

# A Financial System Perspective on Japan's Experience in the Late 1980s

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# Objectives

- Reconsider Japan's late 1980s experience in light of lessons from US subprime crisis
- Adopt “financial system perspective” (FSP)
  - Determination of credit supply in a financial system as a whole
  - Key: interlocking balance sheets of banking sector and non-financial sectors under the financial liberalization
- Draw lessons for prudential policy and monetary policy

# Japan's Late 1980s Experience in FSP

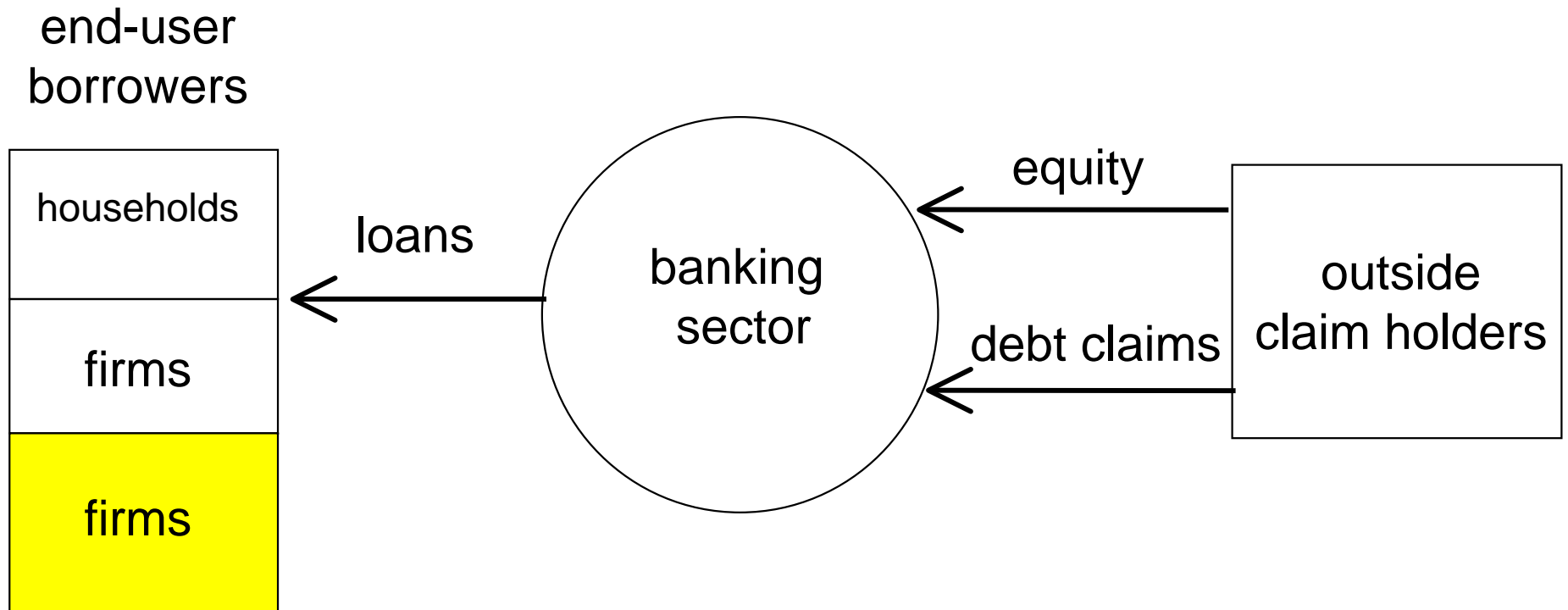
- Role of large firms channeling funds from capital markets to banking sector
  - Raise funding in securities market
  - Lend on to banking sector as time deposits
- Made possible by
  - Progress in financial liberalization in securities market and banking sector
  - Accommodative monetary policy

