Shadow Banking, Central Banking, and the Future of Global Finance

Perry Mehrling
Shadow Banking: A European Perspective
City University London
Feb 2, 2013
A Bagehot Moment
A Money View of Financial Globalization

• Global capital markets
  – Global money funding system
  – Central bank backstops and “cooperation”
  – “Bagehot was a shadow banker” (2012)

• Global money markets
  – Global foreign exchange system
  – Central bank backstops and “cooperation”
  – “Essential hybridity” (2013)
Shadow banking as characteristic institutional form

“Money market funding of Capital market lending”

• Global funding of local lending
• Market pricing, both money and capital
• Key role of market-making institutions
• Key role of central bank as backstop
## Collateral and Payment Flows

### Capital Funding Bank  **Global Money Dealer**  Asset Manager

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### Derivative Dealer

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Idealization

• We abstract from...
  – Retail depositors, direct investors, traditional banks
  – Securitization process (underwriting, legal basis)
  – Liquidity reserves (Tbills and cash)
  – Capital reserves (Haircuts)
  – Proprietary dealing (price risk, “leverage”)

• In order to focus on....
  – System interlinkages and dynamics (boom-bust)
  – Liquidity risk, not solvency risk
  – Tail liquidity backstops
    • funding liquidity and market liquidity
Other definitions

• Received views...

• Emphasize “shadow” versus “traditional” banking...
  – Bank vs. non-bank
  – Regulated vs. non-regulated (evasion)
  – Direct government backstop vs. indirect (unauthorized)

• Versus our emphasis on banking evolution.
  – Financial globalization: dollar funding, reserve currency holding
    • Cf. Shin (2011) “Global Banking Glut and Loan Risk Premium”
  – Financial revolution: derivatives, risk pricing markets

• Imagine a world of ONLY shadow banking
Financial Stability Board (WS5)

• “Securities lending and repo markets play crucial roles in supporting price discovery and secondary market liquidity for a variety of securities issued by both public and private agents.”
Touching the Elephant

PRESENT

Cash Outflows

Money

Past Economics

Cash Inflows

Present

Future Finance
The Money View: Resources from the Past

1. Copeland (1952): A Moneyflow Economy
2. Minsky (1957): The Survival Constraint
3. Hawtrey (1919): Hierarchy of Money and Credit, Inherent Instability
5. Bagehot (1873): Central Bank as Dealer of Last Resort
Solvency vs. Liquidity

Equity Finance | Bond Finance | Money Finance
---|---|---

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<tr>
<td>PV(Future earnings)</td>
<td>Bonds 10 Equity 90</td>
<td>PV(Future Earnings)</td>
<td>Bonds 90 Equity 10</td>
<td>Bonds 100</td>
<td>Deposits 90 Equity 10</td>
</tr>
</tbody>
</table>

• Leverage: Equity vs. Bond (Solvency)
  – Modigliani-Miller Theorem
  – Possible unpriced government safety net

• Liquidity: Bond vs. Money (Liquidity)
  – Minsky: Hedge, Speculative, Ponzi
  – Timing (mis)match of cash inflows/outflows
Liquidity, Old and New

Money Finance    Shadow Bank    Asset Manager

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• Survival Constraint, old and new
  – Payment system clearing
  – Collateral system clearing
    • Secured lending
    • Derivative settlement
Money and Banking defined

- Money = “transferable credit”
  - “inside” (credit) not “outside” (fiat)
  - “public” and “private” hybrid
  - Payment system as par credit clearing

- Banking = “swap of IOUs”
  - On-balance sheet: “loans create deposits”
  - Derivatives as natural banking business
    - e.g. Interest Rate Swaps, CDS, FXS
  - Banks as money dealers, market makers
Hierarchy of Money and Credit

<table>
<thead>
<tr>
<th>Asset</th>
<th>Market Maker</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>Gold</td>
<td>Central Bank</td>
<td>Exchange Rate</td>
</tr>
<tr>
<td>Currency</td>
<td>Banking System</td>
<td>Par</td>
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<td>Deposits</td>
<td>Security Dealers</td>
<td>Interest Rate</td>
</tr>
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<td>Securities</td>
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## “Making” Markets, Money and Risk

