FDIC Conference

Discussion of
Perignon-Thesmar-Vuillemey (PTV),
Kara-Ozsoy (KO), and
Chederina-Tengulov (CT)

by
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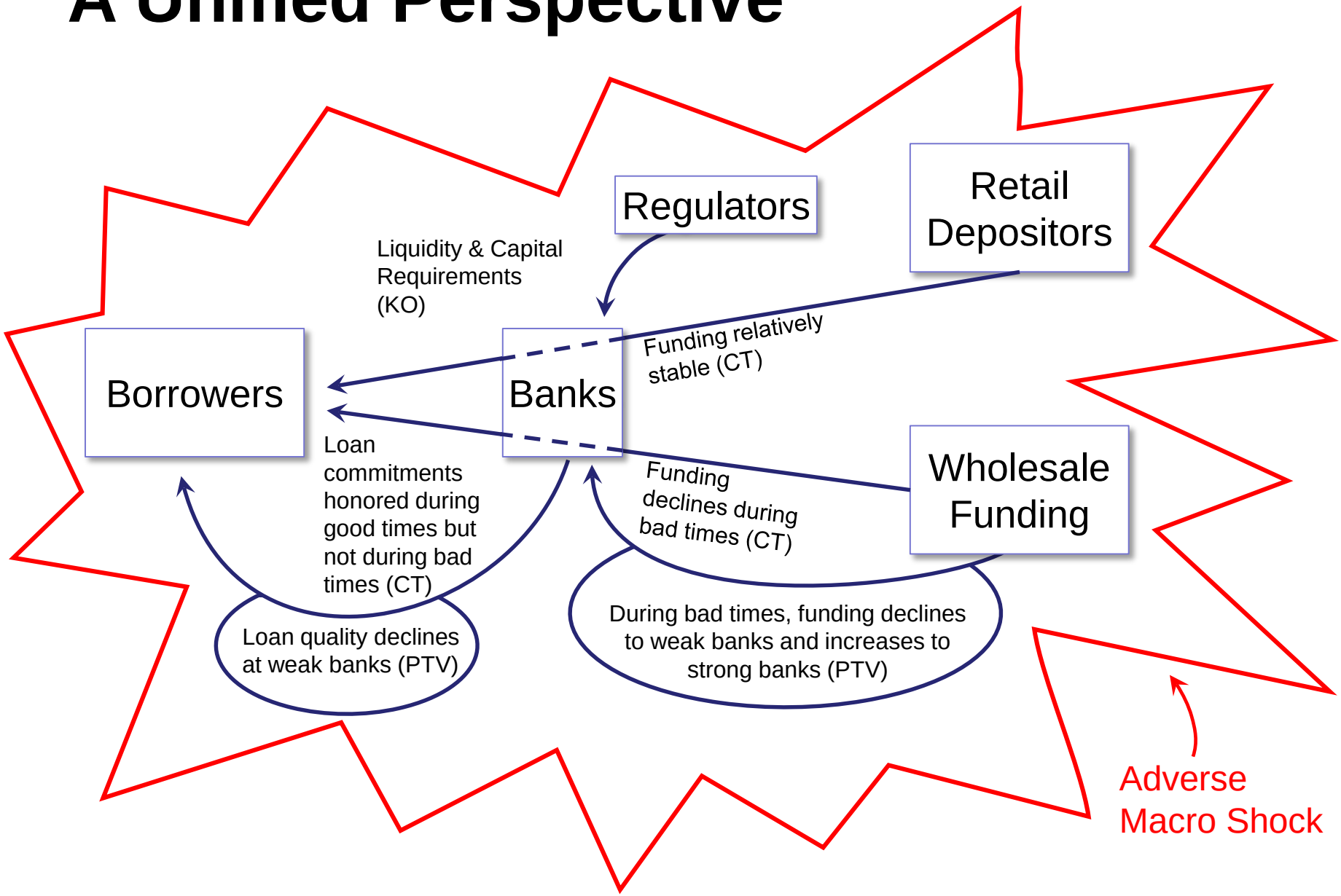
A Unified Perspective



A Simple Theoretical Framework

- Banks monitor borrower asset quality by choosing effort e, with private cost $V(e),\ V' > 0,\ V'' > 0,$ and cross-sectional heterogeneity in V. $\Rightarrow$ This prevents ASMH and increases borrower's pledgeable payoffs (Holmstron-Tirole (*QJE*, 1997) and Mehran-Thakor (*RFS*, 2011)).

