpayers to creditors and others.

Longer-run TBTF economic costs are not easy to quantify. They relate to the perverse incentives created by the use of TBTF that jeopardize safety and efficiency in the financial system. Expectations by financial system participants of TBTF policies are costly because they waste resources by supporting the activities of a failing bank and hence lower society's overall well-being. And while the transfer of funds from taxpayers to creditors creates some "winners" (i.e., the creditors), wasted or misallocated resources benefit no one and these losses could substantially exceed the fiscal costs of a bailout.

For example, Feldman and Stern (2009) report that the short-run fiscal cost incurred by the US government in the 1980s bailout of the savings and loans was approximately US\$150 billion. They also note that the US Congressional Budget Office estimated that the lost output from the bailout, largely resulting from poor resource allocation and the realization of moral hazard, was a further

19 There are two reasons for this. In the midst of a crisis, there is no time to figure out what the negative consequences of allowing a large bank to fail might be. After the crisis, the authorities will not relish the notion of supporting research that might conclude that their actions were based on false premises.

20 Kane (2009a) is quite blunt about this. He states that during the recent financial turmoil, US "safety-net officials chose a sequence of chaotic, present-obsessed behaviours and sought to justify the chaos by misframing what was a spreading insolvency crisis as a shortage of liquidity and by whipping up unreasonable fears of an impending financial meltdown." He further notes that the Federal Reserve, while expressing distaste for bailing out giant firms, has yet to produce a public detailed analysis of the costs and benefits of each bailout in which it participated.

21 Consider the proliferation of suggestions for reforming all or parts of the financial system that have flowed out of the recent period of financial turbulence.

US\$500 billion, or more than three times the amount of the short-run cost. These longer-run costs were never raised by the authorities as they dealt with what they perceived to be a major financial crisis.

There are other important, but difficult-to-quantify, longer-run costs. For example, the existence or expectation of a government guarantee, explicit or implicit, significantly reduces and, in some cases, totally short-circuits the application of market discipline to large banks. Creditors who might otherwise not lend to a risky institution or, at the very least, would charge a higher rate of interest, shorten the term of their lending or demand collateral as compensation for the risk to which they are exposed, will see no need to do so if they believe that governments will bail them out. TBTF reduces the incentives for individual banks to make the best decisions they can about risks and rewards and encourages banks to seek high-profit high-risk activities because they do not have to worry about the application of market discipline by creditors.

In the absence of such a guarantee, banks would have to follow strategies that would assure creditors that they would be repaid and that there was no need to “run” on the bank. Such strategies would include elements such as a well-diversified loan portfolio, a sound risk assessment capability that would build reputational capital over time and holding capital and liquidity commensurate with the riskiness of their activities. All of these actions would help make the financial system safer and reduce the likelihood of bank failures. In other words, incentives for the private-sector financial system participants would be aligned with the objectives of public policy, namely the achievement of a stable and efficient financial system.

The absence of market discipline is particularly dangerous when a large bank is in a weakened

financial condition. If the amount of equity remaining in a large bank is relatively small, management and shareholders lose their incentives to limit the bank’s riskiness. Indeed, they may adopt very risky strategies to try to rebuild the bank’s equity because they have little to lose if the bank were to fail—the practice is sometimes referred to as “gambling for resurrection.”

In the absence of a government guarantee, creditors might be counted on to apply discipline to limit such a bank’s riskiness. In such a situation, the bank would have to change its strategy and might even search for a merger partner or wind up its activities in a controlled fashion. However, the expectation of a government guarantee impairs such incentives. Thus, the weakened bank is allowed to continue borrowing funds and grow even though its excessively risky activities are likely to result in insolvency.

TBTF also results in significant misallocations of resources. TBTF results in inefficient credit decisions being made, leading to the financing of projects that are relatively too risky from society’s perspective. TBTF blunts the effect of competition, allowing banks that are cost inefficient to continue operating rather than being driven from the market. In the same vein, TBTF-supported banks have less incentive to innovate, since the absence of competition reduces the need to do so.

As well, TBTF tends to lead banks to adopt similar risk-management strategies (i.e., herd behaviour) because they realize that if they all get in trouble from being exposed to the same source of risk, the probability of the authorities using TBTF is higher than if a single large bank got into difficulties. Furthermore, TBTF can induce an inflationary bias into monetary policy as the authorities strive to prevent large banks from failing by keeping interest rates too low or credit conditions too easy. It can also result in perceptions that monetary policy will

support certain markets to avoid a decline in prices that could lead to an economic downturn.²²

Finally, after TBTF has been used to deal with a financial problem, government may belatedly realize the moral hazard associated with its actions and seek ways to try to limit moral-hazard costs. These attempts are often misguided because they fail to directly address the use of TBTF and often lead to the adoption of policies that create further inefficiencies. Such activities can also waste scarce analytical and supervisory resources in the pursuit of misdirected policy reforms.

The misallocation of resources occurs not just at the bank, but also across the banking system. Since the TBTF policy will be perceived as applying to all large banks, governments often raise the size of their explicit guarantees as well, usually by raising the size of deposits covered by deposit-insurance schemes. This is often seen as a means of helping smaller and medium-size banks. Since depositors insured under the deposit insurance scheme have little incentive to monitor risk at these institutions, those banks to which the TBTF is thought not to apply are able to raise funds at lower rates and in greater quantities than would otherwise be the case.²³

TBTF is Becoming more Pervasive

The expectation that TBTF will be used by the authorities to deal with financially troubled banks has become so pervasive and generally accepted that it is now incorporated into the ratings of banks by credit rating agencies. These agencies attempt to assess the likelihood that issuers of debt will make full and

timely repayment of their obligations.²⁴ A significant number of banks rated by these agencies are judged to have potential solvency problems, yet these banks' deposit ratings are rated above "investment grade." The message to prospective depositors is that a bank which has solvency problems is still an acceptable issuer of deposits because the rating agency believes that there is a high likelihood of government support for creditors should the bank's solvency be threatened.

The credit rating agencies' ratings of banks and other entities have increasingly become relied upon by legislators (e.g., allowing pension funds or insurance companies to buy only investment grade securities), government supervisors of financial institutions (e.g., in establishing the Basel II minimum capital standards), and central banks (e.g., in determining the acceptability and collateral value of securities for lender of last resort loans or repo transactions). The extensive and increasing use by governments and their agents of the ratings provided by credit rating agencies suggests that they attach significant weight to the information provided by such ratings, which implicitly includes the methodologies used by the agencies to derive their ratings.²⁵ The silence from governments and their agencies regarding the incorporation of TBTF into the ratings of banks has probably served to reinforce the expectation of TBTF in the minds of creditors and management of large banks, and possibly even in the minds of the authorities themselves, resulting in an increased likelihood of

22 See Taylor 2007 and Miller, Weller and Zhang 2001.

23 Both Canada and the US have formal deposit insurance schemes that protect depositors for amounts up to \$100K and \$250K per eligible deposit. The US authorities, as part of their response to the recent financial turmoil, raised the coverage of deposit insurance from \$100K to \$250K until December 2013, when coverage is scheduled to revert to \$100K. However, government guarantees once provided are very difficult to rescind.

24 Credit rating agencies typically use an alpha-numeric scale to characterize the likelihood of a debt issuer repaying its debt. Debt that meets a certain minimum likelihood of repayment is classified as "investment grade." Achieving such a designation is a major objective of debt issuers since without it the pool of potential buyers is severely limited. Purchasers of debt also may want higher ratings as this increases the range of assets they can buy as they attempt to increase overall portfolio yields. This factor played a significant role in the recent period of financial turmoil.

25 Note that this is not a universally held view. Many commentators have questioned the usefulness of credit agency ratings, citing flawed methodologies, questionable marketing practices of their services, conflicts of interest within the rating agencies, and the oligopolistic nature of the market, among other things. See World Bank (Katz, Salinas, and Stephanou), Crisis Response, Note 8, Credit Rating Agencies for a discussion of the role of rating agencies in the recent financial turmoil.

