

The Role of Bank Capital and Culture in Financial System Architecture

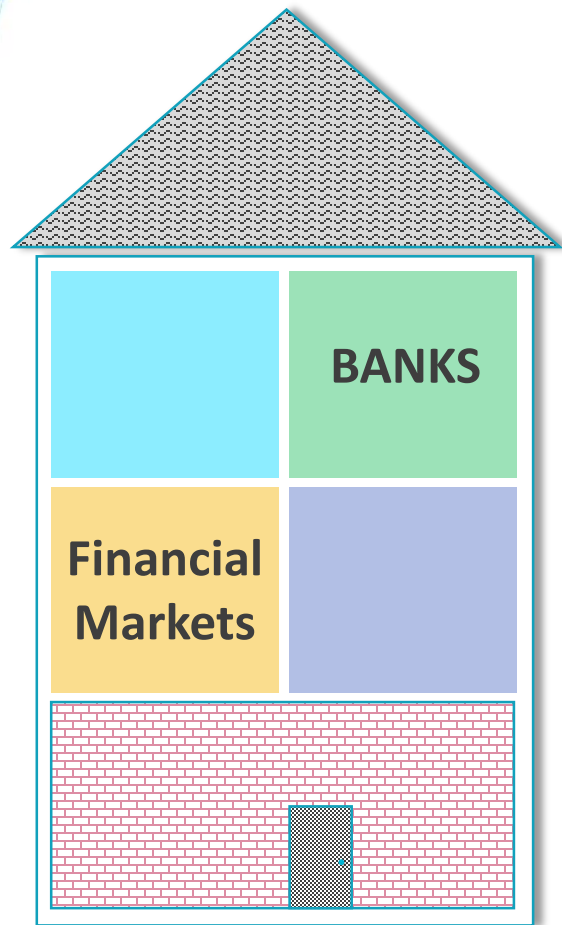
by

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Opening Remarks

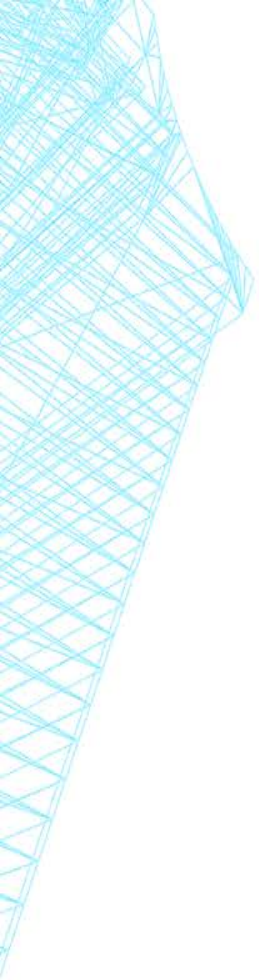


In my paper, “Financial System Architecture” with Arnoud Boot (*RFS, 1997*), we defined the term FSA as “the configuration of a financial system”, focusing on the microfoundations of the co-existence of bank lending and financial market financing.

The 2007–09 Financial Crisis

- A lot of risks were exposed.
- Explosive combination of factors
(extensively discussed in Thakor, “Bank Capital and Financial Stability: An Economic Tradeoff or Faustian Bargain?”, *Annual Review of Financial Economics*, 2014, and Thakor, “The Financial Crisis of 1007–09: Why Did It Happen and What Did We Learn?”, *RCFS*, 2015)
led to...



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- Since then, events that have transpired (e.g., 2007-09 crisis) have convinced me that banks occupy the biggest room in the house we call the FS
 - When banks sneeze ...
economy catches a serious cold!

e.g., poor mortgage originations by banks led to global financial crisis.

So my talk focuses on the following questions:

BIG QUESTION

- **How do we design a financial system for economic stability and growth?**

SMALLER QUESTIONS

- What do banks really do for economic growth and what roles do bank capital and culture play in how well they do what they do?
- How do banks affect the rest of the FS?

I will address the big question by answering the smaller questions first.