# Japan's Late 1980s Experience in FSP (cont)

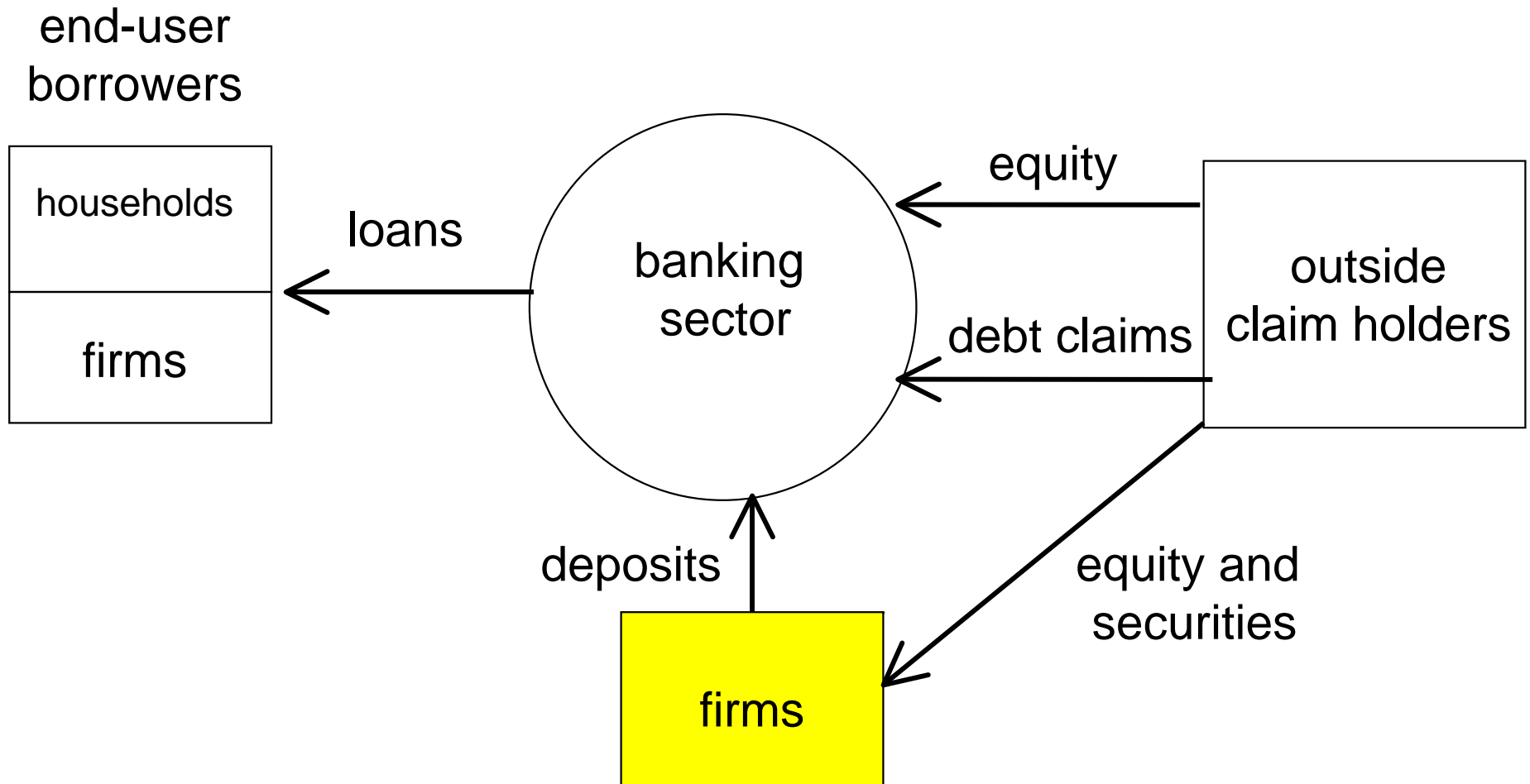
- Common to the US subprime crisis
  - New securities behind the increase in supply of overall credit
  - Integration of the commercial banking sector with the capital markets