TBTF being the tool of choice when dealing with failing large banks.²⁶

As was demonstrated during the recent financial turmoil, the more often TBTF policies are resorted to, the more likely that banks and their creditors, credit-rating agencies and probably even the authorities will believe that they will be used in the future, even though the same authorities may claim that each TBTF usage is the “last time.” Not only does the use of TBTF for large banks increase the likelihood of future large-bank TBTF actions, the TBTF model has spread to other areas in the economy during the past few decades. It has been applied to smaller banks (e.g., Canadian Commercial Bank and Northland Bank in Canada, Northern Rock in England and many small US banks), to insurance companies (e.g., AIG in the United States), non-financial corporations (e.g., Chrysler, twice in the United States, and GM in both the United States and Canada), real estate markets in Japan, investment bankers (mostly in the United States) and hedge funds (e.g., Long-Term Capital Management [LTCM] in the United States). Often these TBTF actions for non-bank entities were aimed at assisting large banks.

It should also be noted that TBTF policies for banks easily spread across borders. The use of TBTF in one country helps to legitimize its use in others, particularly when the country that has resorted to TBTF most often is the United States, which has a very large and sophisticated financial system.

Three relatively recent developments have strengthened the belief that TBTF will be used to

resolve problem banks. The first development relates to the increasing concentration of assets held by banks. In most countries there has been an increase in the concentration of banking assets in fewer, really large banks. Larger banks, all other things equal, will reinforce creditors’ expectations of TBTF being used if a large bank fails. Fewer really large banks are also likely to lead to greater interdependencies in certain markets, which again will reinforce expectations of TBTF policy action.^{27,28} Finally, in many countries creditors are more likely to believe that there are now more banks that may meet the threshold for TBTF, particularly since governments have used TBTF policies to resolve banks in the past that were inconsequential from a size or uniqueness perspective.

The second development is the increased use of technology which has permitted large banks to play a dominant role in payments, securities and foreign exchange transactions. In addition, technology has facilitated the development of new, sophisticated, and complicated activities and risk strategies at large banks, and has generally made large banks more complex.²⁹ Technological developments have increased substantially banks’ involvement in capital markets—using them as a funding source, as suppliers of new financial instruments, as buyers of these instruments, and sometimes as market makers—over the past 15 years. Bank supervisors have had an increasingly difficult time evaluating the potential risks and spillovers associated with banks’ use of new instruments and new risk management strategies. Increasingly complex large

26 One exception is Canada’s Superintendent of Financial Institutions who has expressed strong concern about the behaviour of rating agencies to increasingly rely on the presumption of government support for large banks in arriving at their ratings of large bank debt and further embed these expectations (Dickson 2009).

27 The increase in the concentration of bank assets in part reflects efficiency gains at US banks as they have moved to overcome the dysfunctional segmentation that had historically been imposed on them. Banking in Europe has also become more concentrated as barriers to entry within the E.U. have declined and banks move to a larger and more efficient size. Nevertheless, some of the increased concentration in banking assets reflects the belief in the existence of a TBTF policy as banks take advantage of the unpriced subsidy inherent in TBTF.

28 This issue was raised in the Group of Ten (2001) study of Large Complex Banking Organizations (LCBOs).

29 Herring (2009a) notes that one of the most complex financial firms controls 2,435 subsidiaries, half of which are chartered in other countries, largely to minimize regulatory burdens or taxes.

banks will make the authorities more uncertain about the consequences of letting a large bank fail and will reinforce the authorities' tendency to resort to TBTF.³⁰

The third development is that an increasing use of TBTF to resolve large banks in financial difficulties has likely led to greater expectations of TBTF being applied in the future. All of these factors make it more likely that TBTF will be resorted to deal with financial difficulties at large banks

TBTF for Markets?

More recently, there have been proposals to apply TBTF-type policies to certain financial markets. Bank of Canada Governor Mark Carney has noted that "the crisis was clearly exacerbated by the seizure of interbank and repo markets." In a May 2008 speech, Carney proposed that the Bank become the "market maker of last resort" and "adapt central bank liquidity facilities as necessary" to deal with the issue. He suggested that central banks should be able to directly support "liquidity in a wider range of markets when appropriate (Carney May 2008a)."

However, there are a number of potential problems with this proposal. Perhaps the most fundamental issue is that liquidity was not the critical problem in many markets. While transaction volumes were much less during the recent financial turmoil than in normal circumstances, solvency problems, not liquidity issues, were the primary causes of these sharply reduced levels of activity.

The solvency issues arose from two sources. First, in markets where the instruments depended on models for their valuation, the values of these instruments declined rapidly when participants

realized the values were based on unrealistic assumptions. Second, once the values of these instruments were significantly marked down, concerns developed about the solvency of those entities that were thought to hold sizable amounts of these instruments. In addition, the liquidity of these markets dried up as most participants tried to sell their holdings of questionable assets.

In addition, participants in markets for other instruments became extremely cautious in dealing with counterparties because of concerns about their solvency. These markets were not going to return to normal until market prices of overvalued instruments reached more realistic levels and until counterparty solvency concerns were satisfied. No amount of liquidity from the central bank was going to resolve these problems. As noted by Herring (2009a) and Kane (2009a), central banks have learned that they have a limited ability to substitute central bank liquidity for endogenous liquidity created by the financial system. Just as central bank lender-of-last-resort liquidity operations cannot deal with bank solvency problems, neither can central bank liquidity operations deal with solvency-type issues in financial markets.

Markets react to financial turmoil by adding significant risk premiums to prices. In addition, a liquidity premium in interbank and repo markets often develops as demand for liquidity increases and supply becomes more limited. The uncertainty regarding the financial health of some or all participants often results in a significantly reduced flow of funds between borrowers and lenders.³¹ But markets do not disappear entirely, and they will recover, particularly if central banks are pushing liquidity through commercial banks via lender-of-

30 Kane (2009a) argues that changes in risk-taking technology have outstripped what he calls the social controls on the job performance of private and public officials responsible for managing a country's safety net. Every country's safety net offers non-transparent (and often implicit) subsidies to institutions. The availability of these unmeasured and unacknowledged subsidies undermines financial stability by encouraging financial institutions to take on risk in innovative ways whose safety-net implications are not immediately recognized by those officials responsible for the safety net. Kane proposes that to avoid the use of TBTF in future, incentives must be devised for these officials to recognize and control these implications in a timely manner.

31 It should be noted that financial stability is not the absence of volatility or sharp adjustments in financial prices and quantities as markets adjust to shocks. Volatility or sharp adjustments can be an important part of price discovery or quantity adjustment in a sound financial system (Freedman and Goodlet 2007). These authors also warned about the dangers of central banks becoming too interventionist in pursuit of financial stability, possibly resulting in the creation of conditions supportive of excessively risky behaviour in private markets.

last-resort operations to compensate for the lack of activity in the interbank and repo markets.³²

By becoming a market maker of last resort, central banks could be seen as implementing a TBTF type of policy, validating the unreasonable assumptions many market participants had built into their trading or borrowing operations. These assumptions regarding the ease of liquidating positions or borrowing funds caused considerable difficulties when the value of certain instruments and the solvency of many financial firms began to be questioned. With central bank assurances of liquidity, market participants will devote fewer resources to managing their liquidity needs, and risks will again have been moved to the public sector. In addition, participants in other markets may cite these arrangements in lobbying for public support should their markets become disrupted.

If market participants lose their fear of failure, or market discipline, they will take ever larger risks and require ever larger bailouts. In addition, central bank intervention as a market maker of last resort is likely to slow the adjustment process. What market participants need to take away from recent events is that their assumptions regarding asset values and market liquidity were wrong and that more sophisticated modelling of asset values and liquidity is necessary.³³ However, if central banks now indicate that they will become market makers of last resort, they may slow this process and may even short circuit it as market participants come to

assume that the central bank will bail them out by intervening in tough times.³⁴

Another potential problem is related to the desire for greater disclosure of information of financial market activities, a policy being promoted by the G20. If central banks were to act as market makers it would reduce the incentives for greater disclosure because central banks may be perceived as always being there to bail out troubled institutions and markets should expectations regarding the value and market liquidity of a particular set of instruments not be borne out. Greater disclosure will only come about if private market participants conclude that it is necessary for a market to function more effectively, not because the authorities think it is a good idea.