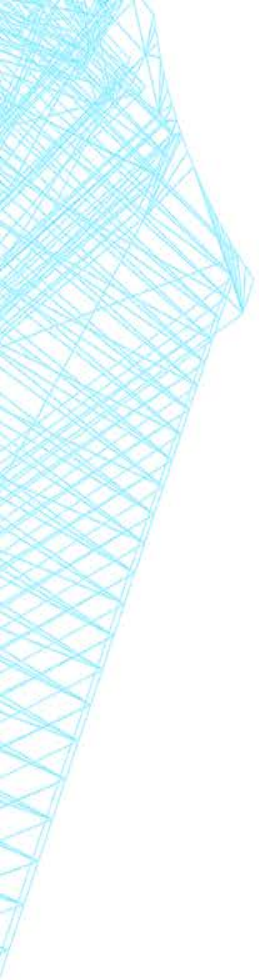
What do Banks Really do to Foster Economic Growth?

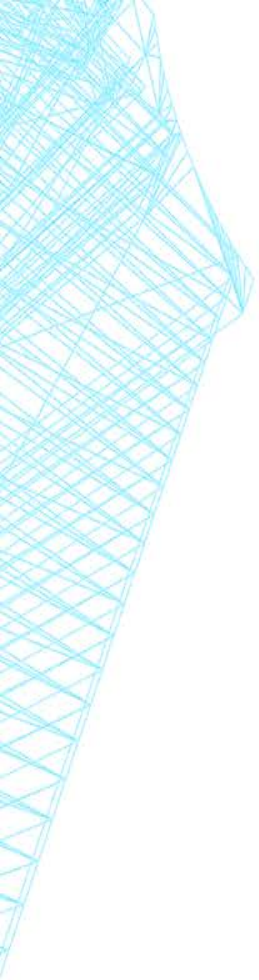
- They create *funding* liquidity out of thin air and enhance aggregate investment in the (real) economy.

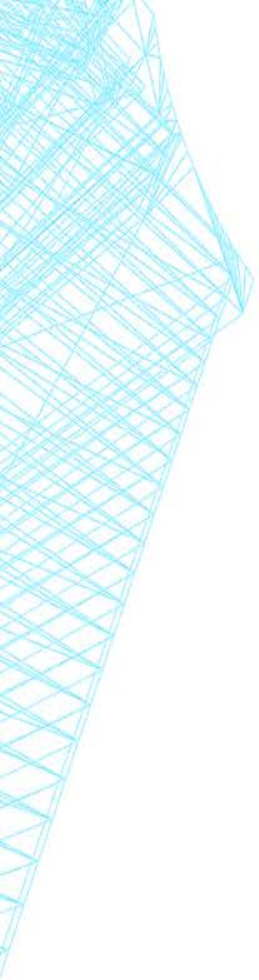
- BUT HOW...?

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- We provide a theory...
in

“Warehouse Banking” (with Jason Donaldson and
Giorgia Piacentino) forthcoming, *Journal of
Financial Economics*.

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- Which are the second and third oldest professions known to mankind?
 - Goldsmiths
 - Pilots
 - Lawyers
 - Bankers
 - Pizza parlor operators
 - Laundry operators
 - Circus operators

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- Invention of banking preceded the invention of coinage by several thousand years.
 - Banking seems to have originated in ancient Mesopotamia and some of the earliest recorded laws pertaining to banks (banking regulation) were part of the Code of Hammurabi.
 - Deposits: cattle, grain, precious metals
 - Loans made
 - Interest paid
 - In ancient Egypt, grain harvests were “deposited” (or stored) in centralized state warehouses ...depositors could write written orders for the withdrawal of a certain quantity of grain as a means of payment.

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- Eventually, these warehouses of goods or places for safe storage of commodities evolved into the Venetian goldsmiths in the 13th and 14th centuries and then into modern-day banks (e.g., Lawson (1855)).
 - However...our contemporary theories of why banks exist (Diamond (ReStud,1984), Ramakrishnan-Thakor(ReStud, 1984), Allen (JFI, 1990), Coval-Thakor (JFE, 2005)) have little to do with these origins of banks.
 - Another related issue is the idea that banks exist to create liquidity (not just store it safely).
 - To this day...the same institutions that provide safekeeping services also engage in the bulk of lending in the economy and are also responsible for significant liquidity creation.
 - ... most modern commercial banks keep deposit accounts, provide payment services, act as custodians, and make corporate and consumer loans.



Warehouse Banking

Our theory answers the questions(a) Why do modern banks offer deposit-taking, account-keeping payment, and custodial (warehousing) services within the same institution that provides lending services?....

And...

(b) How does such a bank that combines warehousing and lending create liquidity?



