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Comments on Do Loan Officers' Incentives Lead to Lax Lending Standards?

(Paper presented by Summit Agarwal and Itzhak Ben-David; Comments by Eu Chye Tan)

The after-effects of the global financial crisis and the on-going challenges faced by the Eurozone have forced corporations to focus on the stability of the core banks. Banks thus have to be more transparent about their risk profiles. It is not only their loan officers that have to act responsibly but it is the banks' business philosophy and their risk appetite that dictates the stability of the banking system.

This study by Agarwal and David attempts to better appreciate the role played by loan officers' incentives package in the origins of the 2008 financial crisis in the US. It is based upon a controlled field experiment conducted by the New England branch of a large US commercial bank in 2005, generally on the eve of the US financial crisis. The experiment involved subjecting about a half of small business loans officers to a volume-based pay system while retaining the others on a fixed-salary scheme. The outcome of the experiment suggests that loan officers that were subjected to the volume-based incentive system tended to display a more aggressive lending behavior due plausibly to moral hazard. It is commendably a very extensive analysis, with sufficient scope to address numerous micro questions.

However, a number of points that need addressing or clarification are in order. They include:

- a) It is pointed out that the risk assessment of the treated loan officers was not informative about the likelihood of default. Given that the random sampling procedure was not followed in the study, could it be that these officers happen to be incompetent in evaluating the riskiness of their borrowers? The assignment to the treated group was based merely on the ease of implementing the program.
- b) It is argued on p.12 that the loan officers could have interpreted the new compensation system as an implicit instruction to raise the volume and size of originated loans and therefore that explains the approval of lower-quality loans though it cannot explain most of the evidence indicating moral hazard behavior. But isn't it right to say that evidence of moral hazard behavior cannot be isolated from evidence of lower quality loans issued by the officers?
- c) How was statistical "indistinguishability" established when verifying the validity of the diff-in-diff assumption? It is mentioned that to be satisfied that there was comparability between the treated and the control groups of loans officers, the analysis kicked off by establishing that the pool of applications for the treated and control groups are statistically indistinguishable in terms of their loan characteristics e.g. loan size, personal collateral, business collateral, requested loan-to-value (LTV), business credit score and personal credit score. But what about the personal calibers of the

loan officers? And what was the statistical technique employed to establish “indistinguishability”? A formal statistical test such as the analysis of variance (ANOVA) could be useful. This may involve running regressions that pool both treated and control groups and comparing them with regressions involving just the control (or treated) groups.

- d) The use of regression residuals as a proxy for independent judgment of loan officers may be inappropriate as the estimated parameters in the related regressions could have suffered from the omission of relevant variables bias. The same may be said about the use of residuals from the leverage and loan size regressions (to capture their higher than usual magnitudes) as explanatory variables for the high default rate.
- e) On p.23 and on p.31, it is highlighted that the increase in the default rate was not priced in the originated loans. Could this be due to the fear that that could result in adverse selection? According to Stiglitz and Weiss, too high an interest rate would only attract high risk borrowers.
- f) It is stated on p.3 (mid) that “On one hand, the average loan quality, as measured based on either soft or hard information, is *higher* in the treated group.” Could it be *lower*?
- g) The study finally conducted an analysis of the net present value (NPV) of originated loans. The analysis is based upon the distribution of ex ante default likelihoods that indicates that under the incentive-based compensation, there are many more loans that have an ex ante high default probability. It is shown that under reasonable recovery assumptions, those loans with high default probability have negative NPV. This begs the question of over what horizon has the NPV analysis been conducted.
- h) In assessing whether the average loan has a negative NPV, it was assumed that the recovery rate of defaulted small business loans was in the range of 30% to 50% and that the 2004-5 default rates were the modal default rates. What is the basis of this assumption? It is mentioned on that loans with high default probability have negative NPV. But I am not too sure whether the NPV calculations for average and marginal loans as described on p.28 and p.29 are indeed NPV calculations.
- i) The authors maintain in the concluding part of the paper that the results offer a unique contribution to understanding of the role that incentives played in creating the real estate bubble in the early 2000s. But the study is based upon small and medium business loans which may have a different operational framework from mortgage loans.

Though there is a growing literature that finds evidence linking real estate bubbles to intermediaries’ misaligned incentives, real estate bubbles need not always be due to the conduct of loan officers. They may develop due to changes in the broad lending policy of the banks. Examples may include increasing loan tenures to meet the limits of the overall debt servicing commitment of an individual and extension of loan tenures over two generations of a family.
- j) They also maintain that loan officers with variable compensation would encourage borrowers to put up more collateral. How does this reconcile with the general argument that being able to put up more collateral would signal that the borrowers would be of the low-risk type.
- k) The whole paper merely rests on one econometric technique, i.e. the Ordinary Least Squares (OLS). Logit/probit analyses could have been used in many instances in the study. The OLS is inappropriate for regressions on loans accepted, applications withdrawn and defaulted rates within 12 months as they are characterized as binary variables. Furthermore, no proper diagnostic tests such as the test for heteroskedasticity have been conducted before making inferences from

estimated parameters. Most of the regressions also appear to have low explanatory power as reflected by their very low adjusted R-squareds.

- l) The compensation scheme is not pegged to loan repayment or eventual profitability of the loans (p.9). Can there be a deferred compensation system that has the effect? Though such a contract would impose additional incidental risks on loan officers such as the market crash, a post-mortem can always be conducted to ascertain whether a loan that has turned sour is indeed due to the irresponsible behavior of the loan officers or purely incidental.
- m) The Bank decided not to proceed with the commission-based scheme in 2006 due to adverse showing of its pilot program and decided to stick to the fixed-salary scheme as in pre 2005 (p.10) What were the poor outcomes discovered by the bank and are they consistent with the findings of this study?
- n) The results of the study also indicate that loan officers exploited the compensation to boost their earnings at the expense of the Bank. Whatever it is, not only the loan officers have to be blamed. The banks themselves have to be blamed for devising such a compensation system in their quest for greater profitability.
- o) On loan officers manipulating hard information to enable loan applications pass the approval threshold, perhaps this can be curbed by compelling both the loan officers and the loan applicants to make statutory declarations that the information they furnish is true and fair. Otherwise they can be subjected to a severe penalty.