A New Structure for Regulated Bank Lending in a Cyclical Downturn

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Abstract

This paper outlines a new structure for lending by regulated banks, under which the Tier 1 capital required to support a new loan is provided by the borrower’s own equity-holders. In a downturn cyclical environment this would secure a new, motivated and informed class of bank capital provider to counter the pro-cyclicality of bank lending. The new structure would be competitive in terms of cost to borrowers, non-dilutive of existing bank capital and credit risk neutral. It also has the potential to be an effective instrument of market discipline in economic upcycles and regulators might consider adopting it as a pillar in any revised bank capital regime.

1. Introduction

While recent state intervention in the banking sector has been focused on maintaining bank solvency and restarting flows in the deposit and inter-bank funding markets, there is little prospect of material increase in the availability of the new bank capital required to support new lending\(^1\). In fact, stronger regulatory capital requirements are in prospect even as the real economy deteriorates and bank capital comes under further pressure. The current freeze in loan market activity (see Times (2008)) is a realization of the extreme pro-cyclicality that has been feared by some observers to be a consequence of regulatory and investor

\(^1\) In its Global Financial Stability Report of October 2008, the IMF estimates that $675 billion in new capital would be needed by the major global banks over the next several years (see International Monetary Fund (2008)).
requirements for banks to maintain minimum ratios of capital/risk-weighted assets through the economic cycle (see, for example, Danielsson et al (2001)).

In this paper I propose a new loan structure that uniquely addresses the current constraints of bank capital on lending. In fact the proposed structure could be industry defining, transforming banks from being strongly pro-cyclical to neutral or even counter-cyclical, allowing them to maintain, or even increase, their loan books, capital/risk-weighted assets ratios, and returns to equity in downturn economic cycles.

The concept itself is relatively simple; a borrower’s equity-holders would effectively contribute new Tier 1 capital to a bank to enable it to undertake new lending, and the new structure developed in this paper would ensure that this capital is applied exclusively to support new lending to that particular borrower. By enabling the borrower to raise new loans where none may otherwise have been available, and avoiding the destruction of equity value that this might entail, the borrower’s equity-holders would represent a new class of motivated and informed providers of bank capital.

The proposed structure would also satisfy three important requirements for its practical implementation in the loan markets.

1. It would be competitive with the current market standard loan structure in terms of the overall cost to borrower equity,
2. It would be self-funding and not dilutive of pre-existing bank capital, and
3. It would not increase the credit risk of the bank’s portfolio.

Another important way in which the proposed new structure might help unfreeze bank loan markets is that it would free a bank’s business units to raise the capital required to support loans from the same borrower parties (negotiated as part of the same transactions) that they originate the loans for. The current level of uncertainty and inefficiency created by the separation of a bank’s capital raising and loan origination functions, exacerbated by the opacity of a bank’s capital position to the business units that are attempting to originate its loans, and vice versa in relation to the availability of lending opportunities, cannot be overestimated.

This paper also suggests that the proposed new structure may, if made mandatory as part of revised bank capital regulation, act to constrain banks and borrowing firms during cyclical upturns. It could well be argued that current risk-weighted asset-based capital regulation has failed because it is not married with any effective form of market discipline. The borrower-funded preference share that is the foundation of the proposed new structure may be more effective because it mitigates the problems of agency, pro-cyclical equity risk aversion, and moral hazard that impair equity and deposit-holders in this function.

The remainder of this paper is organized as follows. Section 2 sets out a simple model of the current market standard loan structure and its resulting cashflows for a stylized bank lender. Section 3 modifies this model to reflect the proposed new structure, identifying the differences but showing how it would still satisfy requirements 1 and 2 above. Section 4 describes the effect of the new structure on
the credit risk of the loans and the borrower’s funding and balance sheet position. Section 5 explores the possibility that the counter-cyclical nature of the proposed new structure might make it an effective instrument of market discipline in any new capital regulation regime. The paper concludes with a summary in Section 6.

2. Current Market Standard – Lending Supported by Tier 1 Capital Provided by Unrelated Financial Investors

Consider a stylized bank that commences operations at time zero with a required Tier 1 capital/risk-weighted assets ratio of x%, 100% risk-weighted loan assets in amount A, 0% risk-weighted assets in amount x.A, deposit liabilities in amount A and equity in amount x.A. All assets and liabilities are scheduled to amortize in full at time one. Equity-holders are pure financial investors unrelated to the bank’s borrowers, deposit holders or the state.

The loan assets are structured and documented in the market standard way to recover, through the interest rate, the cost of deposits (at rate, d) plus provision for expected credit loss (at rate, EL) plus capital charge (to generate expected return to equity, at rate c). EL and c are, together, called the Loan Margin.