Warehouse Banking

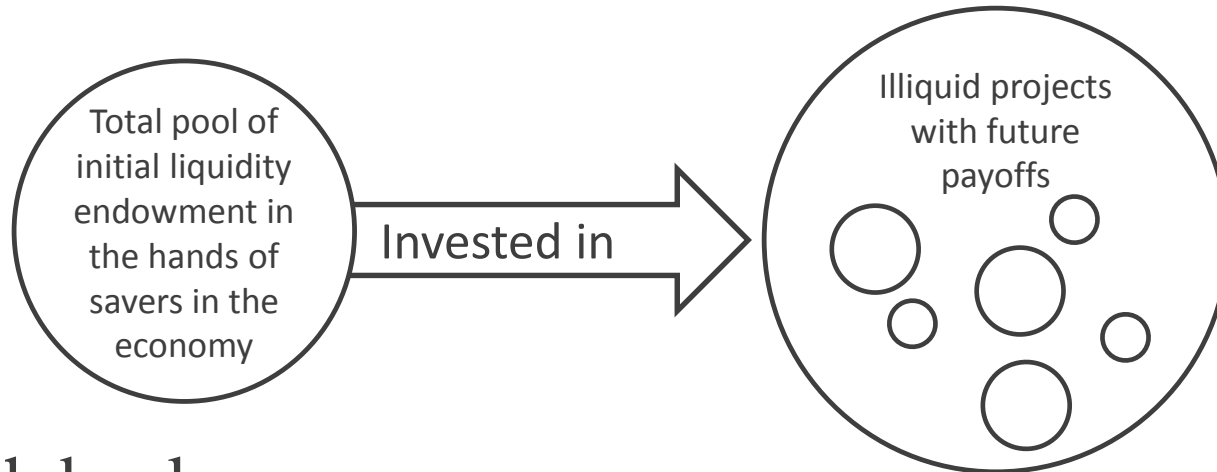
- ❑ To answer these questions, we write down a model in which:
 - Warehouses provide safekeeping for deposited goods
 - and issue receipts when they take deposits
- ❑ This model takes us back to the roots of banking and the evolution of primitive warehouses into modern-day banks.

Answer

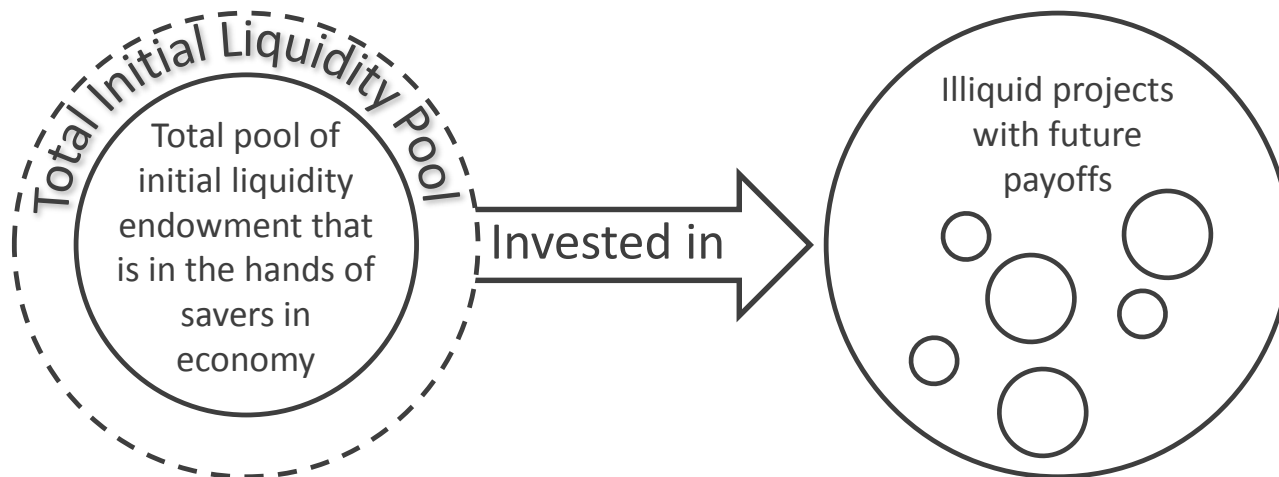
- Our model shows that:
- Warehouses create liquidity when they use deposits to make loans and *not* when they merely take in deposits
- i.e., the creation of deposit accounts is necessary for liquidity creation by banks but *not* sufficient.

