

Procyclicality and Provisioning: Conceptual Issues, Approaches, and Empirical Evidence

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Losses in the loan portfolios of banks tend to follow economic cycles, falling during expansions and rising during downturns. Banks recognize these losses through loan-loss provisioning. Since such charges¹ are a deduction from income, procyclicality of provisions may, all else being equal, lead to an increase in the volatility and procyclicality of bank earnings, retained earnings, and, consequently, bank capital. Reductions in bank capital (or its growth rate) during economic downturns pressure banks to raise additional capital when that may be difficult, and may lead them to sell assets or curtail their lending activities in order to meet regulatory requirements.

Provisioning is only one of the factors that jointly determine the behaviour of bank capital.² The contribution of provisioning to the procyclicality of capital depends on the timing of provisions relative to the economic cycle and on the impact of provisioning on capital.

This article examines the conceptual issues underlying the debate on provisioning and procyclicality, describes the approaches currently under discussion at various international forums to address procyclicality arising from the provisioning channel, and presents empirical evidence on the relative impact of provisioning on capital.

CONCEPTUAL ISSUES

The relationship between provisioning and the economic cycle depends on when provisions are made relative to the

occurrence of losses. Of the range of views that exist, the following are the two extremes:

- Provisions should be set aside only on the basis of losses actually incurred. This amounts to recognition of a factual state rather than its anticipation. In this case, the timing of losses and provisions coincides.
- For every loan granted, an expected loss can be defined, based on the quality of the borrower's credit (measured by their credit rating, probability of default, credit score, etc.). Provisions should be set aside at the time of loan origination to cover the expected loss between the origination of the loan and its maturity. In this case, provisioning does not depend on any evidence of deterioration in credit quality and is unrelated to the actual occurrence of losses.

While these views are more extreme than actual practice, the difference between them illustrates the differing views on provisioning in the accounting and regulatory-capital models.

From an accounting viewpoint, provisions represent reductions in the carrying amount of a loan, or a group of loans, based on evidence of impairment. Although there are some differences across jurisdictions, the accounting model that underlies this reasoning is based on the notion of *incurred loss*.³

In contrast, the regulatory model assumes that provisions will be set aside to cover *expected losses* and that capital is then used to cover unexpected losses. Shortfalls in actual

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1 Terminology differs across jurisdictions. In the CICA Handbook, the charge is referred to as a "charge for impairment." Internationally, it is more commonly referred to as a "loan-loss provision."

2 Others include the overall performance of a bank as measured by its net income, its dividend policy, tax code, etc.

3 Canadian accounting rules state that "When a loan or portfolio of loans becomes impaired as a result of deterioration in credit quality, the carrying amount of the loan should be reduced. The reduction in the carrying amount should be recognized as a charge in the statement of income in the period in which impairment is identified" (CICA, Sec. 3025). The difference between the evidence of deterioration in credit quality and incurred losses is subtle.

provisions relative to expected losses directly affect capital. The relationship between expected and incurred losses over the business cycle is complex, but, in general, it can be characterized as follows:⁴

- During economic downturns, both expected and incurred losses will increase, but expected losses are likely to increase very early on, whereas actual losses materialize (and are recognized in the form of provisions) at a later time. During downturns, these different dynamics may result in persistent shortfalls and, thus, in reductions in regulatory capital precisely when it may be needed the most.
- During prolonged economic upturns, both expected and incurred losses will tend to be low. It should not be taken for granted, however, that these periods will generate persistent excess provisions over expected losses and, hence, consequent increases in regulatory capital.

The tension between the accounting model and the regulatory model reflects their different purposes: While the objective of the accounting model is to provide an accurate snapshot of the financial situation of an institution at a given moment, the regulatory model is primarily concerned with the soundness of individual institutions and, ultimately, their solvency.

AN OVERVIEW OF APPROACHES

Given that provisioning is currently subject to the accounting model and that the timing of provisioning based on the concept of incurred loss tends to mimic the timing of economic cycles, the potential for provisioning to reinforce the procyclical elements in the financial system has led to a range of proposals to mitigate this impact. The solutions proposed for dealing with the timing aspects of procyclicality can be grouped into two categories:

- *Solutions within the existing accounting model.* These include using the full fair-value option available within the model or retaining the incurred-cost approach but allowing more scope for expert judgment in its application.
- *Solutions within the regulatory model.* These range from leaving the accounting model intact and working directly on modelling expected losses and their cyclicity, to proposals that the accounting model be abandoned and replaced by some form of “dynamic provisioning.”

⁴ It should be noted that the notion of expected loss within the regulatory model has a range of meanings, from forecasts of losses on non-defaulted assets to estimates of losses on defaulted assets. The discussion in this article does not depend on the precise meaning within that range, nor does it depend on whether one takes a “point-in-time,” or “longer-term-average” view of expected losses, although in the latter case, the dynamics described here would be somewhat muted.