Finally, being a market maker of last resort could result in the central bank acquiring debt issued by the private sector. For reasons that go beyond the scope of this *Commentary*, this is probably a poor idea, largely because it places the central bank in a position where it is making direct loans to the non-financial sector and also because it would be forced to value such securities by making judgments regarding the business prospects, repayment capacity and the future solvency of the issuer. The central bank has no comparative advantage in becoming a direct supplier of credit to the private sector and arguably is less able to make such judgments than other market participants.³⁵

32 While market volumes and prices were significantly altered during the financial turmoil, this is not the same as saying that markets did not operate, as some authorities said during the recent period of financial turmoil. It was easier to sell TBTF-type policies by stating that markets had "seized up", were "frozen", or were no longer functioning. The market would appear to be operating in circumstances where either a seller or buyer of an asset cannot make credible the value of the asset or his ability to pay, or reduces his level of activity because of uncertainty about how financial turmoil will be resolved or because of concerns about the solvency of potential counterparties.

33 Governor Carney has noted that markets made a mistake in assuming markets would always remain liquid and that this assumption encouraged the rapid growth of the "originate-to-distribute" model.

34 The Bank of Canada has made this point itself, noting that central bank intervention could "discourage financial market participants from managing counterparty risk appropriately with attendant adverse effects on the functioning of the financial system. As well, central bank intervention can create incentives for institutions to generate the conditions that would trigger such intervention so that they can benefit. In sum, whenever a central bank intervenes, there are costs and intervention creates the potential for moral hazard. To the extent that private agents expect a central bank to provide liquidity whenever financial markets encounter difficulties, private agents will take less care in managing their liquidity and counterparty risks, which could make markets work less well in the future." (Engert, Selody, and Wilkins, 2008)

35 See Broadus and Goodfriend (2001).

In addition, the prices to be used by the central bank to transact in non-government securities may be problematic since there may be a strong temptation to use evaluations that will assist private market participants avoid recognizing losses on their balance sheets. During the 2007 non-bank issued asset-backed commercial paper (ABCP) problem in Canada, some holders of this instrument were hoping government agencies would take the paper off their hands at close to what they paid for it as a means of avoiding the immediate recognition of losses.

The Canadian non-bank ABCP difficulties demonstrate how central banks can be tempted to intervene in markets. In August 2007, the Bank of Canada, in response to problems in this market, expanded the range of eligible instruments for its Special Purchase and Resale facility to include those issued by the private sector. (Previously, only risk-free Government of Canada securities had been used in these transactions.) The non-bank ABCP problem was not a serious threat to the financial system, although some individual participants had taken on sizable exposures of this instrument. Nevertheless, the Bank felt compelled to take this action.^{36,37} This action likely reinforced the impression that the Bank would intervene and bail institutions and markets out of their liquidity difficulties should the need arise in the future.³⁸

Still, the central bank should be able to help markets function better in times of stress. Carney has noted that the development of clearing houses for some markets with standardized products would help. If well-designed, then this step would be quite

useful in dealing with potential contagion effects.³⁹ In this type of arrangement, the central bank might serve as a lender of last resort to the clearing house, lending on good collateral in the event that a participant in the arrangement is unable to meet its payment obligations. But this is a far different type of involvement than being a market maker of last resort.

Clearly, the performance of markets will be different in times of financial turmoil than in normal times. Risk and liquidity premiums will increase, counterparty solvency concerns will arise, the volume of funds flowing through markets will likely be reduced and prices will likely be quite volatile. And there is no question that these changes will affect the allocation of resources, the distribution of risk and, potentially, overall economic performance. However, this is not the central issue. What should be of greater concern is whether a TBTF intervention will cause even greater problems in the long run. It is this central question that should serve as the guiding principle to any proposals to change the nature of the involvement of public authorities in the functioning of markets.

To Summarize

While the application of TBTF is intended to create stability in the financial system by protecting the creditors of large banks and, hence, the banks themselves, it in fact creates incentives for too much future risk taking that will destabilize the financial system. Creditors will fail to supply adequate market discipline to banks because they

36 Unfortunately the Bank did not have the legal authority under its Act to acquire such instruments and the facility was terminated in mid-September. The Bank of Canada Act was subsequently amended to permit the Bank of Canada to acquire private-sector securities subject to certain, fairly strict, conditions. There was little or no public discussion of this change, as the changes to the Bank of Canada Act were "buried" in federal government budget legislation.

37 Note that the Bank of Canada was not the only central bank pushing its powers beyond what was appropriate or legal during the financial turmoil. Paul Volcker commented following the Fed-financed merger of Bear Stearns and JPMorgan Chase, "The Federal Reserve has judged it necessary to take actions that extend to the very edge of its lawful and implied powers, transcending in the process certain long-embedded central banking principles and practices." He also noted that the Fed's actions "will surely be interpreted as an implied promise of similar action in times of future turmoil." (Volcker 2008).

38 Again, Freedman and Goodlet (2007) cautioned, "while it may appear appropriate on the surface for central banks to intervene in specific markets or with specific market participants, there are very serious moral hazards in this context".

39 Although such a development could well limit the ability of market participants to net positions in various market instruments, as not all instruments would be eligible for settlement in clearing houses.

believe that governments will protect them from losses in the event that the bank to which they have lent funds becomes financially non-viable. With TBTF, bailouts go to those who engage in what would normally be regarded as reckless and incompetent behaviour. However, in a TBTF world such behaviour is perfectly rational as banks, creditors and others seek to exploit the gains offered by TBTF. The increasing use of bailouts, even though they have large negative consequences, also has the perverse effect of making future bailouts more tolerable and, thus, more likely.⁴⁰

In short, bailouts reward failure and penalize success, dull competition, which reduces efficiency and innovation, are unfair to ailing companies' competitors and their shareholders who are not using taxpayers' money to stay in business and draw government more deeply into the affairs of private business. TBTF sets up an asymmetric game-when things are going well, banks stress the benefits of unconstrained markets free from government regulation, but when things go badly, these same banks will stress the supposedly dire consequences of their failure and seek government bailouts. In other words, profits are privatized and risks are socialized.

If bailouts are not immediately forthcoming during financial turmoil, political pressure usually results in TBTF policies because the authorities have not prepared an alternative, and they greatly fear the uncertain consequences of not bailing out troubled entities. A lack of direct action is likely to leave the authorities open to criticism, even if the appropriate policy is to do nothing.

It has been noted (Aliber 2005; Caprio and Klingebiel 2003; Freedman and Goodlet 2007) that the past few decades have been among the most financially unstable in modern history.⁴¹ Not only has the magnitude of the problems increased, but so has the speed with which they develop. Some of

this is undoubtedly due to advances in technology, new trading strategies and new entrants into the financial system. TBTF has also played a significant role in the increasing frequency and size of periods of financial instability by creating inappropriate incentives for financial system participants to take on too much risk, which in turn leads government to absorb these risks through TBTF.

How pervasive has TBTF become? Professor Charles Goodhart notes:

"The new reality, post the Lehman failure, is that the public sector, the State, has become the ultimate guarantor of both the liquidity and the continued viability (solvency) of all systemic parts of the financial sector." "Under pressure of recent events, this latter paradigm [Bagehot's lender of last resort prescription] has been abandoned in favour of broader insurance of the liquidity and solvency of all 'systemic' financial institutions. Liquidity assistance has been provided to an ever-widening range of financial intermediaries, on ever more dubious collateral, for ever-lengthening durations. Similarly, apart from equity holders, most bank creditors have been guaranteed" (Goodhart (2010).