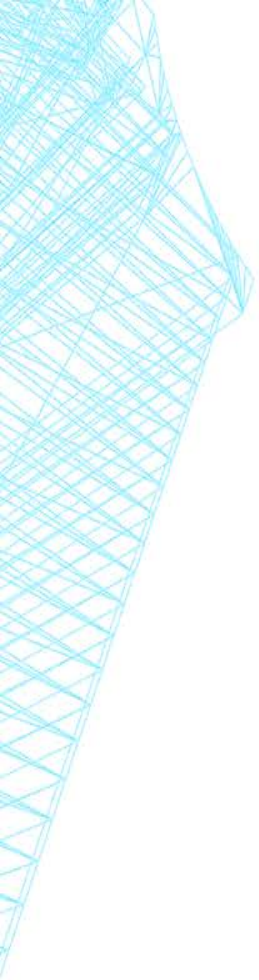
What do we mean by liquidity creation by banks: “Funding liquidity”?

- Without banks



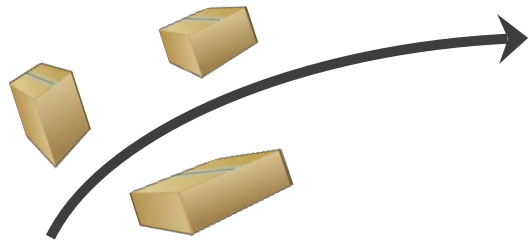
- With banks



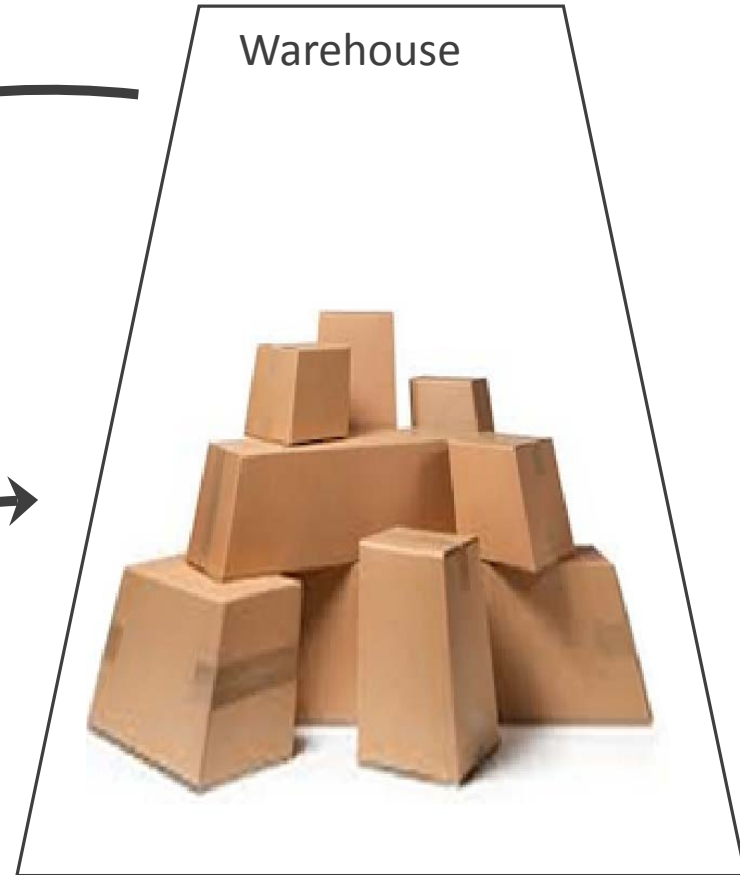
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- Thus, our notion of liquidity creation differs from the existing literature that focuses on the improvement in risk sharing for risk-averse depositors who seek consumption insurance (e.g., Bryant (1980), Diamond and Dybvig (1983), and Allen and Gale (1985)).

