

Discussion of: "Bank Sentiment, Loan Loss Provisioning, and Lending" by Junsung Bae, Allen N. Berger, Hyun-Soo Choi and Hugh H. Kim

Vladimir Sokolov¹

¹ICEF, HSE Moscow

14th Joint Bank of Russia, NES, HSE University Banking Workshop

What is the paper about?

- Using large-language models authors extract a bank sentiment measure from *Management Discussion and Analysis (MD & A)* section of 10-K filings.
- The paper tests the hypotheses on the relationship between 1) Loan loss provisions (LLP); 2) idiosyncratic measure bank's sentiment free of variation in bank's fundamentals and macroeconomic indicators
- The paper provides further supporting evidence on the relationship between bank's sentiment and loans growth, credit spreads

Main findings

1. Bank's negative sentiment is positively and significantly correlated with loan loss provision which suggests the behavioral bias of bank's management
2. The sentiment-driven over-provisioning can reduce credit supply by banks to the economy and is related to an increase in credit spreads
3. There is a counter-cyclical relation between negative bank sentiment and loan loss provision

Comment on the economic mechanism of the tested relationship

- Which bodies within a bank are in charge of *LLP* and compiling the *10-K filings*?
- Within a bank, the Credit Risk Management Committee (CRMC) and the Asset and Liability Committee (ALCO) typically decide on the amount of Loan Loss Provisioning (LLP)
- Within a bank, the Finance Department and the Chief Financial Officer (CFO) are responsible for drafting the Management Discussion and Analysis (MD&A) section of the 10-K filing
- In both cases the inputs from the accounting and compliance teams are used and in both cases the final decisions are influenced by the senior officers
- Is it possible to differentiate banks according to the extent of their senior management's involvement in compiling the 10-K filings and expressing their views (maybe in the media)?

Comment on the economics of the sentiment measure

- Bank's sentiment extracted from the 10-K filings can be attributed:

Sentiment's components

1. Banks' perception about the current/future stage of the macroeconomic cycle;
 2. Banks' perception about the microeconomic environment where it operates;
 3. Behavioral bias of the bank's management team
- In my view, the macro component is well-accounted and the variation in the extracted residuals contains: 1) microeconomic component which is not perfectly captured by the banks' financials; 2) behavioral component of bank's management
 - I think the effect of the behavioral component can be tested if the authors incorporate information on rotations of the bank's senior management team into analysis
 - Incorporation of senior management team rotations into the analysis will allow to disentangle the behavioral component from the fundamental microeconomic component in the residuals

Comments on econometrics

- Since the main independent variable is constructed from the residuals they contain estimation errors, which introduce additional noise and represent a classical *measurement error* problem. The usual way to deal with it is to employ the bootstrap methods in estimating the main OLS regressions
- In order to gauge the strength of the suggested instrument in the IV analysis the F-tests should be reported
- The estimated coefficient on the main effect in the OLS regression (0.0235) is about twenty times smaller if compared to the IV regression coefficient estimate (0.568)
- This indicates a strong *attenuation bias* of the OLS estimates which could be due to the *measurement error* problem

Comments on econometrics (cont.)

- The OLS estimates represent the average effect of bank's sentiment on LLP, while the IV estimate the effect only for banks whose sentiment was affected by the success of the local U.S. MLB World Series winning team
- In the IV analysis the effect is estimated only for the so-called *complier* banks and the estimated coefficient is the local average treatment effect (*LATE*)
- Perhaps one should incorporate into analysis the intensity measure of the local baseball team success or unexpectedness of it winning
- The more unexpected or more successful is the sport victory the higher is its effect on bank's management teams sentiment
- If one can show that the coefficient estimate in the IV regression will vary with such intensity/unexpectedness measure it will demonstrate that indeed the OLS results are subject to the *attenuation bias* while the IV estimate is unbiased

Conclusion

- Paper is on a very timely and important topic. Its findings are important for the academic profession and for the regulators
- The paper incorporates very innovative large-language models into analysis and pioneers this trend in the banking literature
- My comments and suggestions are mainly about sharpening the story and testing the additional channels which should support the main results