Addressing the TBTF Problem

The Context and Basic Outline of Policy Reform

Once TBTF has been applied and the short-run crisis dealt with, the authorities belatedly begin to consider the moral hazard implications of their actions. In the aftermath to the recent financial turmoil, there has been an avalanche of reform proposals, including the creation of banks with very limited powers or limits on their size,

⁴⁰ Edwin Truman (2009) notes "the impacts on the behaviour of institutions that are not allowed to fail, or the behaviour of their management, are more important than the issue of the cost of bailouts and who bears those costs".

⁴¹ According to Caprio and Klingebiel, there have been 117 systemic banking crises in 93 countries since the late 1970s.

increasing the intrusiveness of banking supervision, identifying which banks (or markets) are systemically important and the addition of macro-financial stability to the mandate of central banks.⁴² The risk involved in this process is that most of these proposals are likely to lead to a less stable and a less efficient financial system because they ignore a fundamental problem—the impact of the use of TBTF when dealing with banks facing solvency problems.

Instead, we need a four-step strategy to stabilize the financial system:

- First, the authorities should recognize that they have relied excessively on TBTF when dealing with problem banks and other financial and non-financial entities.
- Second, they must recognize they are “hooked on” TBTF as the current policy of choice despite the fact that it produces significant moral hazard, generates more costs than benefits and is likely to result in more frequent and more severe financial problems in the future.
- Third, ways need to be found to reduce the likelihood of TBTF being used, whether by lowering the likelihood of large bank failures or finding alternatives to help resolve financially troubled large banks.
- Finally, one must acknowledge that there are rare circumstances in which TBTF may be the only appropriate policy response.

Canada’s Superintendent of Financial Institutions Julie Dickson has set out a useful context for considering the various reform proposals (Dickson 2009). She notes that Canada, like most other countries, has a constrained market economy. Societies choose this type of arrangement because they recognize that many of the issues related to financial system instability derive from externalities and unaddressed interdependencies among private

sector agents which require some public sector intervention. However, society also does not want a centrally-planned economy because it values the discipline that markets can impose on participants. Banks (and others) will have to succeed on their own merits in a competitive market. She notes that any action taken (or not taken) by the authorities can create incentives for certain types of behaviour. As a result, the authorities should try to create incentives that align private-sector behaviour with society’s objectives and avoid the creation of incentives that are incompatible with these objectives.

Dickson says the highest priority for regulatory reform should be the reassertion of market discipline, by which she means ending the “continuation of deeply embedded expectations of implicit or explicit support of financial institutions by government.”

Dickson has identified the most fundamental issue facing authorities with regard to the financial sector: TBTF creates incentives for private-sector financial market participants to take on too much risk because it blunts the operation of market discipline. The failure to acknowledge this problem and devote serious resources to it will lead to financial systems continuing to be much less stable and efficient than they could be.

Policy changes to reduce the reliance on TBTF

There are three types of policy changes that will reduce reliance on TBTF: (a) policies that reduce the probability of large banks failing (preventive policies); (b) policies that will resolve financially troubled large banks without the use of TBTF (remedial policies); and (c) resisting the temptation to adopt so-called reforms that do not confront the TBTF problem.

⁴² See Le Pan (2009) for a welcome caution to the G-20’s haste to implement policy reforms following the recent period of financial turmoil.

Reducing the Probability of Large Bank Failures

Policies that reduce the probability of large bank failures constitute the preventive, or *ex ante*, component of bank regulation and supervision. Such policies are intended to create or reinforce incentives for all regulated banks to engage in behaviour that will achieve the public-policy goals of a stable and efficient financial system. In other words, they are intended to re-establish market discipline and strengthen supervisory control of large banks.

One interesting proposal involves contingent capital. This approach would force the conversion of lower-quality capital and certain types of debt into higher quality capital when pre-specified triggers are tripped. The notion is that if a large bank impairs its capital in some pre-specified way or fails to increase its capital in response to increased risk, holders of lower-quality capital and some forms of its debt would have their claims converted to higher-quality capital, which would be available to absorb losses in an unconstrained fashion while the bank continues operations.⁴³

This would reinforce market discipline in two ways: first, existing holders of higher-quality capital would likely be averse to having their positions diluted should a trigger be tripped and thus will monitor management's actions to avoid such an outcome. Second, by being able to force conversions to higher-quality capital, holders of lower-quality capital and of straight debt issued by the bank could no longer assume they would benefit from any TBTf action, since they would be converted from creditors to true equity holders. This would also likely increase market discipline by directly addressing the expectation of some creditors that governments would make them whole in the event of a large bank facing financial difficulties.

Closely linked to this proposal is the need to revisit the authorities' "early intervention/early resolution" arrangements. The effectiveness of a contingent capital approach rests on putting a floor beneath the discretionary action a supervisor can take in dealing with a capital-deficient bank, as well as putting in place sound bank supervisory accountability mechanisms. The triggers for action must be clearly defined, largely outside the ability of a bank to manipulate, able to measure the current risk profile of the bank, relatively easy to observe and calculate, and set to trigger supervisory action while a bank still has a significant amount of capital but is below its required minimum.

Establishing such a regime is challenging since the measurement of these triggers raises serious accounting issues. For example, asset and liability values based on historical cost seriously misstates a bank's capital-current cost accounting, even with its issues, would do a much better job. If a bank, holders of its contingent capital instruments and the bank's supervisor know that the supervisor will be compelled to force the conversion of contingent capital when a clearly-defined trigger is tripped, all three parties will have strong incentives to avoid this situation. Contingent capital holders will seek to discipline the bank. The banks will take strong actions first to avoid approaching the trigger level and second to raise new capital quickly to avoid existing shareholder dilution if it does approach the trigger level. Supervisors, wanting to avoid any public conversion of contingent capital, will still have discretion in how to deal with a problematic bank at capital levels above the trigger level and will have the incentives to do so.

The version of this mechanism proposed by the Canadian Superintendent would see the conversion of debt to common equity capital occurring when the current and likely future condition of a bank has led the Superintendent to inform the bank in

⁴³ See Dickson (2010).

writing that the bank has ceased (or will cease) to be viable and the supervisor was ready to take control. This approach leaves too much discretion to the supervisor as to when the trigger for contingent capital would be tripped. There are no clear and pre-specified measures as to when the Superintendent will trip the trigger and force conversion of the contingent capital. This will create uncertainty among existing bank management, shareholders and debt holders and make their actions less certain. Rather, the trigger event needs to be more concrete and pre-specified in law. A second concern with the Superintendent's proposal is that the trigger is likely to be tripped when capital levels are very low, which means that the amount of contingent capital needed to restore the bank to its minimum required level will be much larger than if the trigger is set just below the minimum required level of capital.⁴⁴ Tripping the trigger when capital was just below the required minimum would encourage shareholders to raise additional capital (if they believe their bank has a viable future) in amounts that won't be too large and at a price that won't be too expensive. If they choose not to raise additional capital at this point, the supervisor would have a clear statement from the shareholders as to what they think their bank is worth. In addition, triggering the conversion when capital is well below the required minimum would encourage debt holders who may be facing conversion into equity to take short positions in the bank's equity, driving the price of the equity down in the hopes of gaining more equity when their debt is converted and may also encourage the bank

to take highly risky actions in an attempt to realize short-term profits and rebuild its equity.⁴⁵

A final concern surrounds the resolution of a problematic bank in the event that the recapitalized bank fails. Clear and credible resolution procedures are needed. In Canada, this means that the powers available to the Superintendent and CDIC (e.g., with its bridge bank and financial institution restructuring programme powers) have to be shown as sufficient to deal with a large bank failure. In addition, the government will need to make credible commitments that it will not provide guarantees, assurance programmes or other types of bailouts, such as asset purchase programs.

A second way of reducing the probability of bank failures involves penalties, either financial in the form of a tax or non-financial in the form of activity constraints, when an institution's capital, liquidity or profit margins decrease and its leverage increases. Under this proposal, it may be possible to regulate and supervise a wider array of financial institutions by providing the necessary incentives for banks and their creditors to reduce the riskiness of large bank activities (Goodhart 2009).