Basic Idea

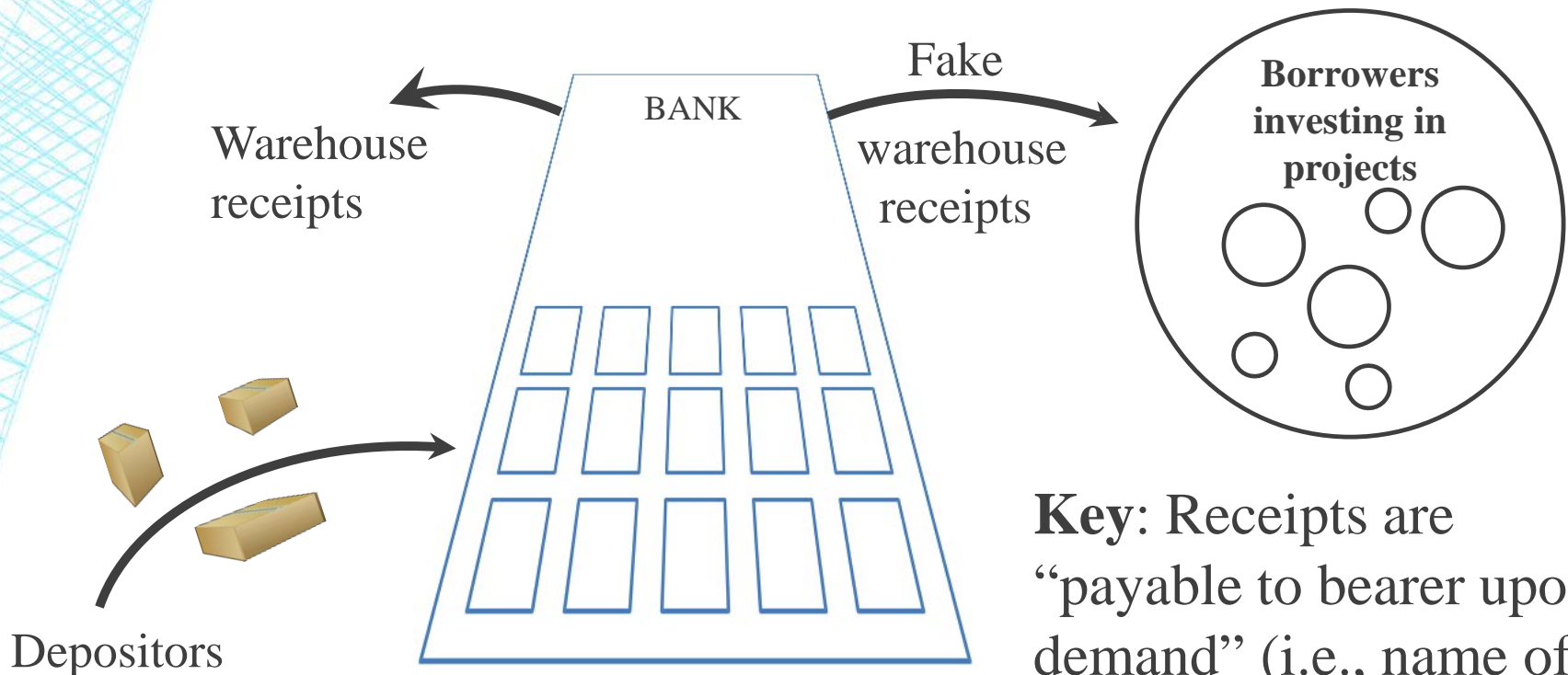
Warehouse receipts
issued as “proof” of
deposit



Depositors bring grain
or gold bricks to
warehouse.



Basic Idea



Key: Receipts are “payable to bearer upon demand” (i.e., name of depositor is *not* there \Rightarrow fake and authentic receipts are identical.)

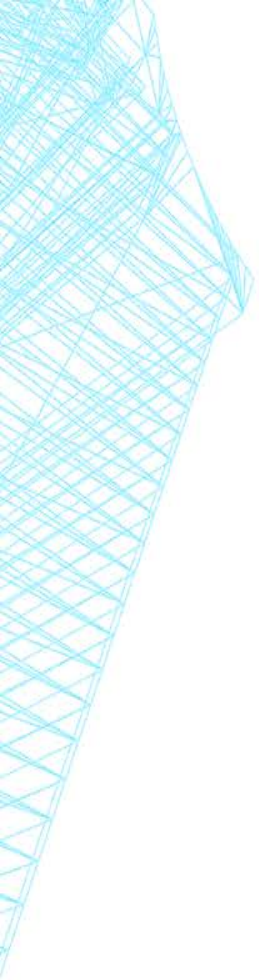
Main Results

- In order to create liquidity banks must play two roles:
 - deposit-taking and warehousing
 - lending
- Critical for lending will be the creation of private money, that we will call “fake receipts”
- Fake receipts are receipts not backed by deposits... and key is these are indistinguishable from “authentic receipts”
- In the existing literature, we imagine the bank physically taking in deposits and lending them out. That is, deposits create loans. What we show is that **loans create deposits!**

Our approach is reminiscent of Keynes...