Solutions within the existing accounting model

One option within the existing accounting model is to replace valuation of loans at amortized cost and provisioning-based loss recognition with the full fair-value option in which changes in value would have a direct impact on financial statements. Aside from the problem of applying the fair-value approach to loans, recent debates among regulators on the role of fair-value accounting in the current crisis suggest that this is not the preferred solution.

The other option is to retain the accounting model based on the incurred loss but make it more flexible. The current system in Canada can be used to illustrate the second option. Canadian provisioning rules exhibit greater flexibility in assessing the deterioration of credit quality than the international standards, while still being consistent with those standards. The key reason for this is that the application of provisioning rules in Canada allows for a greater degree of judgment in assessing the deterioration of credit quality.⁵ CICA, Sec. 3025.16 states that “Estimates of the amounts and timing of expected future cash flows from impaired loans reflect management’s best judgment, based on reasonable and supportable assumptions, and take into account the range of possible outcomes.” The built-in flexibility could, in principle, be used to counter the inherently procyclical nature of provisioning or, at the very least, as a means to achieve robust provisioning at all points in the economic cycle.

While additional flexibility is intended to facilitate a more timely and precise assessment of the extent of impairment in the loans portfolio, it could result in earnings management. One way to guard against that risk is to require greater disclosure.

Solutions within the regulatory model

Solutions within the regulatory model have come to be known generally as “dynamic provisioning.” Despite the frequent use of this term, there seems to be some vagueness regarding its meaning. There are two possible interpretations:

- (i) Any scheme that, relative to the current provisioning regime, leads to increased provisioning during economic expansions and thus generates “reserves” that can be used to cover credit losses in downturns.
- (ii) A provisioning scheme that is based on recognition of the expected losses inherent in a loan at its origination.

The key difference between these two interpretations is that the objective of the first is to relate provisions to indicators of the state of the economy, whereas in the second, provisions are set equal to expected losses. Expected losses are, in turn, a function of the probability of default (PD) and

⁵ This thinking is very much in evidence in OSFI’s guidelines on general allowances (C-5).

loss-given-default (LGD). Both PD and LGD may be a function of a broader set of variables, but the issues here are identical to those encountered when considering cyclical risk-weighted assets and are not specific to discussions of dynamic provisioning. Consequently, the following discussion will be based on the first interpretation.

One possible solution is to leave the accounting model intact and work directly on modelling expected losses and their cyclical nature with respect to the state of the economy. The difference between these losses and accounting provisions can then be converted into either additional provisioning requirements, implemented via a “regulatory provisioning fund,” or via additional regulatory capital requirements. The regulator could, for example, ask financial institutions to adjust their estimates of expected losses upwards during economic expansions, on the premise that these losses are typically underestimated during those periods. The increased gap between expected losses and banks’ provisions can be used as a basis for requiring additional regulatory provisioning, or additional capital to be held, thus creating buffers in good times.

Aside from being difficult to implement and monitor, this solution fails the “use test” by introducing divergence between models of banks’ economic capital and the regulatory capital model. This is contrary to the direction of regulatory changes that started with the Basel Committee’s Market Risk Amendment and culminated in Basel II. That is not to say that this path should be left unexamined or that it cannot be modified, but questions involve the whole regulatory framework, rather than modifications within the existing one.

The alternative is to abandon provisioning based on the accounting model and replace it with provisioning based on expected loss. This proposal, however, runs counter to the basic objectives of the accounting model and raises a host of difficult issues regarding the responsibilities of auditors relative to those of banking supervisors.

EMPIRICAL EVIDENCE

Regardless of what system is put in place, changes in provisions will affect banks’ net interest income, their returns on equity, and possibly, their capital. This occurs because provisions are deductions from net interest income. As such, an increase in provisions will, all else being equal, reduce the level of interest income and, thus, a bank’s total income. For a fixed ratio of dividend payouts, this will result in lower retained earnings and a reduction in banks’ regulatory capital (via its impact on Tier 1).