A Simple Theoretical Framework (cont'd.)

- Borrower's expected pledgeable payoff:

$$X(\theta, e)$$

where $\theta =$ *macro state* $\in \{g, b\}$ *with*

$$\partial X(g,e)/\partial e > \partial X(b,e)/\partial e \; \forall e$$

A Simple Theoretical Framework (cont'd.)

- Mehran-Thakor (2011) show that banks with lower V' choose higher capital levels, monitor more and have higher-quality assets $\Rightarrow$ High quality assets associated with high-capital banks.
- Since marginal productivity of bank effort during good times is higher than during bad times, banks exert higher effort when $\theta = g$ than when $\theta = b$.

A Simple Theoretical Framework (cont'd.)

- Moreover, if we assume:

$$\left|\frac{\partial X(g,e)}{\partial e}-\frac{\partial X(b,e)}{\partial e}\right|_h < \left|\frac{\partial X(g,e)}{\partial e}-\frac{\partial X(b,e)}{\partial e}\right|_\ell$$

i.e., high-quality banks suffer a smaller dilution of monitoring incentives due to the macro shock than low-quality banks.

Then...

A Simple Theoretical Framework (cont'd.)

- All banks get wholesale funding when $\theta = g$ since asset-quality differences between high-quality and low-quality banks are small

$$X\left(g, e_h(g)\right) - X\left(g, e_\ell(g)\right) < X\left(b, e_h(b)\right) - X\left(b, e_\ell(b)\right)$$

- But ... when $\theta = b$ (negative shock), h banks get funded but ℓ banks don't.

This perspective explains why:

- Banks with higher capital have higher-quality pre-shock assets.
- All banks are funded during good times but asset-quality differences and solvency concerns are elevated during bad times (macro shocks), so high-quality banks are funded but low-quality banks are not.

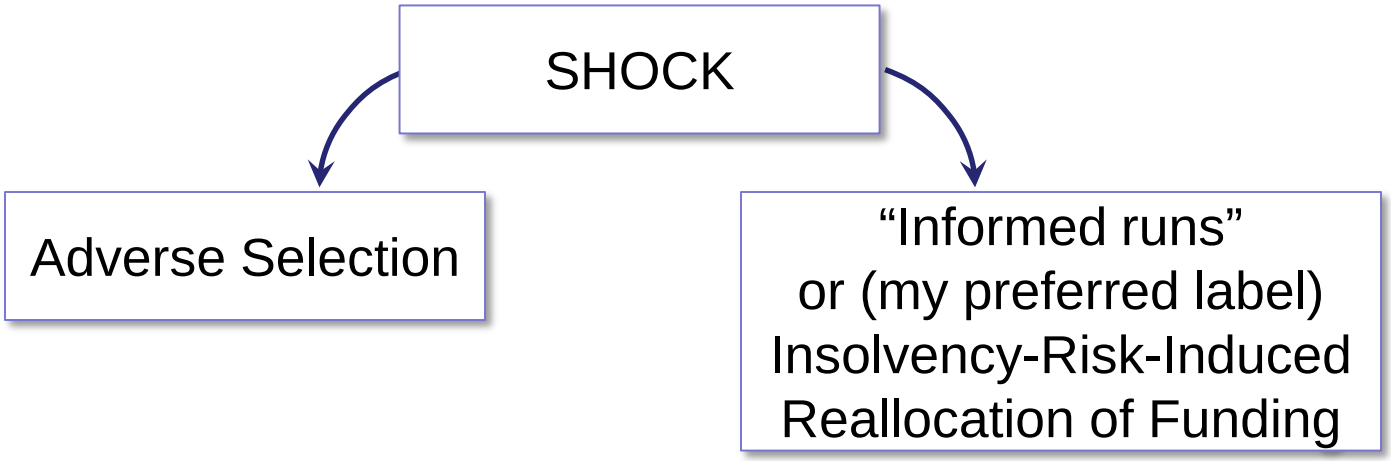
This perspective explains: (cont'd.)

- Why a negative shock can increase asset-quality differences between high-quality and low-quality banks.
- Why banks that experience funding declines will cut back on lending under loan commitments during times of stress but not during good times

Discussion of PTV

Research Question: How fragile is wholesale funding during a "market-wide" liquidity crunch?

Theoretical Hypotheses:



Discussion of PTV (cont'd.)

A

Adverse Selection

- Increase in adverse selection in a *pooling equilibrium* causes borrowing rates to increase for all banks, causing high-quality banks to exit.
  $\Rightarrow$ average bank quality in wholesale funding market *declines* in response to shock.