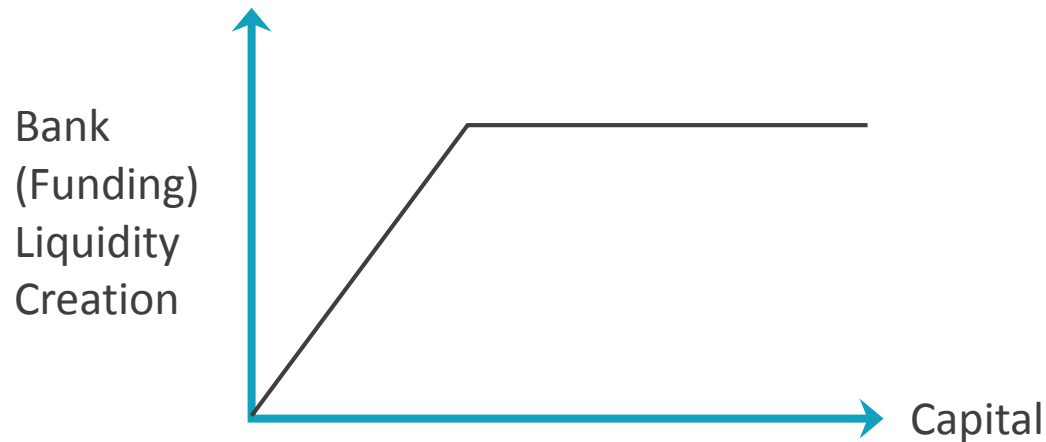
“It is not unnatural to think of deposits of a bank as being created by the public through the deposits of cash representing either savings or amounts which are not for the time being required to meet expenditures. But the bulk of the deposits arise out of the actions of the banks themselves, for by granting loans, allowing money to be drawn on an overdraft or purchasing securities, a bank creates a credit in its books which is the equivalent of a deposit.”

(Keynes in his contribution to the Macmillan Committee, 1931, p. 34)

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- But this is *not* just of historical interest... Banks today also:
 - create liquidity by creating private money via deposit accounts;
 - create deposits when they make loans (hence unconstrained in lending by physical inflow of deposits);
 - provide safe-keeping and custodial services;
 - provide value to depositors and borrowers by including them in payments system (think of marijuana dealers in Colorado!)
 - benefit economy by not being narrow banks.

How Does Bank Capital Affect What Banks Do?

- In our theory...



- **Bob Merton and Richard Thakor, NBER WP, 2017, “Customers and Investors: A Framework for Understanding the Evolution of Financial Institutions”**: higher bank capital can help banks serve their deposit customers more efficiently.

How Does Bank Capital Affect What Banks Do?

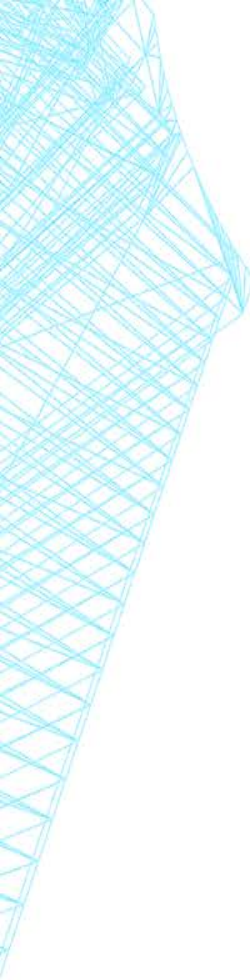
- *Empirically...*

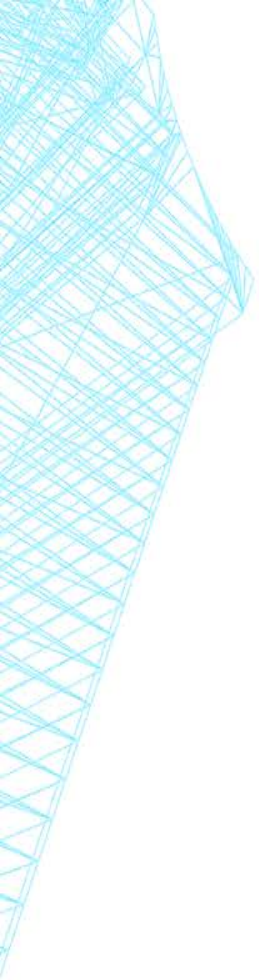
- Higher bank capital
⇒ more bank lending
and liquidity creation.

