PRO-CYCLICAL CAPITAL REGULATION AND LENDING

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Overview

- The paper looks at how the regulation (Basel II) affects bank lending, with a focus on capital charging.
- The incident of Lehman Brother provides an exogenous shock to look at the pro-cyclical effect resulting from the regulation in Germany.
- Compares Internal Ratings-Based Adoption with Standard Approach.

Overview

- Important Research Question.
- It employs a carefully designed identification strategy, which leads to strong conclusion of causality.
- Tightening capital requirements do affect bank lending, especially around exogenous real shock.
- Institutions adopting Internal-Ratings Based approach disbursed less loans that institutions following standard capital regulations. This is also true within types of loan adopting respective rules within a given bank.

Why this study is significant?

- It is a widespread concern that the new risk-sensitive bank capital regulation (Basel II) might amplify business cycle fluctuations, forcing banks to restrict their lending when the economy goes into recession.

- Most existing studies assess the likely cyclical patterns of capital charges under Basel II by building theoretical models or by performing numerical simulations on hypothetical or real world portfolios. (e.g. Kashyap and Stein, 2004)

- Not enough evidence for the existence of significant pro-cyclical effects since in reality banks anticipate the cyclical position of the economy and may hold capital in excess of the regulatory requirements.

- This paper makes an important contribution by showing the existence of the pro-cyclical effect with a well designed and brilliant identification strategy.

Motivation – Where to Start?

- It starts with aligning capital charges with asset risk taking inspiration from Peltzman (1970), two Diamond-Rajan papers and a paper by Morrison and White on Bank Capital, Liquidity-Fragility, and Crisis-Capital requirement.

- Modigliani-Miller view assumes banks can easily issue equity and in whenever required banks can issue equity and reduce debt and the net result may only marginally increase the bank's cost of fund. In other words, better capitalized bank can easily issue less risky and cheaper equity. Under M&M view, excess capital charge have a negligible effect on bank lending. (Hanson, Kashyap, and Stien 2009; Admati, DeMarzo, Hellwig, Pfleiderer 2010).

- The alternative view (non-M&M) says that an increase in capital requirement would decrease bank lending (Kashyap and Stein, 2004).

- This paper is the empirical setting of such hypotheses.

Broader Literature

- Poorly capitalized banks that face materializing credit risk in a bust have two options in order to avert falling below the minimum capital requirement.

- They can either raise capital, or they can increase their capital buffers through a reduction of the risk-weighted assets.

- Both options have drawbacks. Consequently, a decrease in risk-weighted assets can be attained through a decrease in lending. If this reduction in lending is stronger than the decrease in loan demand then the recession is further amplified.

Broader Literature (cont.)

- The empirical literature has taken two different approaches in testing such hypothesis. The first approach analyzes the effect of banks' capitalization on the transmission of business cycle fluctuations on lending. Studies following this approach indeed find evidence that supports the concern that low-capitalized banks are forced to cut their loan supply during a recession (Peek and Rosengren, 1995; Gambacorta and Mistrulli, 2004).

- The second approach analyzes the effect of business cycle fluctuations on banks' capital buffers. These studies find that the capital buffers of Western European banks fluctuate counter-cyclically over the business cycle (Ayuso et al., 2004; Lindquist, 2004; Jokipii and Milne, 2008).

Broader Literature (cont.)

- The authors of these papers argue that given a countercyclical materialization of credit risk, a countercyclical fluctuation of capital buffers may be evidence for banks' shortsightedness (Borio et al., 2001): banks expand their loan portfolio in a boom without building up their capital buffers accordingly. Hence, when the recession sets in, banks' capital buffers cannot absorb the materializing credit risks and the banks are forced to increase their capital buffers through a reduction in lending.

- "Banks' regulatory capital buffer and the business cycle: Evidence for Germany," Stolz and Wedow (2011)

  > The evidence supports that low-capitalized banks do not catch up with their well-capitalized peers and they do not decrease risk-weighted assets during a recession and their low capitalization does not force them to retreat from lending.

Comment 1

- The paper draws the conclusion that the regulation would lead to pro-cyclical impact on bank lending.

- However, reduction in the lending is a two-edged weapon.
  - On one hand, it would restrain the lending, and thus the firm level investment. On the other hand, the reduction is caused by more regulated evaluation of the credit risk, which should be helpful in preventing the crisis from going wide.

- The proper goal of regulation is to balance two competing objectives (Kashyap and Stein, 2004)
  - protecting the system against costs of bank defaults, vs.

  encouraging the creation of positive-NPV loans.

Comment 1 (Cont.)

- It is not obvious that cuts in bank lending during a recession are undesirable.
  - Fewer positive-NPV lending opportunities in bad times. Could be efficient to scale back.
  - Repullo and Suarez (2008) suggests that the business cycle side effects of Basel II may have a payoff in terms of the long-term solvency of the banking system.

- But if a capital-regulation regime leads to a drastic shrink in loan supply during recession, it could be sub-optimal from the perspective of the tradeoff that we have described above**. Welfare benefits of having a safer banking system may outweigh the costs of lower or depressed lending !**

- If the paper can provide brief discussion on this matter, it would make the results more convincing and meaningful.

Comment 2

- The paper uses Lehman Brother as an exogenous event that has a general impact on the credit risk of the German firms.

- Authors could further strengthen the paper by providing a discussion on how the shock affects the credit risk of the German firms at varied degree. This would help to understand how the event change the “probability of default” and capital demand of different firms.

