Discussion of “Banking on Deposits”

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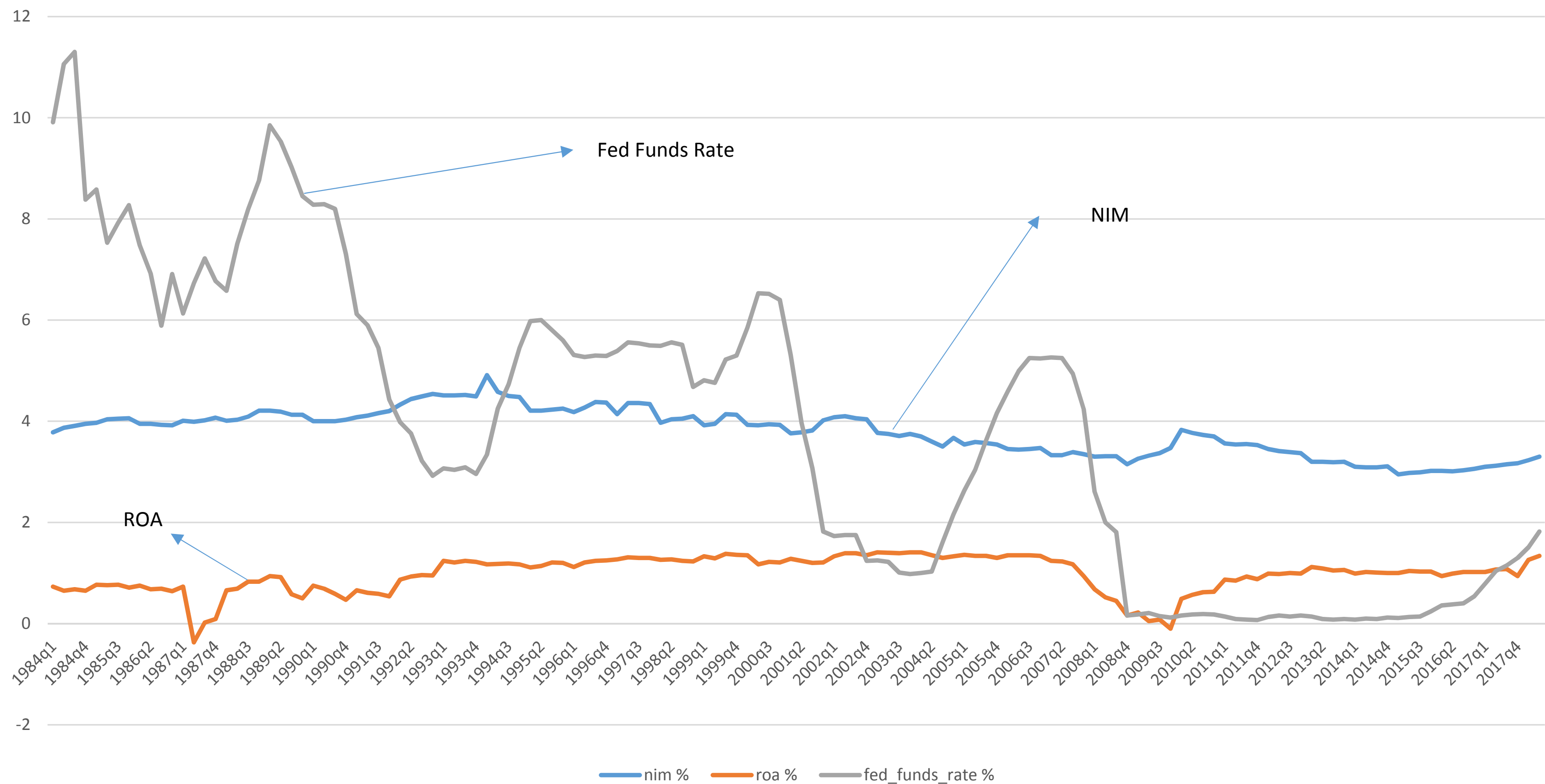
1. The issue