{ (Berger and Bouwman
(*RFS*, 2009)

- Higher bank capital
⇒ greater economic
growth and financial
stability.

{ (Thakor (*Annual Review of
Financial Economics*, 2014)

- 
- Higher bank capital \Rightarrow less “damage” from diluted screening incentives with OTD model of securitization. (Purnanandam, RFS 2011)
 - Higher bank capital \Rightarrow less severe financial crises and faster recoveries from crises.
(e.g., Demirguc-Kunt and Detragiache, “The Determinants of Banking Crises: Evidence from Industrial and Developing Countries”, World Bank)
 - Higher bank capital \Rightarrow higher risk-adjusted returns for shareholders in banks.
(Bouwman, Kim, and Shin WP, “Bank Capital and Bank Stock Performance”, Texas A&M, 2017).
 - Higher bank capital \Rightarrow higher bank values.
(Mehran and Thakor (RFS, 2011)

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- Now, if you are a theorist, perhaps the positive affect of bank capital on financial stability is obvious (positive effect on liquidity creation less obvious since we have theories that predict the opposite)...

But...sometimes what is obvious to some is not so obvious to all, as Sherlock Holmes used to say...

Bank Culture

- I now want to turn to a factor not discussed much in accounts of banking... Bank Culture

⇒ *“Banks and banking rely on trust. And while trust takes years to establish, it can be lost in a moment through failures caused by problematic ethics, values, and behaviors. Events that precipitated the global financial crisis and the subsequent issues that have emerged have revealed a multitude of cultural failures... A great deal rests on a firm’s culture... The banking community as a whole needs to repair the damage done by failures in culture, values, and behaviors, and should tackle the challenge with renewed vigor and purpose to achieve tangible improvements in outcomes and reputation.”*

-Group of Thirty, Washington, D.C., July 2015



Emerging Importance of Corporate Culture As a Mediating Influence in Employee Behavior

- Federal Reserve has recognized the importance of bank culture in microprudential regulation
 - Series of conferences and stimulation of research
- Why? Recognition that ignoring culture lessens effectiveness of conventional tools of microprudential regulation: capital requirements, regulatory monitoring, etc.

Bank Culture

- Culture is now a big issue in banking due to various spectacular cases involving big banks (Libor rate fixing, penalties for mortgage misrepresentation, etc. >\$100 billion in fines).
- But spectacular cases of fraud are not limited to banks. Other firms have been involved in lying to customers and misrepresenting to governments: GM (defective ignition switches with >100 deaths), VW (software to misrepresent emission data), Roche (earlier price-fixing scandal).

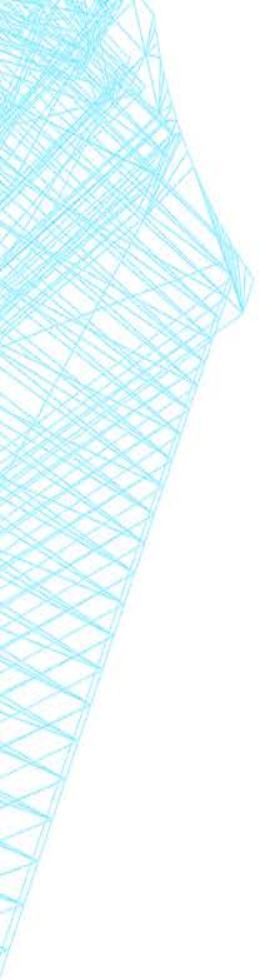


Bank Culture

- Group of thirty (2015) report points out: “Culture is defined as ‘the ideas, customs and social behavior of a particular people or society...”.
- We define it as set of explicit and implicit contracts that determine resource allocation processes and employee behavior.

Question

- How is bank culture determined, in a formal economic sense, and how do we use this view of bank culture to improve our understanding what banks do and their impact on the FS?

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- In WP “**Bank Culture**”, Fenghua Song and I develop a multi-tasking agency model in which the bank must:
 - Motivate the employee to work hard
 - Allocate his hard work optimally between growth (loan prospecting) and safety (credit analysis and screening).



Key Results

- The optimal managerial wage contract in the second best has inefficiencies—more effort allocated to growth than to safety than in 1st best.
- With multiple competing banks, there is “herding”—each bank tilts even more toward growth.