A third set of preventive policies would reduce the interconnectedness of large banks. The most obvious source of contagion is the payments system, or other clearing and settlement systems that handle securities transactions or foreign exchange transactions. In this regard, Canada is well situated since the Bank of Canada has identified all payment and other clearing and settlement systems that have the potential to generate systemic risk and has designated them

44 It should be noted that OSFI has procedures and powers to compel recapitalization of a bank whose capital falls below minimum requirements that could be used before any trigger for contingent capital was tripped. Making the trigger event more concrete and setting it to occur at a higher level of capital than proposed by the Superintendent would not deny the Superintendent the ability to exercise these powers. As noted above, it would just force the Superintendent to exercise her discretion when capital was just above or just below required levels.

45 The Superintendent's proposal also contains a second trigger: if a bank has accepted or agreed to accept a capital injection from the government. It is debatable whether this is really a separate trigger, since banks will want to do everything they can to avoid the stigma attached to a public injection of capital (much as banks try very hard to avoid taking extended lender of last resort loans). A bank facing a capital deficiency would turn to private sources to raise additional capital. If it was unable to raise sufficient capital from private sources to meet its capital requirements, this would be a strong indicator of non-viability. Presumably a government injection of capital would only occur after the bank had concluded that it was unable to raise capital from private sources. Thus, the trigger based on government injections of capital may well be redundant since a bank concluding that it cannot raise capital from private sources to meet its capital deficiency would surely be seen by the Superintendent as non-viable. Nevertheless this second trigger would also act as a barrier to governments resorting to TBTF policies by providing banks with publicly funded injections of capital as there would now be direct consequences for the holders of contingent capital instruments.

for oversight by the Bank. Other countries with sophisticated financial systems have taken similar steps.

However, these systems are not the only sources of contagion. For example, there have been suggestions of developing clearing and settlement arrangements for certain market instruments such as repos or derivatives. The use of central counterparties and robust risk-proofing techniques could significantly reduce counterparty risk and again reduce the risk of spillovers. As well, setting limits with regard to the size of exposures that large banks could have to counterparties outside of robust clearinghouse arrangements could also help.⁴⁶

A fourth way of stabilizing banks is to introduce much more realistic stress testing to reveal situations that could cause considerable turbulence in the financial sector. To date, stress testing and models used by large banks have been woefully inadequate because of their failure to consider the reactions of other market participants and their belief that markets would always be able to handle the liquidation of their positions, regardless of size. This is easier said than done because there is not a good understanding of the linkages between the financial and real sectors, behaviours and statistical relationships change in time of turmoil, and it is very difficult to incorporate feedback mechanisms and the actions of the authorities. Any success in this area

will require a good deal of scarce resources to be committed.⁴⁷

Public authorities should also use stress tests to examine the implications of heightened credit risks faced by institutions, excessive leverage in various parts of the financial system and operational risk concentrations where individual institutions may play a key role in important markets. In Canada, as in other countries, some of this is being done by the central bank in publications like the Bank of Canada's Financial System Review (Freedman and Goodlet 2007). However, central bank financial stability publications may find it difficult to draw attention to poorly designed government policies that will create instability in the financial system for fear of damaging relationships with treasuries if they are too forthright in their criticisms. In any event, the analysis will not be taken seriously enough by the private sector to result in behaviour change until the reliance on TBTF policies is changed.

Imbalances will occur in financial markets that lead to turmoil. Often these imbalances are the result of government fiscal and monetary policy choices, exchange-rate policies, or the use of the tax system and excessive government guarantees to promote home ownership or other favoured sectors. Inappropriate regulatory and supervisory regimes are another cause. Governments and their agents need to be much more focused on the impact of their own policies on the stability and efficiency of the financial system.⁴⁸

46 The benefits of introducing clearinghouses can be overstated. Not all Over-The-Counter derivatives can be put into a clearinghouse arrangement because some are too idiosyncratic and difficult to manage by a central counterparty. Second, settling some derivative transactions in a clearinghouse, but not all, can inhibit bilateral netting and actually leave an entity with more risk, not less, on its books. Third, in the case of derivatives, international cooperation, similar to that associated with CLS Bank, will be required to clear and settle these transactions on a global basis.

47 See Alfaro and Drehmann (2009) for a good summary of the shortcomings of macro stress tests.

48 The importance of this last point is difficult to overstate. Calomiris (2009a) states that the origins of the recent financial problems in the US "were not the result of random mass insanity; rather they reflected a policy environment that strongly encouraged financial managers to underestimate risk in the subprime market. Risk taking was driven by government policies". He identifies four government errors in this regard: (i) lax Fed monetary policy, especially from 2002 to 2005 that promoted easy credit and kept interest rates very low for a protracted period; (ii) numerous government policies promoting the subprime mortgage market that included Congressional pressure on Fannie Mae and Freddie Mac to promote "affordable housing", lending subsidies from the Federal Home Loan Bank System to its members and FHA subsidies that promoted high mortgage leverage and risk, government sponsored policies that reduced the costs to mortgage borrowers who failed to meet debt service requirements, and "almost unbelievably" 2006 legislation that encouraged rating agencies to relax their standards for measuring risk in subprime securitizations; (iii) government ownership policies that have made effective corporate governance within large banks virtually impossible; and, (iv) ineffective government prudential regulation of banks that permitted banks to rely extensively on credit agencies' assessments and internal bank models to measure risk coupled with TBTF expectations that makes it difficult to enforce effective discipline on large banks even if supervisors detect that the large banks have suffered large losses or built up imprudently large risks. Canada is vulnerable to all of these concerns. John Taylor (2009) notes "government actions and interventions, not any inherent failure or instability of the private economy, caused, prolonged and dramatically worsened the crisis."

Strengthening financial supervision is another way to prevent a banking crisis. More work needs to be done to identify the behavioural norms and incentive structures that have made supervision weak in the first place and to recommend accountability reforms that would be strong enough to make tougher supervision compatible with a supervisor's self-interest (Kane 2009b and 2009c).

Finally among measures to reduce the probability of bank failures, governments and their agencies need to test all existing policies applied to, and every policy proposed for, the financial sector against the following questions: (i) will a policy, regulation, etc., provide incentives for private-sector financial-system participants to take actions that will maintain or add to the stability and efficiency of the financial system; (ii) will a policy increase or decrease the probability that the authorities will use TBTF to resolve a financial problem involving large banks; and (iii) will a policy strengthen or weaken the perception of private market participants that TBTF will be used by the authorities to resolve a large bank problem.⁴⁹

Almost as important as stress testing and contingency planning is the communication of these activities. If the authorities are going to be credible in convincing large bank creditors that future reliance on TBTF is much less likely, they must make their analysis and objectives much more transparent. They must indicate where new legislative authority is needed or where legislation will be changed to facilitate contingency plans. By setting out the planned responses to dealing with a large bank problem, responses which do not include TBTF, the authorities can gain much needed credibility.

Making the Failure of Large Banks more Acceptable

Proposals under this heading are intended to address the authorities concerns about the feasibility of resolving large failing banks without the use of TBTF. These proposals represent the remedial, or ex post, component of banking regulation and supervision. Resolution of failing banks can take a variety of forms—merger with another institution, voluntary scaling back of activities, including the voluntary winding up of an institution, or the application of a special bankruptcy regime to banks (i.e. involuntary winding up of the bank).