- It is plausible that the key commercial banks in the sample (that dominates the IRB oriented group) are cross-listed banks and have syndicate partnership with troubled banks abroad.

Comment 2 (cont.)

- The paper shows that IRBA banks have lower equity ratios than SA banks.
- It would be interesting to compare capital charges of IRBA banks before and after the adoption of Basel II. Did they have lower capital charges all along or did Basel II allow them to reduce it?
- Most IRBA banks are still in transition and they have incentives to apply Basel II to less risky loans. If they have convert loans with risk weight of 20% or 50% but left 150% loans as SA loans with a risk-weight 100%, their capital charges would be underestimated temporarily but will be corrected once they complete the transition.
- Insufficient capital charge could have contributed to reduced loan supply from these banks (test 1). The reduction of IRBA loan within IRBA banks (test 2) could also be explained if risk-weights of SA loans are highly underestimated.

Comment 3

- [Section 5.3] [Table 8] The author use the pre-shock ROA as the proxy for firm's likelihood to experience an increase in its probability of default.

- It would be more helpful to provide stronger argument that the proxy captures firm's idiosyncratic exposure to the shock.

- Otherwise, it is not convincing given the fact that pre-shock information should already be incorporated in the loan contract, if it affects firm's future probability of default.

Comment 4

- [Table 9 Col 3-4] With firm's capital demand controlled, the table shows that for firms that borrow from both SA and IRBA institutions, the IRBA loan experiences a reduction.

- It is also possible, that for these firms, the capital demand increases, and the additional capital demand is fulfilled through SA institutions.

- As argued by the paper, that banks would have incentives to keep riskier loans in the SA portfolio. Thus, this evidence does not necessary imply that once IRBA is enforced, banks will reduce the entire capital supply, or the reduction in the economic magnitude would be as high as that found in the paper.

Comment 5

- Loan amount has decreased but may be loan maturity has increased. We are assuming that maturity is the same and the interest expense of associated borrowing firms are higher. It is hard to make that judgment without knowing the terms of the loan. Illiquidity in the market simply created the deals a bit differently! Is it plausible to know the maturity of loans before and after shocks?

Comment 6

- Can we get the firm's credit ratings in the picture! How correlated are ratings to PD used in the paper?

- Descripted statistics tells us that the SD is very high for change in log lending (at the loan level, Mean=-0.038 and Standard Deviation =0.456). At the firm level change in log firm lending Mean=-0.116 and Standard Deviation =0.403. Total loan, mean=33.9 million and standard deviation =177.4 million.

- It means significant portion of the sample experienced positive increase in lending. Can we make groups that increased lending and group that decreased lending and analyze the insights of these differences rather than concluding from the mean value?

Comment 7

- Can we calculate a different statistics with economic interpretation? For example, what percentage point increase in capital charge leads to what percentage decrease in bank lending?

- Can we use disaggregate data of loans as dependent variable – commercial loan and other loans? What types of loan is going down and for whom? Currently it reports, banks with higher loan exposure (diversity) has lower decline in change in log loans.

- D(IRB Bank) = 49.5% of the bank sample
- D(IRB Loan) = 33.6% of the loan sample
- 2/3rd of the loans are SA loans. Can we report, pre- and post overall lending by all banks.

Comment 8

- Data is organized into single pre- and post-event time periods by taking time averages of loans. Can we keep the post-event results considered year-by-year rather than taking time averages of loans? It would be interesting to see whether the negative impact on lending has different impact on the immediate period and later. i.e., is there a fade out tendency?

Comment 9

- Report a Correlation Coefficient table.
- It would be good to see how PD is associated with change in loans. How Bank Size and share IRBA are correlated. How Exposure is related to Size and IRBA. These variables seem to be highly correlated.
- Is it possible to try to estimate regressions with PD or change PD or some risk measure (z score or exposure to investments rather than equity ratio).
- Report Regressions for Multi-Bank Firms Only.

Comment 10

- Considering that the paper uses a couple of sub-samples for identification purpose, it would be helpful to provide some comparison between sub-samples. It is unlikely that the difference among sub-samples will take away the story. But the comparison would provide more insights for the readers.
- I am interested to know the results for sub-sample that are traded in the market.

Comment 11

- What is the role of market or product competition here? A recent paper by Bremus, Buch, Russ and Schnitzer (2013) shows that idiosyncratic shocks to bank lending can generate aggregate fluctuations in the credit supply when the banking sector is highly concentrated. All estimations in the paper do not consider this issue.

Comment 12

- A brief discussion about the implication of the results on other countries within the Basel Accord would make the conclusion more generalizable.
  - Jokipii and Milne (2008) find that cyclical effect differs across countries. Capital buffers of RAM (10 countries that joined the EU in May 2004) banks move together with the business cycle while those of banks in the Denmark, Sweden and the United Kingdom (DK–SE–UK) and EU sub-samples exhibit negative co-movement (Jokipii and Milne, 2008). Will the results from German banks be generalizable?

- Missing summary statistics for Share(IRBA-IRBA loans), Firm PD, etc (empty cells in Table 1). Typo?

Conclusion

- Strong Contribution to the Banking Literature.
- Helps to understand how much capital to charge based on asset-specific risk.
- Shows the real effect of capital decisions.
- Highlights the role of Internal Rating System, increasingly popular among regulators.
- Provides better understanding on Optimal Capital Structure