# Financial System Perspective

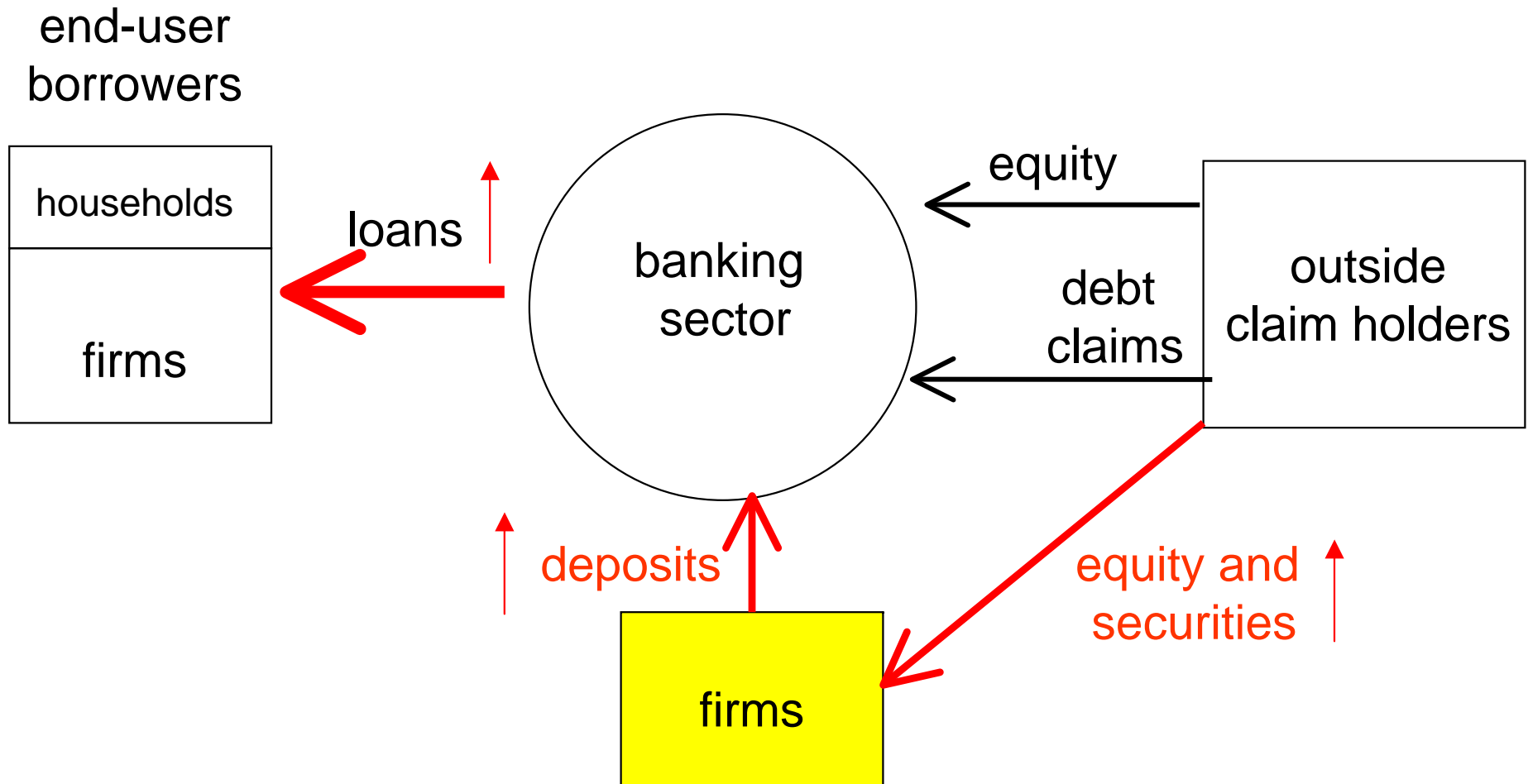
# Stylized Financial System



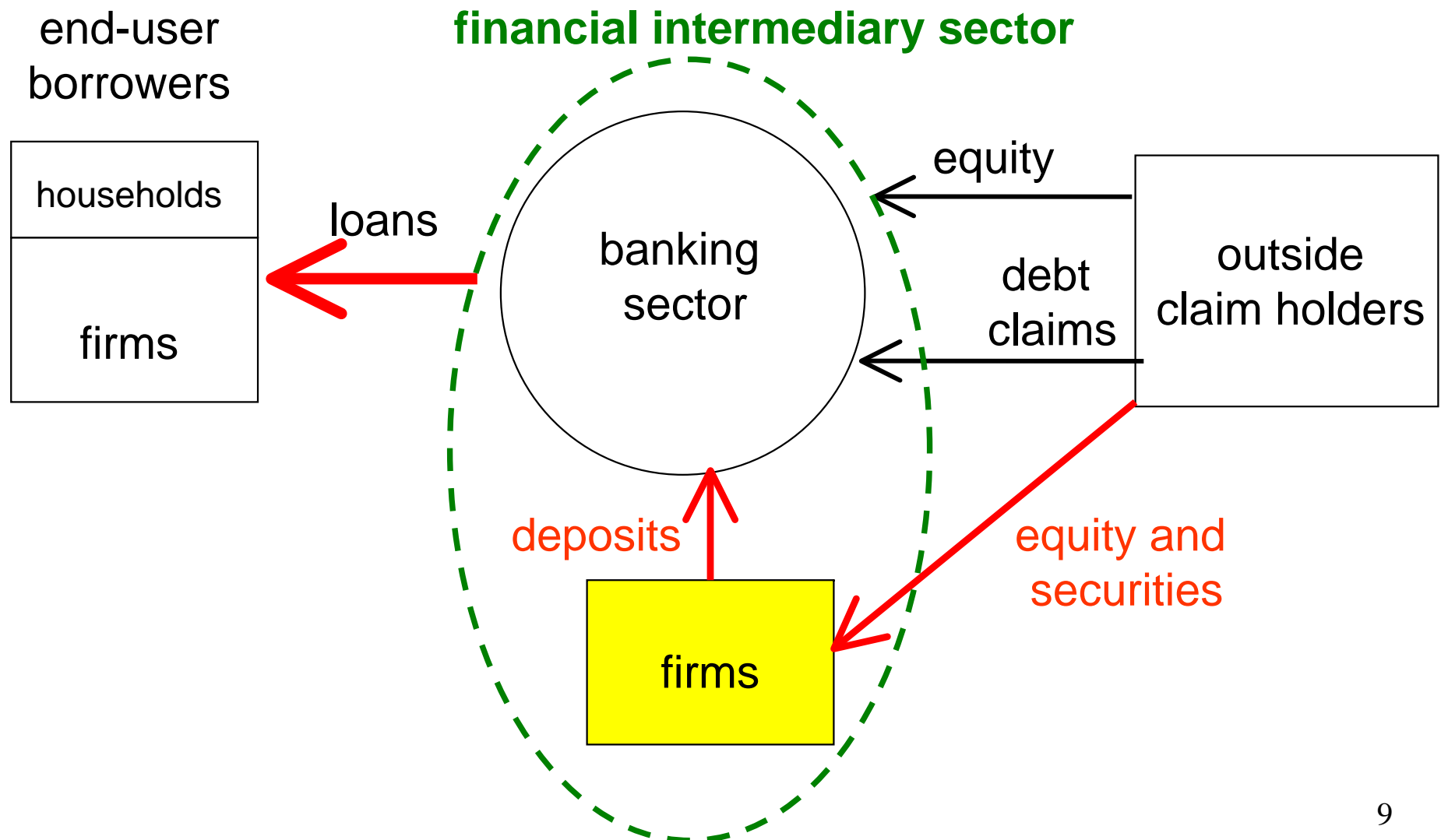
# Post Liberalization



# Growth of Credit Supply (1)



# Growth of Credit Supply (2)



# Credit Supply

$$\sum_{i=1}^n y_i = \sum_{i=1}^n e_i (1 + z_i (\lambda_i - 1))$$

$y_i$  : lending of bank  $i$  to ultimate borrowers plus holding of real assets

$e_i$  : equity of bank  $i$

$\lambda_i$  : leverage of bank  $i$  (ratio of total assets to equity)

