Banking and Trading

Arnoud W.A. Boot  
U. Amsterdam and CEPR

Lev Ratnovski  
International Monetary Fund

The views in this presentation are those of the authors and do not necessarily represent those of the IMF.
Banking vs. Trading

- **Bank scope: traditional vs. market-based activities**
  - Some well understood: Lending vs underwriting
  - This paper: Novel focus

- **Relationship banking**
  - Private information, repeated long-term interactions with customers

- **Trading**
  - Short term, scalable, arm’s length
  - Prop trading, investing in securitized credit, standardized loans, etc.
  - Reflects a change in arm’s length finance: marketable → trading

- **Banking vs. trading** fundamentally different from lending vs. underwriting
Trading grows, poses challenges

- **Growth 1997-2007:**
  - Trading assets and securities 20 $\rightarrow$ 30% of balance sheet
  - Non-interest income 35 $\rightarrow$ 50% of revenue

- **Trading by banks was a factor during the crisis**
  - European universal banks (UBS, Barings // Soc Gen, DB)
  - U.S. pre-Glass-Steagall: within NY investment banks, commercial banks
  - U.S. post-Glass-Steagall: BAML, JP Morgan

- **Empirical**
  - Trading is the most risky bank activity (volatile income)
  - Banks with more trading were more likely to fail in 1998, 2008
  - Arm’s length mortgages are riskier than informed ones
  - Banks that combine lending and trading lose value
Banking: endowment of private information on customer base
1. Not scalable, high franchise value $\Rightarrow$ not credit constrained
2. Long-term
3. Relatively safe (law of large numbers)

Trading: no informational endowment
1. Scalable, less profitable $\Rightarrow$ credit constrained
2. Short-term
3. Possible probabilistic return (skewed bets)

Conglomeration:
1. Use banks’ spare capital to expand trading, but:
2. Capital misallocation: too much capital to trading ex-post
3. Risk-shifting: trading can be used to gamble

Distortions stronger when trading more scalable & banking less profitable
Conglomeration was benign before, destructive now
Outline

1. Benchmark model
2. Introduce time inconsistency
3. Introduce risk-shifting
4. Conclude, implications
Setup

- **Credit constraints (Holmstrom-Tirole, 1997)**
  \[ \Pi \geq bA \]

- **Banking:** not scalable, profitable
  - Mass \( \bar{R} \) of customers
  - Implicit equity \( R_0 \)
  - Covering future funding needs: \( rR, R \leq \bar{R} \)
  - Not credit constrained (‘spare capital’):
    \[ R_0 + r\bar{R} > b\bar{R} \]

- **Trading:** scalable, credit constrained
  - Returns \( tT, T \leq S, S \) is maximum scale
  - Less profitable \( t < r \)
  - Credit constrained \( t < b \)
    \[ tT < bT \]
Benchmark: Benefits of conglomeration

- “Use” bank balance sheet:
  - Joint IC
    \[ R_0 + rR + tT \geq b(R + T) \]  
    \( (T \leq S) \)

- Banks can serve relationship customers and then trade some
  - Banking customers served first: \( R = \bar{R} \) because \( r > t \)
  - Then trade up to \( T_{\text{max}}(R_0, r) \) or \( S \)
  - Spare trading opportunities for \( S > T_{\text{max}} \)
Benchmark
Distortion 1: Capital misallocation

- **Banking is long-term:** \textbf{Returns distributed over time}

- **Informational capture:** \textbf{back-loaded earnings}

- **Funding insurance:** \textbf{front-loaded earnings}
  - Credit lines (70\% of bank lending!)
  - “Local banking”
  - Syndicated lending

- Banks have discretion whether to make good \(\Rightarrow\) viability depends on incentives

- We model a credit line;
  represents a wider array of relationship banking arrangements
Distortion 1: Capital misallocation

- **Credit line**
  - Of earnings \( r \):
    - \( \rho \) *ex post*, at a time of the liquidity need (date 1)
    - \( r - \rho \) *ex ante*, as credit line fees (date 0)
  - All trading at date 1

- **Time inconsistency of capital allocation**
  - When \( \rho < t < r \) Allocate capital to trading *first*
  - When \( S > T_{\text{max}} \) Banking credit constrained *ex-post* \( R < \bar{R} \)

- Customers reduce credit line fees \( (r - \rho)R < (r - \rho)\bar{R} \)
- Lower profits, borrowing capacity. In extreme, banking disappears
Distortion 1: Capital misallocation

- When trading is scalable, while return to banking is low, a bank may misallocate capital to trading
- Credit line fees decline, relationship banking franchise suffers
- A bank trades “too much”
Distortion 2: Risk-shifting

- **Trading for risk-shifting**
  - Banks are leveraged
  - Hard to generate probabilistic outcomes in relationship business
  - Trading can generate skewed best

- **Risky trading:**
  - \( T \rightarrow (1+t+\alpha)T \) with probability \( p \), zero otherwise
  - NPV lower: \( 0 < (1+t+\alpha)p-1 < t \) Ex-post return higher: \( t < p(t+\alpha) \)

- **When would a bank choose risky trading?**
  - Benefit of trading: earn extra \( \alpha pT \)
  - Cost of trading: lose \( R_0+rR \) with probability \( (1-p) \)

- **When trading is scalable, while return to banking is low, a bank may use trading for risk-shifting**
Amplification

- Risk shifting induces time inconsistency:
  - By increasing ex post return to trading (consider \( t < \rho < p(t+\alpha) \))

- Time inconsistency induces risk-shifting:
  - By increasing the scale of trading (beyond \( T_{\text{max}} \)),
  - By reducing the relationship bank’s franchise value
Summary of results

- Two distortions:
  - Time inconsistency in bank capital allocation
  - Use of trading for risk-shifting
- Bank may trade too much and in too risky a fashion
- Both arise for deeper financial markets, less profitable banking
- These were in play in recent decades due to IT
- Trading by banks was benign and beneficial before, not now
Policy

- Partial equilibrium, hard to judge desirability of trading by banks

- But highlight distortions; how do current proposals address them?
  - Capital charges (Basel III / Switzerland)
  - Restrictions (Volcker/ Vickers / Liikanen)
    - Which activities?
    - Segregate or prohibit?
    - Exemptions for hedging

- Other issues
  - Can trading move to the “shadow”?
  - What to do with standalone investment banks?
Conclusions

- **Approach**
  - Banking (commercial/investment): not scalable, profitable, long-term, safe
  - Trading: scalable, credit constrained, short-term, can generate risks

- **Results**
  - Synergies: “use of bank capital” for trading
  - Conflicts: time inconsistency of capital allocation and trading as risk-shifting

- **Why has trading become distortive?**
  - Financial development: scalable trading, less profitable banking:

- **A general lesson**
  - Relationship banking depends on commitments to generate value. Short-term opportunistic opportunities destroy commitment.