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Backstopping Market-making

- Global Money Dealer

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- Central Bank (or C5)

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Transformation of the Fed
Fed Balance Sheet Transformed

Dec 15, 2011            Dec 15, 2011 (restated)

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<tr>
<td>Treasuries $1.7</td>
<td>Currency $1.0</td>
<td>[TBill $2.6]</td>
<td>Curr./Res. $2.6]</td>
</tr>
<tr>
<td>MBS/GSE .9</td>
<td>Reserves $1.6</td>
<td>[Tbond 2.6]</td>
<td>Tbill 2.6]</td>
</tr>
<tr>
<td>Other .3</td>
<td>Other .3</td>
<td>[Risky Secs .9]</td>
<td>Tbond .9]</td>
</tr>
<tr>
<td>TOTAL 2.9</td>
<td>TOTAL 2.9</td>
<td>TOTAL 6.4?</td>
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• Fed as Dealer of Last Resort
  – Global Money Dealer (OIS) [and FX swap]
  – Global Derivative Dealer (IRS, CDS)
Dynamic Order Flow

• Boom and Bust, inherent instability of credit
  – (Asset Manager) Demand > (Capital Funding Bank) Supply
  – (Asset Manager) Demand < (Capital Funding Bank) Supply

• Dealer Balance sheet absorbs order flow imbalance (for a price)
  – Dealer Balance sheet =
    Matched Book + Speculative Book
    Liquidity Risk + Price Risk

• Volcker Rule
  – Matched Book → Liquidity Backstop (Central Bank)
  – Speculative Book → Capital Backstop (Private)
Centrality of the Dealer Function

Treynor, 1987
Boom Order Flow:
Asset Manager > Capital Funding Bank
Bust Order Flow: Capital Funding Bank > Asset Manager
Bust Order Flow: Dealer Funding Stress
"Making" Markets, Money and Risk

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FX Issues

• Tapping global dollar funding markets, for domestic currency capital market lending → FX risk

• National central bank as dollar liquidity backstop
  – Payments and Collateral (private dealer backstop)
  – Crisis (naked forward exposure)

• C5 (and IMF) as crisis backstop for NCB
  – Liquidity swaps: BoJ, SNB, BoE, ECB, Fed
  – IMF
Backstopping Global Funding Markets

Figure 6: USD OIS–LIBOR spread, 1 and 3 months.
Transformation of the Fed
## Dollar funding and FX

### Figure 1: Private Settlement

<table>
<thead>
<tr>
<th>Surplus Country</th>
<th>FX Dealers</th>
<th>Deficit Country</th>
</tr>
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<tbody>
<tr>
<td>Assets</td>
<td>Liabilities</td>
<td>Assets</td>
</tr>
<tr>
<td>$10 due from</td>
<td></td>
<td>+$10/s FX spot</td>
</tr>
<tr>
<td>-$10 due from +$10 spot</td>
<td>+$10 term</td>
<td>+$10/s FX term</td>
</tr>
<tr>
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# Dollar funding and FX

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<tr>
<td>-$10 due from</td>
<td></td>
<td>+$10/spot</td>
<td>+$10 spot</td>
<td>-$10/spot</td>
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<td>+$10 spot</td>
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- **Matched book**: The matched book is highlighted with arrows pointing to +$10/spot and +$10 term in the FX dealers section.
- **Speculative**: The speculative nature of the transactions is indicated by the arrows pointing to the changes in assets and liabilities.
EH and UIP “anomalies”

Figure 2: Profit-seeking Dealers

Matched-Book

Speculative

\[
\text{expected profit} = E(s) - f
\]
# International Hierarchy of Money

**Figure 6: The International Hierarchy of Money**

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<th>America</th>
<th>Europe</th>
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<td>Reserve Currency</td>
<td></td>
<td>Public dollar money</td>
<td></td>
</tr>
<tr>
<td>Key Currency</td>
<td>Yen</td>
<td>Private dollar money</td>
<td>Pound Sterling, Euro</td>
</tr>
<tr>
<td>Major Credit Money</td>
<td>Australian dollar</td>
<td>Canadian dollar</td>
<td>Swiss franc</td>
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FUTURE Finance