$z_i$  : proportion of bank  $i$ 's funding that comes from outside the banking system

$n$  : number of banks in the banking system

# Individual Bank Balance Sheet

Assets

Liabilities

Loans to firms, households	Liabilities to non-banks (e.g. deposits)
Claims on other banks	Liabilities to other banks
	Equity

**Individual bank**

# Balance Sheet for Banking Sector

Assets	Liabilities
Total lending to Firms and households	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Total liabilities to non-banks (e.g. deposits)</div> <div style="text-align: center;">Total equity</div>

**Banking sector**

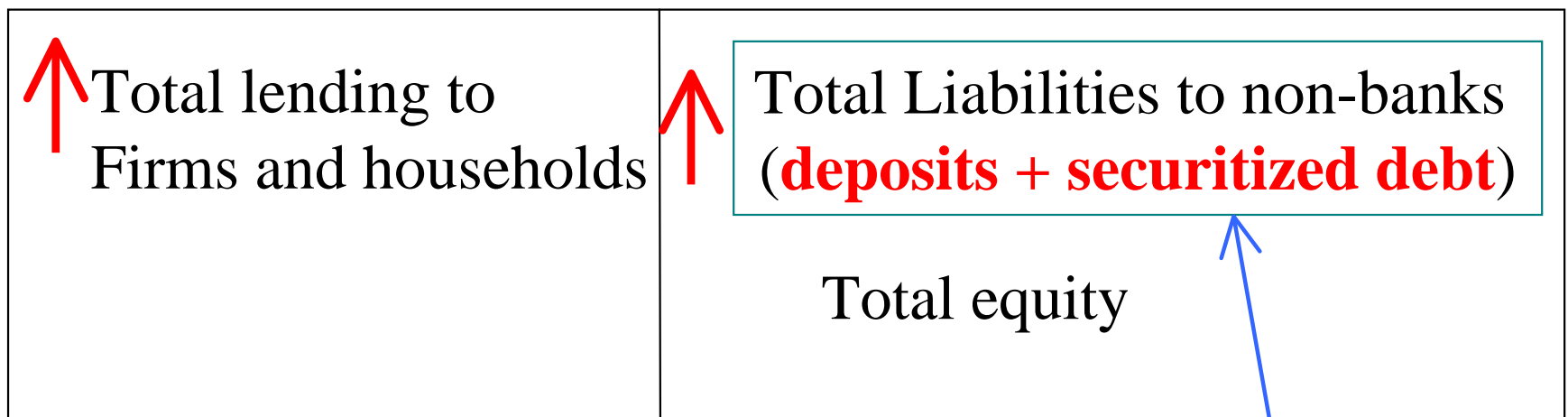
Increase of liabilities to non-financial sectors with securitized debt

$$\sum_{i=1}^n y_i = \sum_{i=1}^n e_i (1 + z_i (\lambda_i - 1)) \longrightarrow \sum_{i=1}^n y_i = \sum_{i=1}^n e_i + \sum_{i=1}^n D_i^{NFI}$$