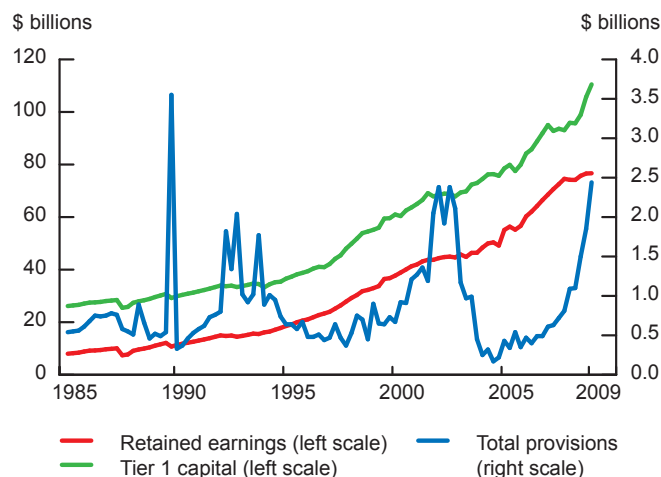
From a regulatory viewpoint, this may not be a desirable outcome. Increased provisioning during economic expansions may increase the reserve fund to absorb expected losses, while, at the same time, eroding the regulatory capital buffers that banks have to absorb the unexpected losses. Under Basel II, an offsetting mechanism is in

place via the stipulation that any excess of provisions over expected losses may be added to Tier 2 capital (subject to an upper limit), while the shortfalls between expected losses and actual provisions are deducted from regulatory capital (50 per cent from Tier 1 and 50 per cent from Tier 2). Although the net effect is difficult to determine precisely, the asymmetric treatment of excesses and shortfalls implies that additional provisioning is likely to affect the composition of regulatory capital, moving it away from high-quality Tier 1 and into Tier 2. Moreover, it is not clear whether the offsetting effects of Basel II would be capital-neutral or would result in a net change (decrease or increase).⁶

The net impact of the offsetting rules is difficult to determine, but one can get an idea of the extent to which provisioning affects capital by examining historical evidence. It should be noted that provisioning will affect capital only to the extent that it affects retained earnings. Chart 1 shows the retained earnings, Tier 1 capital, and total provisions of the major Canadian banks for the period 1985Q1 to 2009Q1.

Chart 1: Trends in provisioning and bank capital

Major Canadian banks



Sources: Bank of Canada and OSFI

Although there is a clear relationship between the stock of retained earnings and Tier 1 capital over this period, the relationship between provisions and retained earnings is less clear. The correlation between changes in retained earnings and provisions is negative,⁷ but the overall impact of provisioning on retained earnings and capital is small.

⁶ These links between regulatory capital and excesses/shortfalls in provisioning point to the need to examine various provisioning and capital requirements jointly rather than in isolation, and to ensure the consistent treatment of expected losses in these proposals.

⁷ The correlation between quarter-to-quarter changes in retained earnings and provisions is -0.37; the correlation between the year-over-year changes in retained earnings and provisions is -0.31.

This is mainly because of the difference in relative magnitudes: on average, provisions represent less than 2 per cent of Tier 1 capital (about 4 per cent of the stock of retained earnings). Thus, even the sharp increase in provisions in 1989Q4 of about 560 per cent relative to 1989Q3, resulted in a decrease in retained earnings of about 10 per cent and in capital of about 5 per cent.⁸

In contrast, the 1.5 per cent decline in Tier 1 capital in 2002Q4 relative to 2002Q3 was accompanied by an 11 per cent decrease in provisions. It is thus important to keep in mind that the focus of provisioning is on credit risk in the banking book and, as such, does not deal with other types of risk, such as market risk. Recent events show that market-related losses can weaken banks' positions and affect not only their market-related activities, but also their ability and willingness to expand their banking book activities, even when there is little evidence of significant deterioration in the performance of banking book assets.

These findings suggest that provisioning might not be a significant contributing factor to the procyclicality of capital and that if provisioning were to be used to counter the procyclicality of capital, significant increases in provisions would be needed. There are, however, limits to what can be achieved, and these are determined by the income generated by a bank. For example, although magnitudes vary over time, provisions represent around 7 per cent of the net income of Canadian banks. Thus, a doubling in provisions would be expected to have a noticeable impact on net income, while not having a visible impact on capital, nor would it address the changes in capital coming from other sources of risk.

CONCLUSIONS

The foregoing discussion implies that, when it comes to the timing of provisioning relative to the economic cycle, either more flexibility within the accounting model or provisioning within the regulatory model might make a difference. In terms of the quantitative impact, our findings suggest that provisioning is likely not a major contributing factor to the procyclicality of capital and that there are limits to what can be accomplished through additional provisioning determined by the net income generated by a bank.

These findings are based on Canadian data and are country specific. A cross-country study to determine whether they hold more broadly would be of great interest. Further study of the issue of flexibility within the accounting standards is also needed. The ongoing work by the Basel Committee's Policy Development Group to review **Basel II capital incentives** to raise provisions over the expansionary part of the credit cycle and to promote enhanced accounting standards is directly relevant to moving the debate forward and reaching an overall assessment.

⁸ This change was due to a simultaneous recognition by Canadian banks of impairment in loans to less-developed countries.