12
10
8
6
4
2
0
-2
Fed Funds Rate
NIM
ROA
1984q1
1984q4
1985q3
1986q2
1987q1
1987q4
1988q3
1989q2
1990q1
1990q4
1991q3
1992q2
1993q1
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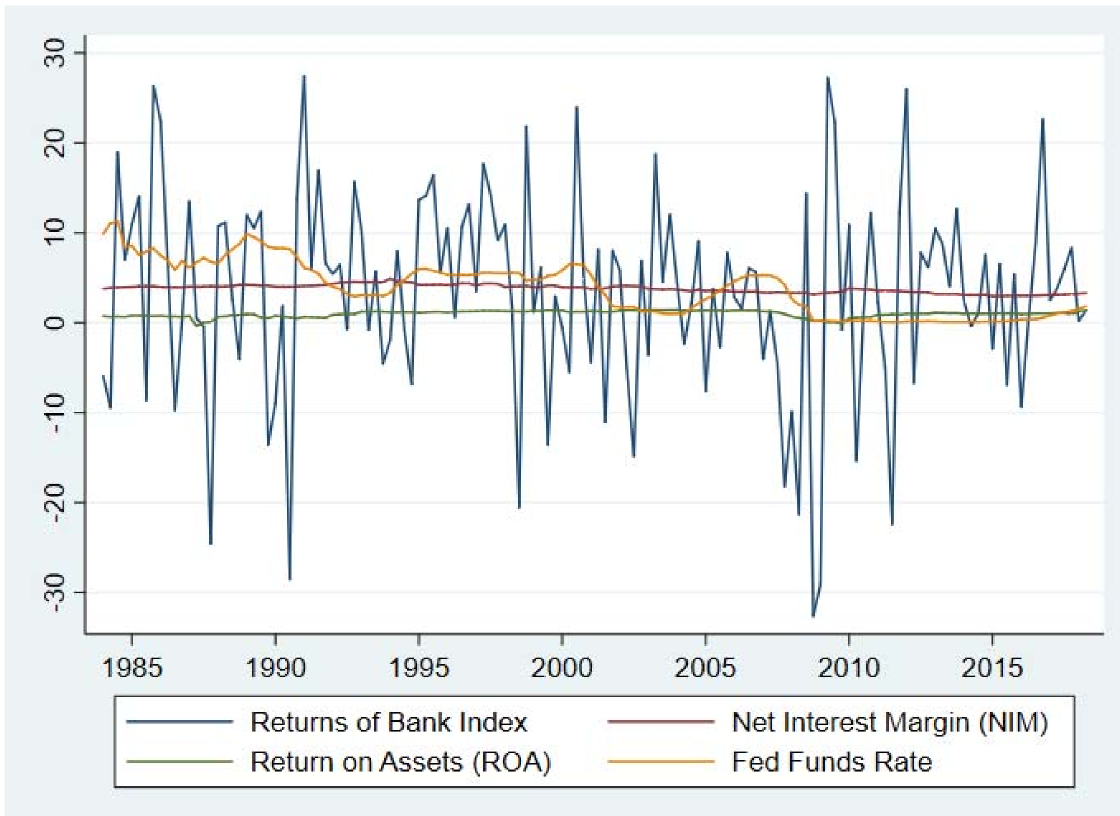
2008q1
2008q4
2009q3
2010q2
2011q1
2011q4
2012q3
2013q2
2014q1
2014q4
2015q3
2016q2
2017q1
2017q4
nim %
roa %
fed_funds_rate %

2. Yet, stock prices vary a lot compare to NIM and ROA



3. The issue and outline

- NIM is fairly stable, but interest rates move a lot. Why?
- The DSS answer: imperfect competition for deposits means that deposit rates respond to interest rate changes slowly.
- The deposit channel: A channel to believe in.
- Outline:
  - Do academics overemphasize interest rate risk for banks? The view from the real world.
  - The deposit franchise.
  - Are the authors focusing on the right measures?
  - Evolution of the value of the deposit franchise, interest rate risk, and the deposit channel.

