Financial Dominance
Paolo Baffi Lecture 2015
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Banca d’Italia

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Overview

1. Ex-post redistribution of losses & recap
   • To sector with higher “amplification threat”
     ▪ Financial sector’s amplification in 4 Steps
     ▪ Amplifying amplification through “Financial Dominance”

2. Ex-ante risk sharing rules & contingent commitment

3. Government debt
   • Banks as hostage vs. as insurers
     ▪ Doubling up strategy & diabolic loop
   • Role of other investors: “Secondary market dilemma”

4. Financial, fiscal and monetary dominance

5. European Monetary Union & ESBies
1. Re-distribution of losses after crisis erupted

**Losses**

- **Permanent**
  - Financial sector
  - HH sector
  - Nominal Savers
    - "financial repression"
  - Tax payer

- **Temporary**
  - (Liquidity)

**Amplified by**
- Liquidity spiral
- Disinflationary spiral
- Keynesian demand (MPCs)
Amplification in Financial Sector

- Technologies $b$
- Technologies $a$

The I Theory of Money

- with Yuliy Sannikov
Shock impairs assets: 1st of 4 steps

- Technologies \( b \)
- Technologies \( a \)
Shrink balance sheet: 2\textsuperscript{nd} of 4 steps

- Technologies \( b \)

- Technologies \( a \)
Liquidity spiral: asset price drop: 3rd of 4

- Technologies $b$
- Technologies $a$

Switch
Disinflationary spiral: 4\textsuperscript{th} of 4 steps

- Technologies \( b \)

- Intermediaries are hit and shrink their balance sheets inducing
  - Asset side  liquidity spiral  financial stability
  - Liability side  disinflation spiral  price stability

- Response of intermediaries to adverse shock leads to endogenous risk due to amplification
“Paradox of Prudence”

- ... in I Theory.

- Each bank is “micro prudent” (deleverages)
  - creates endogenous macro-risk “macro-inprudent”
    - Price process (drift & volatility) are taken as given
    - Pecuniary externality

- Analogy:
  Keynes’ paradox of thrift (levels instead of risk)
  each consumer saves ➞ aggregate income/saving declines
Ex-post Redistribution via Monetary Policy

- (Contingent) redistribution ... towards the banks “stealth recapitalization”

- Adverse shock $\Rightarrow$ value of risky claims drops
- Monetary policy response: cut short-term interest rate
  - Value of long-term bonds (relative to money) $\uparrow$
  - “stealth recapitalization”
- Liquidity & Deflationary Spirals are mitigated

- Special Role of default-free long-term “safe asset” for MoPo
  - Interest rate policy leads to income/wealth effects (not only substitution effects)

- Refrain from government default
Redistribute via many Routes

- Ex-post redistribution via
  - Monetary policy: change asset prices/exchange rates
    “stealth recapitalization” (income not substitution effects)
  - Inflate away debt
  - Outright default on debt
  - Toughen foreclosure laws
  - Soften private bankruptcy
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- Financial Dominance
  - Financial sector refuses to recapitalize itself, will try to maximize adverse amplification
  - “being weak is your strength”
    - defense mechanism against financial repression
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Involves government debt

Source: Shin
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Ex-ante: Rule – Contingent Commitment

- **Ideal Rule** (e.g. monetary rule):
  - Distribute to “bottleneck” (balance sheet impaired sector)
  - Improves risk sharing/insurance
  - reduces amplification
  - endogenous risk
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- **Problems:**
  1. Insurance alters behavior
     - Moral hazard
  2. Time-inconsistent rule
     How to commit to it?
## Contingent Commitment Challenge

<table>
<thead>
<tr>
<th>Ex-ante</th>
<th>Interim</th>
<th>Ex-post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov. promises to limit ex-post redistributions (only risk sharing)</td>
<td>Strategic positioning</td>
<td>Redistribution of losses, MoPo, bail-outs</td>
</tr>
</tbody>
</table>

### Time-inconsistency

- **Ex-ante**: promise limited redistribution to keep interest rate low
- **Ex-post**: redistribute too much

**Financial dominance**

- Pay out dividend
- Invest in gov. bonds (crowds out real lending)
- Deflationary spiral

**Benefits sector that can cause most severe amplifications**
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- Dual role of contingent debt
  - Liquidity: Smooth temporary shocks over time
    - Tax smoothing
    - Keynesian stimulus
  - Solvency: Risk sharing permanent shocks over states of nature
    - Through MoPo
    - Through default

- Time-consistency + risk sharing problem
  - Ex-ante:
    - promise to repay in states above a certain cut off
    - (partially) default in “crisis states”
  - Ex-post:
    - Excessive default