# Leverage of Financial System

Assets

Liabilities



Leverage is ratio  
**Total assets:equity**

Increase of liabilities to non-financial sectors with securitized debt

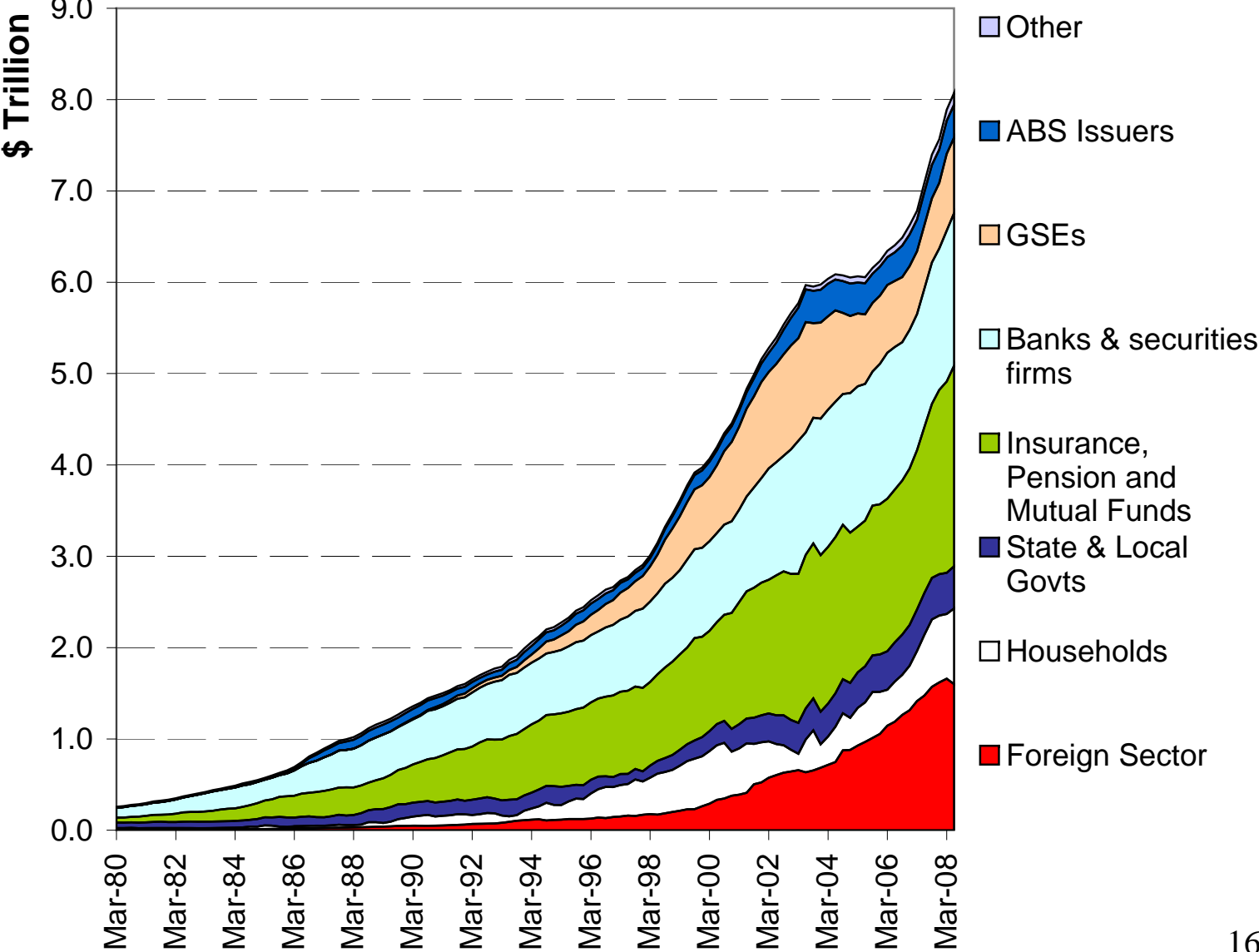