B

"Informed runs" or
(my preferred label) Insolvency-Risk Induced-Reallocation of Funding

- I use the term "run" to refer to either sunspot coordination failures (that this paper does *not* find support for) or uninformed depositors inferring adverse information from withdrawals of informed depositors (as in Chari-Jagannathan, *JF*).

- Here phenomenon is a little different, so I prefer to call it "insolvency-risk-induced reallocation of funding".

– Evidence in the paper supports (B), *not* (A) or coordination-failure bank runs.

Key Results

1. Banks with low-future-quality assets are more likely to decrease their reliance on wholesale funding, whereas banks with high-future-quality assets *increase* their reliance on wholesale funding.

   $\Rightarrow$ *Reallocation* of funding based on (pre-shock) asset quality and capital levels

Key Results (cont'd.)

2. The low-quality banks also have lower pre-shock capital ratios (equity to total assets)
   - not reflected in regulatory capital ratios (have been found to be not useful predictors in other contexts as well).

Key Results (cont'd.)

3. Banks that experience funding declines also experience *future* deterioration in performance/financial condition...
   And banks that experience funding increases also experience *future* improvement in performance/financial condition.

   That is,
   wholesale funding decline/increase *predicts* future bank performance.

Implications

- In Europe, based on the wholesale funding market, this was *not* a liquidity crisis. Rather, it was an *insolvency-risk-induced* funding supply adjustment to a macro shock that resulted in a reallocation of funds in the economy.
- Such supply reallocations have effects on bank asset quality and performance.

Comments

1. This is not a paper about “informed” bank runs. It documents that in bad times the distribution of asset quality and *insolvency risk* across banks becomes more skewed $\Rightarrow$ results in industry funding reallocation. Similar to non-financial firm’s bankruptcy risk increasing and creditors reducing credit. This insolvency risk result is in sharp contrast to the market-wide liquidity crisis view and consistent with the evidence in Taylor (2009), and Taylor and Williams (*AEJ Macro* 2009*).*

2. *Big challenge for the paper is dealing with reverse causality.*

Alternative hypothesis: funding dry-ups for weak banks *cause* lower future performance.

Paper: wholesale market investors screen and recognize weak banks and reduce funding to those banks $\Rightarrow$ funding changes *predict* future bank performance

- Paper recognizes this and deals with it in various ways. Most compelling pieces of evidence on this front are:

  a) Lower future ROA of banks facing funding decreases do not reduce their total assets (i.e., no asset fire sales).

  b) These banks also experience a decrease in the maturity of new CD issues several months before decrease $\Rightarrow$ consistent with monitoring of insolvency risk by investors in wholesale funding market.

Question: What is replacing the wholesale funding decline at these banks (given that asset *quantity* is unchanged)?

c) Wholesale funding declines also predict an increase in *impaired* loans (less subject to reverse causality).

Comment: The attempts to deal with reverse causality are helpful ... But not a slam dunk! Identification cops may at least issue a warning. Possible that reduced wholesale funding results in a funding mix change that *induces* lower borrower monitoring by the bank and reduces bank asset quality $\Rightarrow$ need to (at least) know what replaces (reduced) wholesale funding at weak bank and what (increased) wholesale funding replaces at strong banks.

3. The Song-Thakor (*RFS*, 2007) model shows that banks that make relationship loans rely more on retail (insured) deposits and banks that make transaction loans rely more on wholesale funding...

   $\Rightarrow$ examine how pre-shock asset portfolio composition (relationship vs. transaction loans) affects results. Does this composition change due to the shock?

   - Steve Ongena has numerous empirical papers on relationship banking that provide ways to empirically distinguish between relationship and transaction loans (e.g., Ongena-Smith (*JFE*, 2001) and Degryse-Ongena (*JF*, 2005)).

   - Huang-Ratnovski (*JFI*, 2011) also show that the “dark side” of wholesele funding—nonrenewal of funding—is less of a problem for relationship lending banks.

Discussion CT

Research Question: How do banks use covenants in credit line contracts (loan commitments) when they face reductions in their own funding (liquidity shock)?

Key Results:

- *When there are no funding shocks experienced by banks, they honor their LCs and do not deny credit following covenant violations (reputational concerns)*
- *But when liquidity is scarce, LCs are revoked with a higher probability following covenant violations.*

Regulatory Implication:

- Government guarantees (like deposit insurance) that provide continued deposit financing to banks will reduce LC revocations and thus enhance ability of banks to insure borrowers against credit rationing.