To reduce the authorities reliance on TBTF, supervisors need to have a credible alternative to guarantees and other TBTF instruments. The better the policies to reduce the probability of large bank failures, the less likely that resolution processes will be needed. But in the rare circumstances when a bank does fail, good resolution procedures will be absolutely critical. They need to test these plans through the simulation of a failure, examining the usefulness of various resolution techniques (such as liquidation, sale of the bank, the use of a bridge bank, forced recapitalization as discussed above). These simulations should identify the information needed by the authorities and supervisors must work with each large bank to develop, in readily accessible form, the information so identified. Contingency planning should also identify any problems in existing legislation that would make it difficult to resolve a large bank failure quickly. This will require the extensive use of scarce supervisory resources, but in the long run this activity would be more productive in bringing about a stable and efficient financial system than a lot of the current "policy reform" activities which are consuming huge

49 See Calomiris (2009b) for an interesting and persuasive view of the underlying cause of banking crises—namely "risk-inviting microeconomic rules of the banking game that are established by government have always been the key additional necessary condition to producing a propensity for banking distress, whether in the form of a high propensity for banking panics or a high propensity for waves of bank failures."

50 Credibility is unlikely to be gained by speeches like that given by President Obama (Sept. 14, 2009), who stated that "those on Wall Street cannot resume taking risks without regard for [the] consequences, and expect that next time, American taxpayers will be there to break their fall". The speech failed to provide any credible steps that would alter the perception of the existence of TBTF among financial institutions or their creditors. Similarly, Governor Carney's speech of October 26, 2009, while making a number of excellent points, ended with a plea to market participants. He said, "we do expect those fevered battlefield vows [from those who received extraordinary assistance] to be respected through daily peacetime concern for and contributions to building a better, more resilient financial system". Financial system participants are not going to behave out of the goodness of their hearts. They respond to incentives, and the authorities' job is to find the incentives that promote private (and public) sector behaviours that are consistent with a safe and efficient financial system.

amounts of resources but are likely to achieve little success. One important dimension of resolution mechanisms concerns the complexity and international scope of large financial conglomerates. This is a difficult area for authorities, particularly since bankruptcy legislation is national, but failures of large institutions are international. Harmonization of national bankruptcy regimes is a long way off, but nevertheless, the authorities in each country need to analyze how they can address these difficult issues, imperfect though the actions may be.

Because each large bank problem is likely to be unique, the idea of “living wills” for these institutions may be of some assistance. The information contained in such documents could assist supervisors in their understanding of a given bank’s operations. As part of the living will, an institution would develop a recovery plan outlining how an institution would address capital and liquidity issues so as to remain a viable entity. For example, the institution may propose the sale of non-core assets or ways it could scale back its activities should its capital become, or is likely to become, impaired.

Finally, the authorities’ incentives to use TBTF might also be reduced if creditors’ losses did not generate liquidity issues. Reducing the liquidity risks faced by uninsured depositors would reduce the risks of spillovers arising from a large bank’s problems. Special resolution mechanisms could contain provisions that would allow uninsured creditors to realize some portion of their claims on a failed bank early in the resolution process.⁵¹

Resisting Policy Proposals that will not likely Decrease use of TBTF

Authorities must resist the temptation to “do something” that will, in the end, increase the likelihood that TBTF will be used. For example, more intrusive supervision of large banks, a tax on

banks identified as systemically important and supervisors becoming more involved in bank investment decisions are unlikely to be of much help. The more supervisors and legislators become involved in directing large bank activities, the more responsibility they take on with regard to bank failures. Failures will be even more unacceptable in such a supervisory world, increasing the likelihood of TBTF use.

In this regard, the current approach of Superintendent of Financial Institutions Dickson has much to recommend it. Her office attempts to satisfy itself that each large bank is well run, that it has implemented appropriate risk-management strategies, sound operational risk policies, etc. But banks, themselves, remain responsible for the outcomes of their decisions.

Policies that propose limits on the range of bank activities or their size are also unlikely to be useful in reducing the reliance on TBTF. Proposals that only “narrow” banks, those holding very low-risk assets, would be regulated and have access to the financial safety net are ill-considered for many reasons. In such a regime, most financial activities would be carried out in the unregulated sector during normal times and then flee to the safety of a regulated regime during times of turmoil as depositors and creditors seek the protection of a narrow bank. The profitability of narrow banks is likely to be low, jeopardizing their long-run existence and could raise the overall costs of financial intermediation. To deal with this problem, narrow banks are likely to establish links with the unregulated sector, which would likely result in further contagion across the regulated and unregulated sectors. Finally, depending on the activities permitted to them, narrow banks may find it very difficult to hedge interest rate and other risks that are fundamental to the business of banking.

51 Herring (2009b) has stated “if the inevitable tendency to oversupply bailouts during crises is not to lead to greater systemic risk, the regulatory authorities will need to devise ways of resolving institutions without creating intolerable spillovers. The financial authorities could accomplish more by doing less, if they can credibly restore a role for market discipline in the system by devising a credible resolution plan for every systemically important institution.”

A limit on the size of individual banks is an equally poor suggestion because it ignores the fundamental reason why TBTF policies are used—the systemic risk or contagion that would follow the failure of a single large institution. Splitting large institutions into many smaller, but similar banks would not solve the problem because contagion in the financial sector is positively related to these similarities (Goodhart 2009). Unless one can find a way to make these smaller banks different from each, this proposal does not look very hopeful. Finally, the costs of intermediation services provided by the financial sector would likely rise as smaller banks would be unable to take advantage of the benefits associated with larger size.

Similarly, proposals that suggest collecting reams of additional data from entities that are not currently supervised as a means of identifying risks in the financial system are also problematic (Freedman and Goodlet 2007). There are four major deficiencies in these proposals. First, the data will never be timely enough for the authorities to take any actions when highly concentrated or one-sided positions in markets or assets build up.⁵²

Second, and worse from a TBTF perspective, providing data to the authorities will only pressure them to bail out institutions or markets if problems arise. After all, market participants will say, “The authorities had the information and didn’t act in time, so they should bail us out.”⁵³

Third, forcing the disclosure of additional information will be expensive, both to produce and

to analyze, and will reduce the effectiveness of markets.⁵⁴

Finally, gathering information about non-bank financial entities not currently supervised is likely to lead to their regulation. This will very likely result in the extension of the financial safety net and an increased probability of TBTF being used in broader circumstances. As former vice-chair of the US Federal Reserve Bank Don Kohn, states:

“Gathering additional information about the risk profiles of currently less-regulated institutions is unlikely to yield insights that can be acted upon and may create a false sense of comfort among market participants, which could make the system substantially more risky (Kohn 2007).”

Perhaps the most ill-considered proposal put forward to prevent bank failures is to identify certain institutions as systemically important by levying a tax on them. Such a tax will likely further entrench TBTF expectations among creditors and does nothing to deal with the way creditors currently monitor large banks, the fact that large banks take on risks that are not socially optimal, or the misallocation of resources arising from the subsidy provided to large banks as part of the government’s implicit guarantee.⁵⁵

According to Dickson, identifying financial institutions as systemically important would increase the risk of TBTF use since banks designated as systemically important would receive higher ratings from ratings agencies, have a lower cost of funds (which would confer substantial

52 However, some such data may be helpful, even if they are not very timely, since they could be used to examine strategies followed by participants in certain markets, allowing supervisors to raise any concerns they have in this regard with large banks (Le Pan 2009).

53 It is not even clear what type of action governments could take even if they had all of the requisite information. And in the absence of specific powers that will actually address the problem, the most likely response is some form of TBTF. Recall this is how the Canadian government got into banking supervision in the first place. While the government did not have supervisory responsibilities for banks, the Minister of Finance of the day received information indicating the Home Bank was in serious financial trouble. The Minister took no action and after Home Bank failed, he was criticized for the lack of action. The government then came to the conclusion that to receive information without the powers to do anything about it was not a good place to be and bank regulation was born in Canada.

54 Some have argued that the forced disclosure of information would help markets incorporate new information on a continuous basis and serve to reduce large and sudden reactions to unfavourable information. The problem with this approach is that if market participants find the new information to expensive to analyze on an on-going basis they will not incorporate this information on a continuous basis. And when uncertainty arises, it is likely that such unincorporated information will suddenly become quite valuable and worth analyzing, contributing to large and discontinuous reactions in the market in response to unfavourable events.