4. Basel II

- Pdf has 347 pages
- 123 pages on credit risk
- 12 pages on operational risk
- 45 pages on market risk
- What about the interest rate risk associated with maturity transformation?

5. Basel II

A. Interest rate risk in the banking book

762. The Committee remains convinced that interest rate risk in the banking book is a potentially significant risk which merits support from capital. However, comments received from the industry and additional work conducted by the Committee have made it clear that there is considerable heterogeneity across internationally active banks in terms of the nature of the underlying risk and the processes for monitoring and managing it. In light of this, the Committee has concluded that it is at this time most appropriate to treat interest rate risk in the banking book under Pillar 2 of the Framework. Nevertheless, supervisors who consider that there is sufficient homogeneity within their banking populations regarding the nature and methods for monitoring and measuring this risk could establish a mandatory minimum capital requirement.

6. JPMorgan

- 2014 as example.
- Annual report pdf has 320 pages.
- Risk management section is 40 pages.
- Topics are organization of risk management, credit risk, market risk, operational risk. Not structural interest rate risk.
- So, where is management of structural risk?

7. JPMorgan

Treasury and CIO overview

Treasury and CIO are predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding and structural interest rate and foreign exchange risks, as well as executing the Firm's capital plan. The risks managed by Treasury and CIO arise from the activities undertaken by the Firm's four major reportable business segments to serve their respective client bases, which generate both on- and off-balance sheet assets and liabilities.

Treasury and CIO achieve the Firm's asset-liability management objectives generally by investing in high-quality securities that are managed for the longer-term as part of the Firm's investment securities portfolio. Treasury and CIO also use derivatives to meet the Firm's asset-liability management objectives. For further information on

8. JPMorgan

Why is Treasury and CIO VaR so small?

Total VaR

As of or for the year ended December 31, (in millions)	2014 Avg.	2014 Min
CIB trading VaR by risk type		
Fixed income	$ 34	$ 23
Foreign exchange	8	4
Equities	15	10
Commodities and other	8	5
Diversification benefit to CIB trading VaR	(30) [a]	NM [b]
CIB trading VaR	35	24
Credit portfolio VaR	13	8
Diversification benefit to CIB VaR	(8) [a]	NM [b]
CIB VaR	40	29
Mortgage Banking VaR	7	2
Treasury and CIO VaR [c]	4	3
Asset Management VaR	3	2
Diversification benefit to other VaR	(4) [a]	NM [b]
Other VaR	10	5
Diversification benefit to CIB and other VaR	(7) [a]	NM [b]
Total VaR	$ 43	$ 30

9. G-SIB

- Seen all risk management policy and methodology manuals.
- Seen everything related to risk appetite.
- Interest rate risk related risk management and policy documents are a tiny fraction of all documents and an even tinier fraction of the number of pages.
- Uses transfer pricing for funding, so deposits generate profits. There is deposit NIM.
- The bank makes behavioral assumptions to assess how deposits and deposit rates respond to interest rate shocks.
- The bank has a limit on net interest income at risk.

10. FRM

- Risk management certification exam given in more than 55 countries and to more than 60,000 candidates a year.
- Typical candidate works in a G-SIB.
- Relatively little on interest rate risk.

11. Why is interest rate risk not more important for banks?

- Almost all banks have an ALCO and limits on interest rate risk. Those limits are board limits in developed countries. So, banks and regulators don't ignore interest rate risk. The issue is stability of NIM and ROA in the face of interest rate volatility.
- DSS have really two answers.
- Deposit rate answer: Deposit rate are not determined competitively, so that they don't increase one for one when rates increase.
- Deposit expense answer: It is costly to have a deposit franchise. Costs are mostly fixed. So, the fixed costs are hedged with long-duration liabilities.
- I look at each answer in turn. Before that, some accounting.