- Contingent commitment vs. “straightjacket commitment”
Government Debt: Toy Model

- $t = 1$ Refinance outstanding debt (from $t = 0$)
  - Determines face value of new debt
  - Default costs

- $t = 2$ uncertainty realizes -- state space
  1. $x = \text{GDP: Economic activity – income of citizens}$
  2. $\bar{x} = \text{Primary surplus: absent austerity measures/extra taxes}$

- Repay debt
- Extra austerity measures/taxes to cover shortfall
- Default decision
Government Debt

- Limited commitment: verification cost
- Risk-neutral investors

\begin{align*}
\text{Payoff of debt claim in } t = 2 &= \frac{1}{x} \\
\text{Face value} &= 1
\end{align*}
Government Debt

- Limited commitment: verification cost
- Risk-neutral investors

\[
\text{Payoff of debt claim in } t = 2 = \frac{1}{\bar{x}} \times (1 - \text{default probability})
\]
Government Debt

- Limited commitment: verification cost
- Risk-neutral investors

Contingent debt
  - Partial default in bad states

Payoff of debt claim in $t = 2$

Face value vs. Tax revenue (normal regime)

Verification cost
Government Debt

- Limited commitment: verification cost
- Risk-neutral investors

\[ \text{Face value} = \frac{1}{x} \]

\[ \text{Tax revenue (normal regime)} = \frac{1}{x} \]

\[ \text{Payoff of debt claim in } t = 2 \]

\[ \text{Refinancing Potential } t = 1 \]
Government Debt

- Limited commitment: verification cost
- Risk-neutral investors

\[ \text{Face value} \]

\[ \text{Tax revenue (normal regime)} \]

\[ \text{Face value} \]

\[ \frac{1}{x} \]

\[ \text{Verification cost} \]

\[ \text{Default probability} \]

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Government Debt

- Limited commitment: verification cost
- Risk-neutral investors
Government Debt

- Limited commitment: verification cost
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\[
\text{Refinancing Potential } t = 1
\]

\[
\text{Face value}
\]

Payoff of debt claim in \( t = 2 \)

\[
\text{Face value}
\]

\[
\text{Tax revenue (normal regime)}
\]

\[
\text{0}
\]

\[
\text{Verification cost}
\]

\[
\text{In default probability}
\]

\[
\text{Tax revenue (normal regime)}
\]

\[
\text{0}
\]

\[
\frac{1}{x}
\]

\[
\text{1} / x
\]

\[
\text{solvent}
\]

\[
\text{illiquidity}
\]

\[
\text{insolvent}
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Government Debt

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- Risk-neutral investors

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\[
\text{Tax revenue (normal regime)}
\]

\[
\text{Refinancing Potential } t = 1
\]

\[
\text{Face value}
\]

\[
\text{1 + } r^B
\]

\[
\text{solvent}
\]

\[
\text{illiquidity}
\]

\[
\text{insolvent}
\]
“Straight Jacket” Commitment

\[
\frac{1}{x} \rightarrow 0
\]

Tax revenue (normal regime)

Face value
"Straight Jacket" Commitment

- Refinancing Potential $t = 1$
- No liquidity problem
- solvent
- insolv.
- always liquidity
“Straight Jacket” Commitment

- ... but tax short-fall
- Needs to raise taxes/austerity: distortionary costs

1 \over x \times 1

Face value

but.... shortfall

Refinancing Potential \ t = 1

No liquidity problem

always liquidity

in catastrophe states
“Straight Jacket” Commitment

- Shortfall needs to be financed through
  - Austerity measures
  - Emergency tax hikes

\[ \tau(x - F) \]

- For very low realizations of \( x \) these costs might go to infinity

No liquidity problem
How can Financial Sector Help?

1. Offer itself as **hostage** for commitment device to repay financial dominance is helpful ...
   - Impose “default cost” $C$ on citizens
     - $x$, i.e. GDP, declines as banking sector goes into tailspin
   - History: Bank of England
   - But government has to
     - Pay in addition to bail out banking sector
     - Banking sector kills real sector, gov. debt crowds out real loans

2. Provide insurance against
   - Rollover risk
   - Solvency risk

only achievable if banks have sufficient loss absorption capacity financial dominance rules this out
“Straight Jacket” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$
Diabolic Loop

- Trigger: fiscal or financial

- Financial dominance increases commitment costs!
“Bank Hostage” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$
- Financial dominance increase commitment costs $C$
“Bank Hostage” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$
- Increase commitment costs $C$

Lower default probability
“Bank Hostage” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$