# Comparison in FSP

$$\sum_{i=1}^n y_i = \sum_{i=1}^n e_i (1 + z_i (\lambda_i - 1))$$

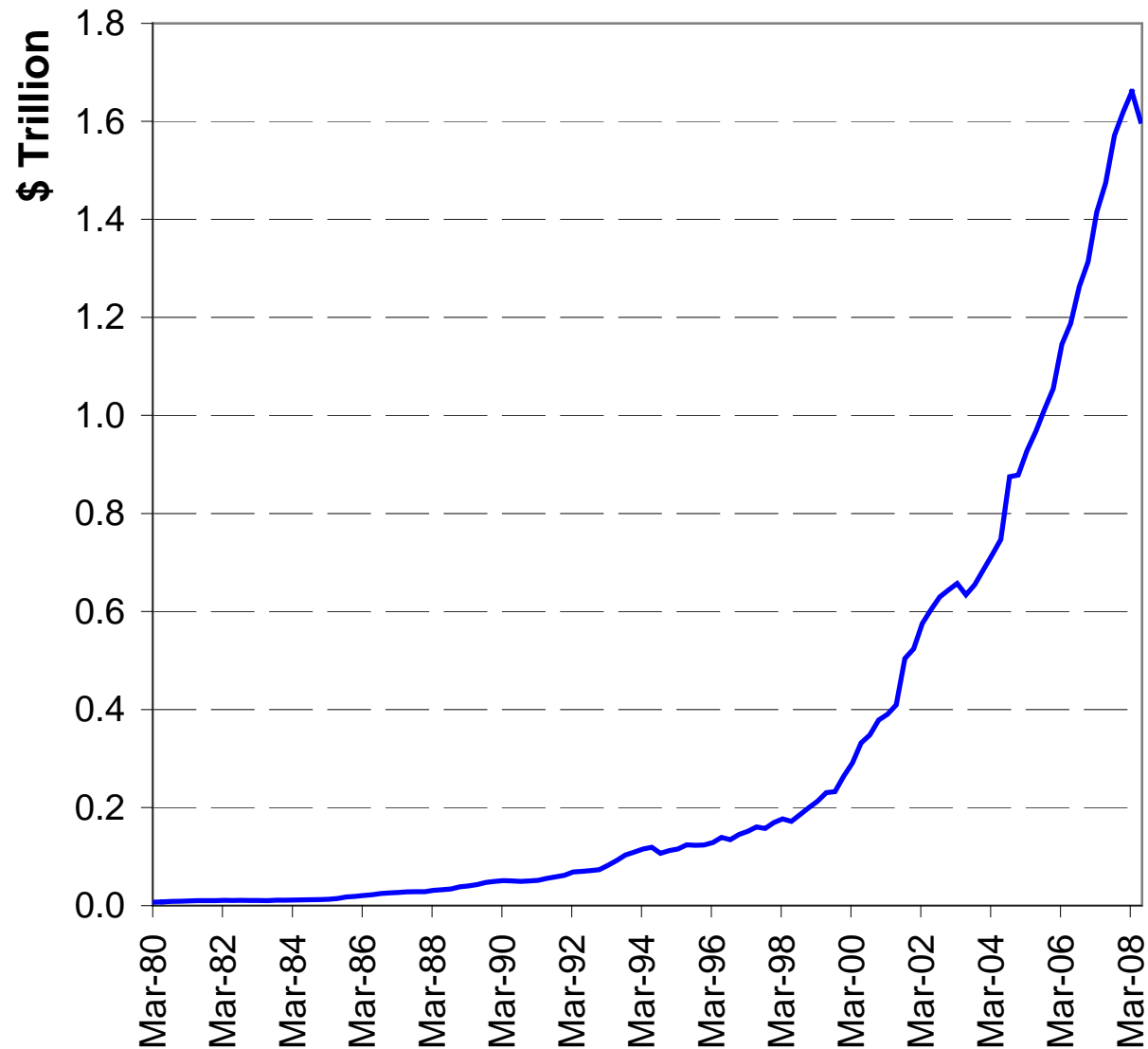
	<b>US</b>	<b>Japan</b>
<i>e<sub>i</sub></i>	–	↑
<i>z<sub>i</sub></i>	↑	↑
<i>λ<sub>i</sub></i>	↑	↓
<i>n</i>	(↑)	(↑)