The loans are fully drawn at time zero with one interest period running from time zero to time one, there is no other compensation payable to the bank under the loans, the bank has no operating or transactional costs and it returns all equity (including retained earnings) to investors at time one, there is no tax, the risk-free rate is given by rf, and the actual credit loss on the bank’s loans at time one is given by rate AL. The bank’s cashflows at time one are as follows.

\[
\begin{align*}
\text{Cashflow from loans} &= A(1+d+EL-AL+c) \\
\text{Cashflow from deposits} &= -A(1+d) \\
&\quad -\min(0,(A.x(1+rf)+A(EL-AL+c)))^2 \\
\text{Cashflow from risk-free assets} &= A.x(1+rf) \\
\text{Cashflow from equity} &= -\max(0,(A.x(1+rf)+A(EL-AL+c)))
\end{align*}
\]

It will be observed that the only random variable in this model is the rate of actual credit loss on the loans, AL, and that the risk of this variable is taken first by the equity-holders (it is the objective of regulatory capital requirements that minimal risk remains for the senior debt providers, in this case the depositors.) It will also be observed that equity-holders are compensated for this risk by the rate of capital charge on the loans, c, which is agreed ex-ante as part of the loan margin.

As such, this model captures the essence of the regulated bank as a pure financial intermediary. It also, however, demonstrates the pro-cyclical nature of banks: the difficulty they face in inducing pure financial investors to provide new, arms-length

\[2\] Guaranteed deposit-holders would recover this loss from the state.
Tier 1 capital to support new lending, even where deposits are state guaranteed, in an environment where there is severe opacity in portfolio credit loss rates, high levels of risk aversion, and where the bank is locked-in to historically low loan margins and thus capital charge compensation, c, on its legacy loan portfolio.

3. New Structure – Tier 1 Capital Provided by Borrowers

For the new structure we model the bank with the same assumptions as above, except that it now has pinpoint equity only and the Tier 1 capital required to support its loan assets is in the form of perpetual, non-cumulative, non-voting preference shares issued by the bank and purchased by borrowers under those loans at time zero in amount A.x. The maximum rate of dividend on these instruments is set at the risk free rate, rf.

\[
\begin{align*}
\text{Cashflow from loans} & = A(1+d+EL-AL) \\
\text{Cashflow from deposits} & = -A(1+d) \\
& \quad -\min(0,(A.x(1+rf)+A(EL-AL))) \\
\text{Cashflow from risk-free assets} & = A.x(1+rf) \\
\text{Cashflow from pref. shares} & = -\max(0,(A.x(1+rf)+\min(0,A(EL-AL)))) \\
\text{Cashflow from equity} & = -\max(0,A(EL-AL))
\end{align*}
\]

The new structure differs from the current market standard as follows.

There is now no Tier 1 capital charge, c, built in to the loan margins. This is because the borrower itself bears the risk of adverse values for the variable AL through its ownership of the preference shares. There is thus a direct link between the loans made to a borrower and the preference shares owned by it, in that the below-market return on the latter (recalling the maximum dividend rate is only rf) is offset by the lack of capital charge and thus lower interest rate (compared with a standard loan) on the former.

Where free cashflow generated by the bank (cashflow from assets plus cashflow from liabilities) is positive it is now allocated between the borrowers, as holders of the preference shares, and the pinpoint equity. The preference shareholders have priority over free cashflow but are, as noted, limited to a return of rf. Any remainder goes to pinpoint equity effectively as a windfall because, in this stylized bank at least, those investors made no initial investment. This may seem strange until it is recognized that the pinpoint equity in this case would represent, in an actual bank, the existing equity. So the effect of this structure is that the preference shares would be effectively self-funding and non-dilutive of existing equity, while still being freely available to absorb losses, the defining characteristic of Tier 1 capital.
A designation of the preference shares as non-voting would also avoid conflict of interest between the borrowers as holders of the preference shares and bank equity-holders.

4. New Structure - Credit Risk

The comparison of the current market standard and proposed new structures above assumes that the credit risk of the loans, AL, is the same in each case. That would not be the result, however, if the borrower were permitted to fund the acquisition of the preference shares under the new structure with additional debt, such that the value of the preference shares was integral to the borrower’s ability to meet its debt obligations. In that case the preference shares would not satisfy the requirements for Tier 1 capital because any deterioration in their value, which reflected them fulfilling their function in absorbing bank losses, would directly and additionally increase the bank’s expected loss.

For this reason, preference shares would have to be purchased, effectively, by the borrower’s equity-holders. This might be documented in the loans with a provision to the following effect.

“In order to protect the integrity of the bank’s Tier 1 capital, it has assumed, and will continue to assume, that the disposal value to the borrower of the preference shares is at all times zero, and the bank has undertaken its credit risk assessment and entered into the facility on the basis of this assumption.”

In a corporate setting, a borrower’s equity-holders could contribute the value of the preference shares in a number of ways in addition to explicit new equity raising, such as by deferring dividends, disposing of assets to realize windfall gains, etc. It is even conceivable that some borrowers could sustain an increase in leverage without material deterioration in credit risk, in which case the preference shares could be funded with new debt that could otherwise have been used to fund additional dividends or to return capital to equity. An example of such a borrower might be one with inflating, perpetual cashflows that are able to support an increasing level of core debt over time.