- Increase commitment costs $C$

- Lower default probability
- Lower verification cost
- Lower face value $F$
- Interest rate

Diagram:
- $\tau(x - F)$
- $C + x - F$
- $F$
- $1/x$
- $x$

Default austerity
“Bank Hostage” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$
- Increase commitment costs $C$

Graphically:
- Lower default probability
- Lower verification cost
- Lower face value $F$
- Lower interest rate

Again:
- Lower default probability

Diagram:
- $\tau(x - F)$
- $C + x - F$
- $1/x$
- $x$
- Default austerity
“Bank Hostage” Commitment

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$

- Increase commitment costs $C$

- Default prob ↓, but if: higher cost $C$ & higher austerity $\tau$

- “doubling up strategy”

- Lower default probability
- Lower verification cost
- Lower face value $F$
- Lower interest rate

Again
- Lower default probability
Diabolic Loop 2 overturns argument!

- Less lending to real economy
- GDP and tax revenue, \( x \), declines
Diabolic Loop 2

- Default if austerity costs + repayment exceed $C + x$
  - Default if $\tau(x - F) + F > C + x$
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\[ \text{Default if austerity costs + repayment exceed } C + x \]
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Diabolic Loop 2

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\[ \tau(x - F) \]

\[ C + x - F \]

\[ 1/x \]

- Lowers GDP, $x$
- Default probability rises

default  austerity
Diabolic Loop 2

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- Lowers GDP, $x$
- Default probability rises
- Verification costs rise
- Face value $F$ rises
- Interest rate rises
Diabolic Loop 2

- Default if austerity costs + repayment exceed $C + x$
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- Increase commitment costs $C$

2nd “GDP Diabolic Loop” can undo all the benefits
  - Bank hostage is not even a doubling up strategy

\[ C + x - F \]
\[ \tau(x - F) \]
“Bank Hostage” Commitment

- Extremely high commitment cost $C$ due to financial dominance
  - “straight jacket commitment”

- Reduces illiquidity problems

- Lower default prob., lower interest rate, but if failure then much worse “doubling up strategy”

- &... but 2nd Diabolic Loop goes in opposite direction

- No safety valve
... but can other investors help?

“Secondary markets dilemma”

- Selling government debt to foreign investors
- Selling government debt to voters

Before crisis gov.-debt always travels back to weak banks!

- Only way out: avoid financial dominance
  - MacroPru to ensure equity cushion of banks is large enough
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   → financial dominance rules this out
   - Sensible MacroPru regulation needed
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Interaction with Fiscal & Monetary Dominance

- Overcommitment problem

1. Split government in different authorities
2. Macro Pru & banks/investors share risk vs. straight jacket commitment
   - Strict rules for financial sector
   - Other commitments (fiscal risk sharing)
3. Both safe asset & contingent debt is needed
   - “squaring a circle”?
Institutional design: split authorities

Fiscal authority  split  Central Bank

0/1-Dominance vs. battle: “dynamic game of chicken”
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- Monetary dominance
  - Fiscal authority is forced to adjust budget deficits

- Fiscal dominance
  - Inability or unwillingness of fiscal authorities to control long-run expenditure/GDP ratio
  - Limits monetary authority to raise interest rates
Institutional Design: Financial Dominance

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  - Inability or unwillingness of financial sector to absorb losses
    - Refusal to issue no equity – pay out dividends in early phase of crisis
Institutional Design: 2^\text{nd} \ Game of Chicken

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European Context

- **Straightjacket commitment**
  - No inflation valve
  - No exchange rate valve
  - Cross-border Flight to safety capital flows

- **How can government debt be both?**
  - Safe asset (without default)
    - To smooth out temporary liquidity shortage, allow for Keynesian stimulus
  - Insurance instrument
    - To risk share extreme crisis states (Greece, ...)

ESBies
- Pool
- Split into two classes
  - Safe
  - Defaultable
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A   sovereign bonds   L
    |  ESBies
    |  Junior Bond
Flight to safety

- Today: asymmetric shifts **across borders**
  - Value of German debt decreases
    - German CDS spread rises, but yield on bund drops (flight to quality)
  - Value of Italian/Spanish/Greek... sovereign debt declines
Flight to safety

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  - Value of German debt decreases
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  - Value of Italian/Spanish/Greek... sovereign debt declines
- With ESBies: Negative co-movement across tranches
  - Value of ESBies expands – due to flight to quality
  - Value of Junior bond shrinks – due to increased risk
  - Asset side is more stable

*Flight to safety asset is endogenous (coordination problem)*
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   • Straight jacket commitment removes safety valve

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