Comments

1. The notion that LCs provide borrowers (partial) insurance against quantity rationing is theoretically also encountered in Thakor (*JMCB*, 2005). That paper shows that banks do not invoke the MAC clause (even when they should) during economic upturns and invoke it correctly during downturns—due to reputational concerns.

   $\Rightarrow$ Overlending in economic booms;

   $\Rightarrow$ Revoking LC after covenant violations *may* be *efficient*.

   $\Rightarrow$ Calls government guarantee policy prescription into question.

2. The PTV paper (as well as a Jean Helwege paper for US banks) shows that the so-called “liquidity shortage” episodes are not marketwide liquidity shortages but rather financiers reallocating funding by discriminating across banks based on insolvency risk...

   ..useful to check that here.

3. Evidence provided by Taylor also shows that this was not a marketwide liquidity crisis but rather funding shortages and yield movements were driven mainly by insolvency risk/counterparty risk concerns.

- Taylor-Williams (2009): LIBOR-OIS spread (measure of liquidity and credit risks) regressed against unsecured-secured spread (measure of credit risk) $\rightarrow$ very high positive correlation $\Rightarrow$ LIBOR-OIS spread driven mainly by insolvency risk, with little role for liquidity.

4. Assumption in theoretical model that MAC clause can be ignored (because it is rarely invoked) is questionable because...
   - It *does* exist in LC contracts.
   - Rocco Huang's ("How Committed are Bank Lines of Credit?---", *WP*, 2015) evidence suggests that MAC clauses *were* invoked (by more distressed banks) during recent crisis.

Discussion of KO

Research Question: What is the interaction between liquidity and capital requirements and how should they be jointly designed?

Motivation: Interesting question because we normally think of these requirements as addressing different problems

- *Capital requirements:* risk-taking incentives
- Liquidity/reserve requirements: *withdrawal or short-term funding risk.*

Key Results:

- Having only capital requirements induces banks to overinvest in risky assets and keep too little liquidity $\Rightarrow$ more fire sales of risky assets when banks are hit with interim liquidity shock $\Rightarrow$ depressed risky asset prices.
- Liquidity requirements help because they deal with problem of individual banks not internalizing fire sale externality.

Intuition:

- Risky asset return > riskless asset return
- Banks would therefore prefer risky asset
- But if hit with interim liquidity (deposit funding renewal) shock, banks are assumed to be unable to raise equity to meet shock

  $\Rightarrow$ Must sell risky assets (by assumption) at fire sale prices since outsiders attach lower value to assets than incumbent banks.

  $\Rightarrow$ Keeping some investment in riskless assets helps because fewer risky assets then sold $\Rightarrow$ less of fire sale price effect with larger liquidity buffers.

- Tradeoff determines portfolio mix but too little investment in riskless asset as banks fail to internalize fire sale externality.

Assessment

1) Love the intuition: very cool.

2) Paper clearly written with a nice question

Some Issues / Suggestions:

3) The inability to raise financing is a very strong assumption. If you can sell assets, why can't you raise financing by issuing claims against those assets? (Note: Winstar cases).

4) The model implicitly assumes there isn't a well-functioning interbank fed funds market (as in Allen-Gale, *JPE*, 2000) or a well-functioning secondary market in which loans can be sold.

Assessment

5) Are banks really subject to market-side liquidity shocks? The PTV paper suggests not—these are really reactions to perceived insolvency risk shocks.

   ⇒ In that case, empirical evidence suggests that higher capital will make it easier for banks to raise financing when hit with a refinancing shock...thereby obviating the need to sell assets

   ⇒ Consistent with evidence in Boyson-Helwege-Jindra (*FM*, 2014), and Mehran-Thakor (*RFS,* 2011) evidence that higher-capital banks have higher values so they can issue new claims and raise more money.

- This suggests that sufficiently high capital requirements may handle *both* problems by diminishing refinancing risk for banks.

Assessment

6) What about GE effects? Banks with surplus liquidity or high capital can buy assets of banks that need liquidity or just buy out whole banks to eliminate fire sale problem?

- Evidence in Berger and Bouwman *(JFE,* 2013) supports this idea—high-capital banks were able to increase market share during many crises by buying out low-capital banks.

- Calomiris-Nissim (*JFI,* 2014) evidence also suggests that market now (post-crisis) attaches greater weight to capital in valuing banks than it did prior to the crisis.