It is simplest, however, to demonstrate the effect of the new structure on borrower credit risk and capital structure with the example of a simple special purpose entity (SPE) that is created to acquire or develop a single cash generative asset, such as in project or acquisition finance.

*Under current market standard*

<table>
<thead>
<tr>
<th>SPE Balance Sheet</th>
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<tbody>
<tr>
<td>Project Asset</td>
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<tr>
<td>Bank Loan</td>
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<tr>
<td>Equity</td>
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While the bank would be forced to assume no value for the preference shares in assessing the borrower’s prospects, the borrower or its other stakeholders would not. The bank preference shares would be liquid assets\(^3\) and there would be no reason for their value to be correlated, simply as a result of this structure, with the value of the borrower’s other assets. As discussed previously, the borrower’s immediate mark-to-market loss in the value of the preference shares, given their purchase at par but below market yield, would be offset by the reduction in the borrowing costs of the loan that did not include a capital charge in the margin.

5. New Structure as a Pillar in a Revised Regulatory Framework

The Basel II Accord is founded on three pillars. Pillar 1 is the minimum capital framework. Pillar 2 mandates explicit regulatory oversight. Pillar 3 requires disclosure of information on the basis that greater transparency will induce a bank’s counterparties to discipline its activities by increasing the cost, and reducing availability of, funding and capital in response to increasing risk\(^4\).

It is reasonable to say that, as of today, market discipline has not been an effective tool for this purpose. However rather than berating investors for their irrationality, it is more useful to look to the real incentives of bank investors and the parties to the banks’ lending activities.

The lack of market discipline imposed by bank depositors and senior debt-holders due to the presence of express or implied state guarantee has been well addressed under the subject of moral hazard, and needs little further explanation here (see, for example, McCoy (2006)). Notwithstanding the transparency requirements of Pillar 3, banks’ specific risks will always be relatively opaque to their equity-holders because of their nature as large, leveraged financial intermediaries and as providers of private-side capital (Bonsall (2004)). Furthermore, in an upcycle environment equity-holders are less motivated to control bank risk because they themselves become less risk averse and are the upside beneficiaries of banks’ very high leverage. Finally, there is a severe agency problem in that the parties to a bank’s

\(^3\) A bank might wish to limit the rights of the borrower to trade the preference shares until after, and retain a call option for itself at, the date of the loan maturity, in order to avoid creating a new class of traded bank capital and enable it to maintain constant capital ratios as loans amortize.

\(^4\) “The Committee believes that market discipline, supported by an appropriate public disclosure regime, can be an effective complement to supervisory efforts to encourage banks to assess risk, maintain capital and develop and maintain sound risk management systems and practices. The disclosures under this pillar serve as an important tool to bolster the minimum capital requirements under Pillar 1 and the enhanced supervisory review process in Pillar 2. The Pillar 3 forms an integral part of the New Basel Capital Accord and enhances the operation of its other components.” Basel (2001) p.3
lending activities are its agents, employees and management, on one side, and private borrowers on the other. There is significant scope for a bank’s agents to be perversely incentivized to understate and underprice the risk accepted in lending activity. For their part, borrowers have no immediate interest in bank solvency and are incentivized only to pass to banks the greatest possible risk at the lowest possible cost to themselves.

If regulators were to require that loans made by a bank were capitalized with preference shares held by their borrowers, as under the new structure proposed in this paper, then this dynamic could alter profoundly. The preference shares would create a class of capital that bears pure downside risk on the bank. Furthermore the investors in that capital would have direct influence on the bank’s lending activities, mitigating the agency problem, because they are also the private-side borrowers that negotiate and agree the terms of their loans with the bank.

There might be a free-rider problem, in that an individual borrower might negotiate aggressive loan terms for itself while its investment in preference shares benefited from the overall high quality of the rest of the bank’s loan portfolio. This would, however, be self-limiting as the proportion of low-quality loans increased in the portfolio and the bank found it harder to secure new lending business in competition with other banks. This negative feedback mechanism, that would use the self-interest of borrowers themselves to constrain banks (and their agents) from pursuing loan market share by increasingly aggressive lending terms, is a unique and important feature of the new structure proposed in this paper.

6. Conclusion

The massive destruction of bank capital now being realized in the global economy makes it understandable that arm’s-length investors and states are increasingly unwilling or unable to provide additional capital to support new bank lending. The new structure proposed in this paper offers the potential for banks to access a pool of new investors that are highly motivated to invest in new bank capital out of the self-interest of securing new loans directed to their own firms. Importantly, however, it would do so without degrading the integrity of the bank’s Tier 1 capital base, without raising its credit risk profile, and without diluting the bank’s existing equity. Finally, the new structure offers the potential, if adopted as a mandatory regulatory requirement, to introduce into the banking system an effective negative feedback mechanism to mitigate the pro-cyclical nature of bank lending in upturn economic cycles.
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