55 In addition, the tax on large banks identified as systemically important could result in taxpayers and bank customers paying twice for bank bailouts—first through the initial bailout, and then because the incidence of any such tax would likely fall not on bank shareholders, but on bank customers who do not have alternatives to dealing with banks (small- and medium-sized businesses, residential mortgage and personal loan customers, and small depositors).

competitive benefits to these banks) and would be subject to even less market discipline and very likely take on more risks. Furthermore, such a policy would defeat other important goals such as having competition in the market and having an efficient financial system. Proponents of this policy also want to raise capital charges to systemically-important banks (on what basis is not clear) and this could create all sorts of unintended consequences. Capital requirements that are too large can be very costly from the perspective of creating a safe and efficient financial system.

Expectations likely would be created that systemically-important banks could never fail, even if an effective and efficient resolution for closing such an institution existed. Supervisors in these circumstances might become excessively conservative and inhibit financial system efficiency or resort to using only TBTF to deal with large problem banks.

In addition to all of these points, there is perhaps an even more telling criticism. The definition of a systemically important bank is context-dependent and cannot be arrived at objectively. For example, countries with sophisticated financial sectors like Canada have gone to considerable effort and expense to establish risk-proof clearing and settlement systems that handle large value payments, securities transactions or foreign exchange transactions. These risk-proofed systems have dealt effectively with one major source of contagion should one or more large banks fail. Thus, from this perspective, there is no need to designate any large Canadian bank as TBTF worthy. But in countries where these clearing and settlement systems have not been risk-proofed properly, large banks would have to be designated

as systemically important since the failure of one large bank could clearly lead to the failure of other large banks through contagion in these systems. At the same time, once countries with poorly designed financial systems had designated most of their banks as systemically important, they may lose their incentives to fix their systems and resign themselves to TBTF if any bank approaches failure. The same issue would arise in countries which did not have effective bank resolution or early intervention/early resolution arrangements, appropriate bankruptcy laws, or appropriate accounting or disclosure policies.

The actions taken in other countries in this regard are important, since countries that identify certain banks as being systemically important (TBTF) may be perceived as having explicit government support in the event of financial difficulties. If other countries did not do the same for their large banks, their banks would be at a competitive disadvantage vis-à-vis the banks which had been so designated. This would lead to competitive inequities in that banks designated systemically important may have avoided costs and changes in strategies that banks in other countries may have had to incur and may well gain market share at the expense of banks not so designated by their home jurisdiction.⁵⁶

Finally, such a proposal may create “border” problems between those institutions designated as systemically important and those not so designated. Once a definition for systemically important is established, there will be incentives for institutions to take actions to place themselves on one side of the boundary or the other, according to their perceptions of which side is most advantageous to them.

⁵⁶ Recall this was a strong motivating factor for the Basel Capital Accords, since no one country wanted to disadvantage its banks in the global markets by raising required minimum capital ratios when other countries would not. The Basel Accord provided a means for the largest countries to move together (although still with considerable interpretation latitude), and later to impose the Accord outcome on virtually all other countries.

Conclusion

To reduce the use of TBTF is going to take good analysis, political will and a coordinated strategy. After Washington bailed out Bear Stearns in early 2008, market expectations were strongly reinforced that large investment banks and bank holding companies were entitled to TBTF treatment.⁵⁷ But when, subsequently, the Bush administration declined to help Lehman Brothers, market participants began to wonder whether the government would, or could, bail out large banks and large bank holding companies. As Cochrane (2009) notes, “Suddenly it made perfect sense to run like mad.”

Indeed, once everyone expects a bailout, government has to provide it or else chaos will result. A good argument can be made that neither Bear Stearns nor Lehman Brothers was “systemically important,” but the expectation of a bailout for Lehman after Bear Stearns was bailed out was systemically important. When it did not occur, market participants began seriously to question what future actions US policymakers would take. This uncertainty led to a massive scramble for liquidity and safety. The lesson to be learned is that TBTF expectations must be tackled in calmer times with a consistent and coordinated strategy.⁵⁸

The recent global financial turmoil was not solely the fault of the authorities, although a persuasive case can be made that lax US monetary policy led to the creation of major asset price bubbles as well as policies directed to favouring home ownership and flaws in the design of the regulatory framework. Such regulatory flaws created the wrong incentives and allowed major loopholes to be exploited and an excess of confidence that a securitized market-based financial sector would be more robust in the face of shocks than a more bank-based financial sector.

However, the private sector must also shoulder much of the blame. Investors, including large sophisticated insurance companies and pension funds, failed to understand, or more likely in the case of sophisticated investors, chose not to understand or to ignore, the risks associated with the assets they were purchasing. Nevertheless, private-sector financial system participants should not be expected to have the public interest as the focus of their operations. It is the responsibility of public policy makers to design financial system regulatory and supervisory arrangements that will provide private and public-sector participants with the incentives to take actions that will contribute to the achievement of a stable and efficient financial system. In the recent financial turmoil, public policy makers generally failed in this role.

The authorities essentially made two serious errors during the recent financial turmoil that led to the inappropriate use of TBTF policies. First, they were totally unprepared and had not thought through how they would deal with large financial entities experiencing solvency threatening events. The authorities also demonstrated little appreciation for how existing regimes that govern banks and other financial institutions were likely to lead to financial instability. When the problems arose, they had no coherent strategy to deal with them.

This led to the second error: chaotic, seat-of-the-pants decision-making in the midst of the turmoil, without clear statements as to whose interests were being served and what principles were being followed (Johnson 2009). In light of the first error, it is completely understandable why the authorities in all countries that experienced difficulties committed their second error.

However, the authorities now are on the verge of making their most serious error-failing to address the overuse of TBTF as the most important issue facing them. If this fundamental problem is not

57 Lehman Brothers may have come to the same conclusion as it rejected a takeover offer that would have avoided its bankruptcy.

58 Not all of the outcomes following the Lehman Brothers bankruptcy were bad. The remaining large investment banks either merged or became bank holding companies and thus became subject to greater supervision. However, bringing investment banks in under the bank holding company umbrella meant that the safety net (and TBTF) was extended to entities that formerly had not been seen as benefiting from such policies.

addressed, it is likely that when financial difficulties rise again, they will cost more to resolve and will be more destabilizing than what has occurred recently. It won't be easy developing alternatives, especially since taking away subsidies embedded in the current system requires considerable political will. But to achieve the objectives of a stable and efficient financial system, the reliance on TBTF policies must be virtually eliminated.

While Canada did not experience the same difficulties as other countries, it was hit by the fallout and introduced TBTF-type policies, although there were no bailouts of large banks. And while Canada is fortunate to have a better regulatory framework than most, the authorities still need to address a number of the suggested policy actions discussed above. To some extent, Canada was lucky the last time, and should serious financial difficulties confront Canadian banks, it is likely to resort to the full range of TBTF actions unless it addresses these concerns.

However, there is little evidence that other major countries want to address the TBTF issue, and Canada will find it difficult to tackle the challenge alone. There is an ongoing risk that Canada will be saddled with international initiatives that will make our banking system less stable and less efficient, increasing the likelihood of TBTF being applied in the future.

Appendix

TBTF and Large Banks

To understand why TBTF is almost always used to resolve failing large banks requires a consideration of what it is that banks do and why their failure is usually seen as a more catastrophic event than is the failure of a large non-bank entity.⁵⁹

(i) Why are Banks Special?

Banks and other deposit-taking institutions are thought to exist because they solve a contracting problem between the ultimate borrowers of funds and the ultimate lenders of funds, where the results of the borrowers' use of funds can be observed by the lenders only at considerable cost to themselves. A bank solves this problem by acting as the agent for the lenders (that is, the bank's creditors) to monitor the use of the borrowed funds and the results of the borrowers' projects.⁶⁰ Lenders also benefit because a bank will typically hold a well-diversified portfolio of assets. However, banks carry out their intermediation operations in a way that leaves them potentially vulnerable, in that they typically finance longer-term assets which have uncertain future cash flows with fixed-price demand and shorter-term deposits. Should enough of the bank's creditors become concerned about the bank's ability to repay its claims, they can create "runs" with self-fulfilling expectations on the bank by removing their deposits at little or no notice. This action can make it very difficult for the bank to repay these deposits because it may not be able to rapidly liquidate its illiquid assets without suffering considerable losses. Such a scenario could result in a bank becoming insolvent.