Modeling Bank Culture

- The inability of wage contracting to eliminate distortions (due to multi-tasking) provides room for culture to improve the outcome.
- We rely on the Akerlof-Kranton view of “identity economics” to model culture, i.e., culture determines the “identity” the employee develops and hence the utility he/she derives from choosing the action consistent with the culture. This means a disutility for the employee from choosing an effort that is incompatible with the culture. The stronger the bank’s culture, the larger the disutility.



Key Results

- Strong culture can help banks resist temptation to tilt excessively in favor of growth.
- This is especially important in banking because the compromising of safety by even lower-level employees has the potential to “blow up” the organization—more so than in non-financials. So both culture and compensation should account for it.
- Culture in our model serves an “assortative matching” role—matching workers with a given set of beliefs with firms that have similar beliefs.

Summary of Results on Bank Culture

- Simple model to provide a framework to think about bank culture in an economic model of the bank.
- **Key Results:**
 1. Multi-tasking problem in bank tilts bank in favor of growth over safety.
 2. Interbank competition exacerbates excessive focus on growth, and causes banks to “herd” on growth higher systemic risk.
 3. A strong bank culture plays two roles: (i) helps match employees with banks that share their beliefs, even when these beliefs are unobservable; and (ii) helps temper the bank’s competition-induced excessive growth focus.
 4. Culture is contagious – when one bank chooses a strong safety culture, it induces competing banks to focus more on safety.



Interaction of Bank Culture and Capital

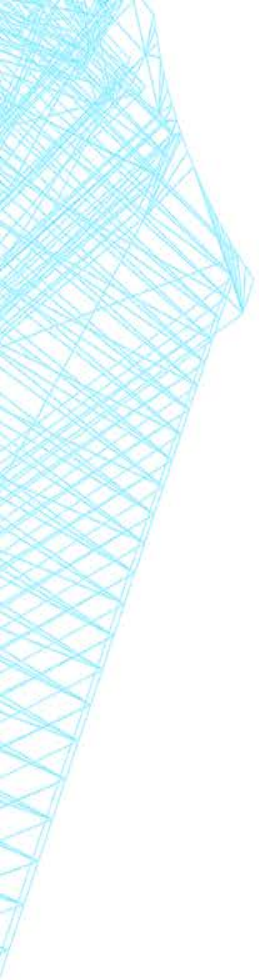
- Higher bank capital increases the focus of culture on safety, whereas a higher bailout probability decreases the focus of culture on safety.
 - ⇒ Safety-oriented bank culture *complements* role of bank capital in fostering financial stability and economic growth.

How Does What Banks Do Affect FSA?

- Let me now turn to my second “smaller question”...
- The usual view in FSA is that banks and markets compete...

But... In my paper “**Financial System Architecture and the Co-evolution of Banks and Markets**”, (*The Economic Journal*, 2010 with Fenghua Song).we show three forms of interaction:



- ❖ **Competition**
- ❖ **Complementarity**: bank screening helps to screen out bad borrowers, improving quality pool of those who go to market.
- ❖ **Co-evolution**: capital market advances make equity capital cheaper for banks, increasing bank capital and inducing screening advances, bringing new securities to capital market.

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- *Specific example of Complementarity:* Keys, et. al. (*QJE*, 2010) show that mortgages with FICO scores 621 were less risky than those with FICO score of 619.
 - Why? Dilution of screening incentives due to OTD model (621 securitized, 619 stays on B/S!)
 - If banks securitize bad credits \Rightarrow risky MBS \Rightarrow messes up market as we saw with sharply increasing repo haircuts during financial crisis \Rightarrow shadow banking sector freezes up \Rightarrow global crisis!



⇒ What banks do in the biggest room in the FS house has enormous ripple effects on rest of FS.

So back to my original BIG QUESTION: How do we design the financial system for economic growth and stability?

- Strengthen *safety-oriented culture* in banking via *higher capital requirements* and lower bailout probability.

- *Strengthen capital* in banking through dividend restrictions and *stronger equity governance* \Rightarrow will increase *bank values* and *liquidity creation and encourage economic growth*

- *Capital markets* will develop more effectively as banks originate better credits and securitize them in the market. *Good for financial stability.*



Conclusion

- Bank capital and culture should be principal areas of focus for the future of banking and markets.
- Capital market developments (e.g., fin tech) will be threats for banks if they have weak capital and weak culture ... but opportunities for evolution if they have strong capital and strong culture!