12. Accounting issues

- Banking book is not marked-to-market. So, banking book interest rate exposure is due to changes in interest payments. Deposit liabilities are not marked-to-market.
- Trading book is marked-to-market. So, changes in value of trading book due to interest rate changes are market value changes.
- Value of a bank does not depend on accounting cash flows, but on economic cash flows.
- NIM is not an appropriate measure of how the value of a bank is exposed to interest rate changes. Neither is ROA.

13. Problems with NIM

- The authors compute the duration of assets using repricing exposure.
- The idea is that it is how changes in rates flow through NIM.
- Repricing exposure was a standard measure in the last century. Large banks stopped showing it.
- The problem is that it does not take into account <u>optionality</u>.
- Current approaches use effective duration or net income stress tests.
- Effective duration can be much less than repricing period because of optionality and spreads. Spreads shorten duration.

14. Deposit rate

- The fact that deposit rates move slowly has been a key fact in the banking literature (Berger and Hannan, AER). The explanation is imperfect competition and behavioral considerations.
- Many valuation models of banks build on this.
- Hutchison and Pennachi: imperfect competition leads demandable deposits to have positive duration.
- Rate versus quantity effect. Quantity shrinks when rates rise. NIM and ROA is about rate. Bank value is about rate and quantity.
- It makes perfect sense that the impact of interest rate shocks is attenuated on the upside by lagging deposit rates.
- There is no lag in the downside, which again reduces interest rate exposure of NIM.
- Authors focus on Fed Funds rate. Useful for deposit channel of monetary policy. Is it right for interest rate exposure?

15. Is it the tail wagging the dog?

- Deposit interest rate expense was 50% of total interest income in the early 1980s. The last time it was above 40% was in 1991.
- In 2005, it was 20%; in 2017, it was 7%.
- Core deposits/Assets is less than 40% for top 5 BHCs.
- For their mechanism to work, it has to be that more and more assets became floating-rate assets or short maturity assets. If that's the case, is the interest insensitivity of NIM due mostly to assets or deposits?
- On asset side, recent evidence on risk-taking channel shows that asset interest rates are related to level of policy rates (Dell'Ariccia, Laven, and Suarez, JF).

16. The cost of deposits

- The authors advance a different argument about the role of deposits.
- Deposit non-interest expenses are relative stable.
- Viewed as swap payoffs, a bank pays floating and receives fixed.
- To hedge the fixed portion of the swap, the bank has to have fixed revenue which then comes from interest payments on the asset side.
- Clever and correct, but…

17. Back to accounting

- The swap idea does not help with NIM as deposit non-interest expenses are not part of NIM.
- The swap idea would help with ROA.
- The swap idea would help with value fluctuations.
- However, are <u>long-term fixed rate assets</u> really needed to hedge <u>deposit expenses</u>?

18. Economics of banks and deposits

- DeAngelo/Stulz framework. Banking is a spread business. Deposits have a non-pecuniary benefit that depositors pay for. It is a key source of value to a bank. Risk management keeps deposits safe so that the bank can earn the spread.
- In this case, suppose that the market for deposits is competitive in that rates move one for one with market rates, but deposits have a constant spread below market rates.
- The constant spread should pay for expenses. No fixed income hedge required.
- This would not work close to or at the ZLB. However, banks can introduce more fees.

19. Deposit franchise, past, present, and future

20. Deposit franchise, past, present, and future

- Suggests steadily decreasing NIM.
- Competition among banks and from shadow banks has decreased value of franchise (e.g., Gorton). Risk-taking is directly related to franchise value.
- The paper would predict increase in interest rate sensitivity of NIM over time.

21. Conclusion

- Fantastic paper to think about.
- Highlights puzzle and provides elements of a resolution of the puzzle, but there is more to do.
- Textbooks will have to change. ALCO is not at the center of banking.