This form of banking occurs across many countries and over time, suggesting that the way in which banks solve the monitoring problem between ultimate lenders and borrowers is particularly valuable (or unique) to society in spite of the vulnerability created by "borrowing short and lending long." The fact that banks typically borrow at terms shorter than at which they lend is also seen by some as a mechanism to discipline more effectively bank management than would be case if the bank were to borrow long-term funds (Calomiris and Kahn 1991). The argument is that with shorter-term deposits maturing all of the time and new shorter-term deposits being raised creditors will continuing assess the bank's ability to repay its liabilities on a regular basis. The quality of an institution's portfolio is the fundamental determinant of the credibility of its promises to repay depositors. In part, this credibility can be fostered by the development of a strong reputation for safe operations-reputation capital. However, the development of such a reputation can take time, and even institutions with good reputations may find themselves in situations where they turn out to have been inadequately diversified, or have been unlucky and suffered losses on some loans. This concern can be dealt with by the institution holding sufficient levels of equity capital to absorb these losses which, along with sufficient liquidity, make its promise to repay depositors and other creditors more credible. This credibility to depositors can also be improved by the activities of certain third parties. Being a member of a deposit insurance arrangement or being subject to government licensing and supervision arrangements are means by which the promise to repay depositors can be made more credible. Bank creditors will be of the view that deposit insurers and government regulators will monitor the financial condition of

59 Having said this, it must be acknowledged that TBTF policies have been extended to non-bank financial institutions (e.g., AIG Insurance in the US) and even to non-financial corporations (e.g., Chrysler and General Motors in Canada and the US).

60 The work of John Chant for the Bank of Canada in 1987 concluded that credit intermediation by banks is best explained by the delegated monitoring class of models, in which banks are an efficient means for providing financing in the face of costly information asymmetries. See also the work of Douglas Diamond July 1984, *Review of Economic Studies*, and Stephen Williamson 1986, *Journal of Monetary Economics*.

banks and would not allow banks to become insolvent, perhaps using TBTF policies to manage a large bank failure. Another third party activity is the lender of last resort operations of central banks. This activity reassures creditors that as long as the bank is judged to be solvent, the central bank will provide the necessary liquidity for the bank to be able to repay its liabilities at all times. These activities by governments and their agents form what is usually called the financial safety net.

While this intermediation activity is the most important role of banks, they also perform two other roles that differentiate them from other types of entities. First, commercial banks are key players in clearing and settlement systems as they offer transaction accounts and engage in lending activities that are used to make payments for almost all transactions involving the exchange of funds for goods, financial assets or services. By facilitating decentralized exchange, the banks' activities in the payments and other clearing and settlement systems are critical to the functioning of a market economy.

Second, banks are heavily involved market activities. Banks use markets to borrow large amounts of short-term funds to finance their lending activities. They also use a technique called securitization to permit them to originate more mortgages and other types of loans than they can carry on their balance sheets, relying instead on their ability to sell securitized loan packages into the market. They use markets to hedge their own and customers' interest rate and foreign exchange risks. Finally, banks are active participants in securities and foreign exchange markets and in some cases have taken on important market-making roles. While this role is not unique to banks, their activities make them very important participants in markets.

(ii) Why are a Safety Net and Special Regulations Applied to Banks?

Given that banks appear to effectively solve certain contracting problems in a valuable way, but are subject to vulnerabilities because of the way they operate, governments have felt the need to create a financial safety net and a special regulatory framework for them. The difficulty with a financial safety net is that it may reduce the incentives for banks to invest in reputational or equity capital. It may also reduce the incentives for creditors to monitor the riskiness of the activities of banks, resulting in less market discipline (this is known as the moral hazard problem). This is particularly problematic when a bank has suffered losses and has low amounts of capital. In this situation, significant incentives may exist for a bank to take greater risks. Traditionally, there have been three reasons provided for the creation of a financial safety net and special regulatory framework for banks: (a) consumer protection; (b) containing moral hazard; and, (c) containing systemic risk.

(a) Consumer Protection

This rationale for regulating banks is based on the view that certain classes of depositors/creditors are not able (or feel that it is not cost-effective) to assess the riskiness of the banks to which they have lent funds, and that these creditors need protection because they have a considerable proportion of their wealth represented by claims on these banks. Moreover, if enough depositors conclude that their bank is in trouble, they can create a run on a bank with self-fulfilling expectations. This rationale may also be based on the view that customers of banks (borrowers or depositors) may not be able to influence the terms and conditions of the service or product provided by these institutions. To deal with the first

concern, the regulatory framework typically provides for: (i) protection schemes for some depositors (e.g., Canada Deposit Insurance Corporation in Canada) to reimburse them for losses arising from the insolvency of a bank and to prevent bank runs; (ii) capital adequacy requirements and other risk containment mechanisms (including supervisory agencies aimed at reducing the probability of bank failures); and, (iii) special regimes to deal with the bankruptcy and liquidation of a bank. To deal with standard of service concerns, the regulatory framework typically contains rules governing business conduct or market practices (e.g., competition rules or disclosure rules).

(b) Moral Hazard

This rationale for regulation is a consequence of attempting to protect depositors from losses. If governments introduce protection schemes to compensate some depositors from losses resulting from the insolvency of a bank, or if uninsured depositors and other creditors believe that the government will compensate them for their losses (i.e., they believe that there is an implicit government guarantee), then these creditors will have little or no incentive to assess the riskiness of their claims on individual banks. Risky banks will be able to attract funds on the same terms and conditions as more prudently operated banks because the creditors of the riskier banks will not charge them more for lending funds to them, or will not reduce the quantity of funds lent to them. Because market discipline is undermined, governments feel compelled to put in place prudential regulations and supervision to limit their financial exposure and to offset the regulatory incentives for banks to undertake excessively risky activities, especially in situations where the bank is in financial difficulty.

(c) Systemic Risks

Another rationale used to support the existence of a special regulatory framework for banks is a concern about systemic risk or externalities. The failure of one institution raises the risk of contagion, that is, the risk that otherwise healthy banks would subsequently fail as a consequence of the first failure, either because of dealings with the failed institution or because of perceived similarities with the failed bank. The participation of banks in the payment or other clearing and settlement systems is often seen as a primary mechanism for spreading the contagion. This systemic risk rationale essentially rests on the notion that banks do not adequately take account of the costs associated with their possible failure and thus accept more risk in their various activities than society would prefer (that is, the costs of their failure are not internalized or restricted to a bank's shareholders and creditors). This rationale may also be supported by the view that the financial sector is more "fragile" or susceptible to contagion problems than is the non-financial sector of the economy and that the costs of failure are more significant for the economy given their role in providing credit to households and businesses. Hence, it is felt necessary to regulate banks.⁶¹ Most regulation and supervision of banks involves *ex ante*, or preventive, activities aimed at reducing the probability of bank failures to very low levels, or involve the use of special resolution mechanisms to deal with failing banks or the application of TBTF policies to banks about to fail. This differs from arrangements applied to non-financial entities, which are largely remedial or *ex post* and primarily involve the distribution of a failed entity's assets to its creditors.

⁶¹ Other social costs associated with a large bank insolvency include large amounts of legal and accounting resources to wind up a bank, potential disruptions in financial markets and poorly designed clearing and settlement systems, the costs of sorting out competing creditor claims, the uncertainty of creditors as to the timing and eventual outcome of bankruptcy proceedings, and the cost to debtors of a failed bank because promised access to loans ceases to exist and the debtors' collateral may be tied up at the failed bank and unavailable to secure borrowings at another bank.

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