# Case of US Subprime Crisis

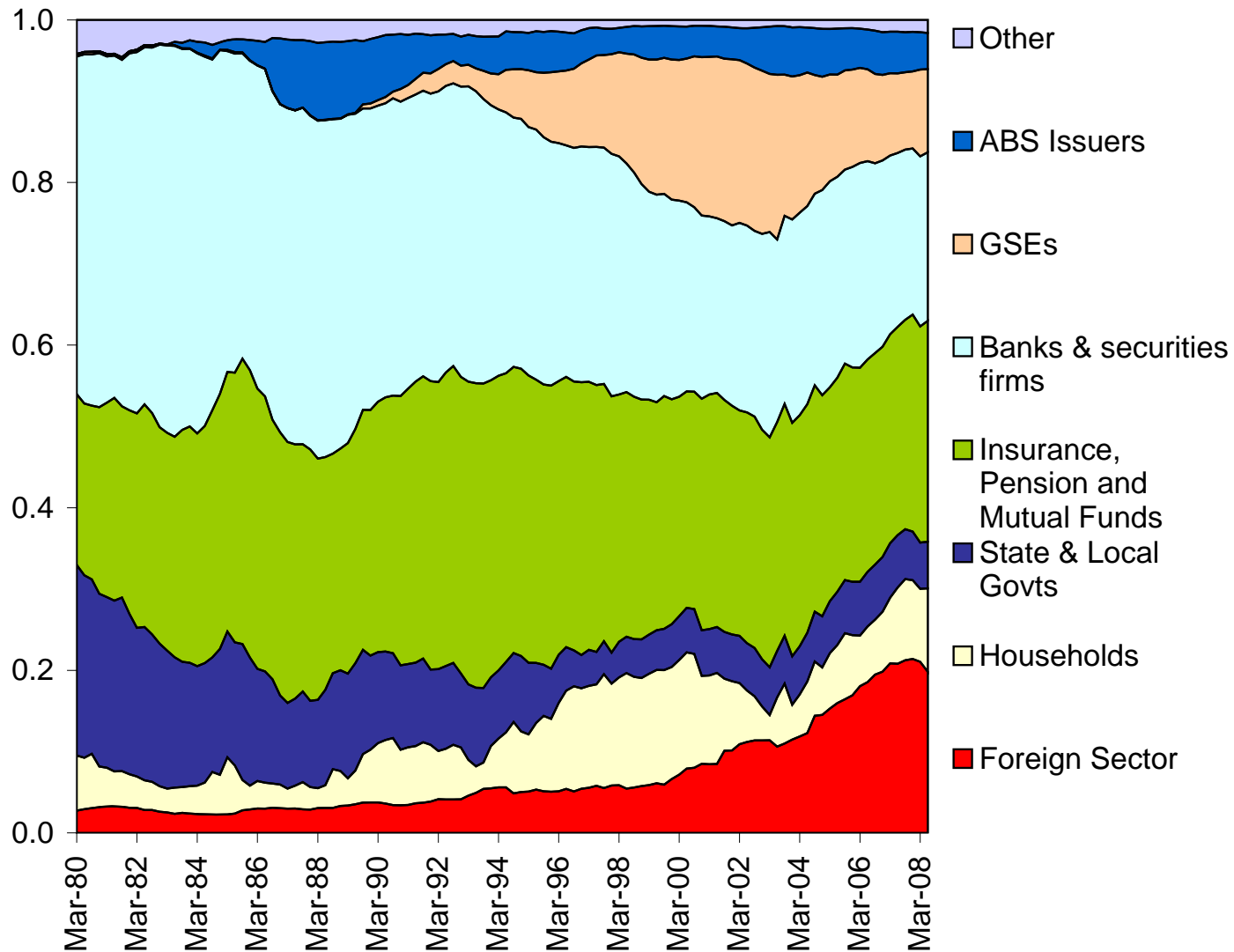
# On $z_i$ : Holders of US GSE Securities



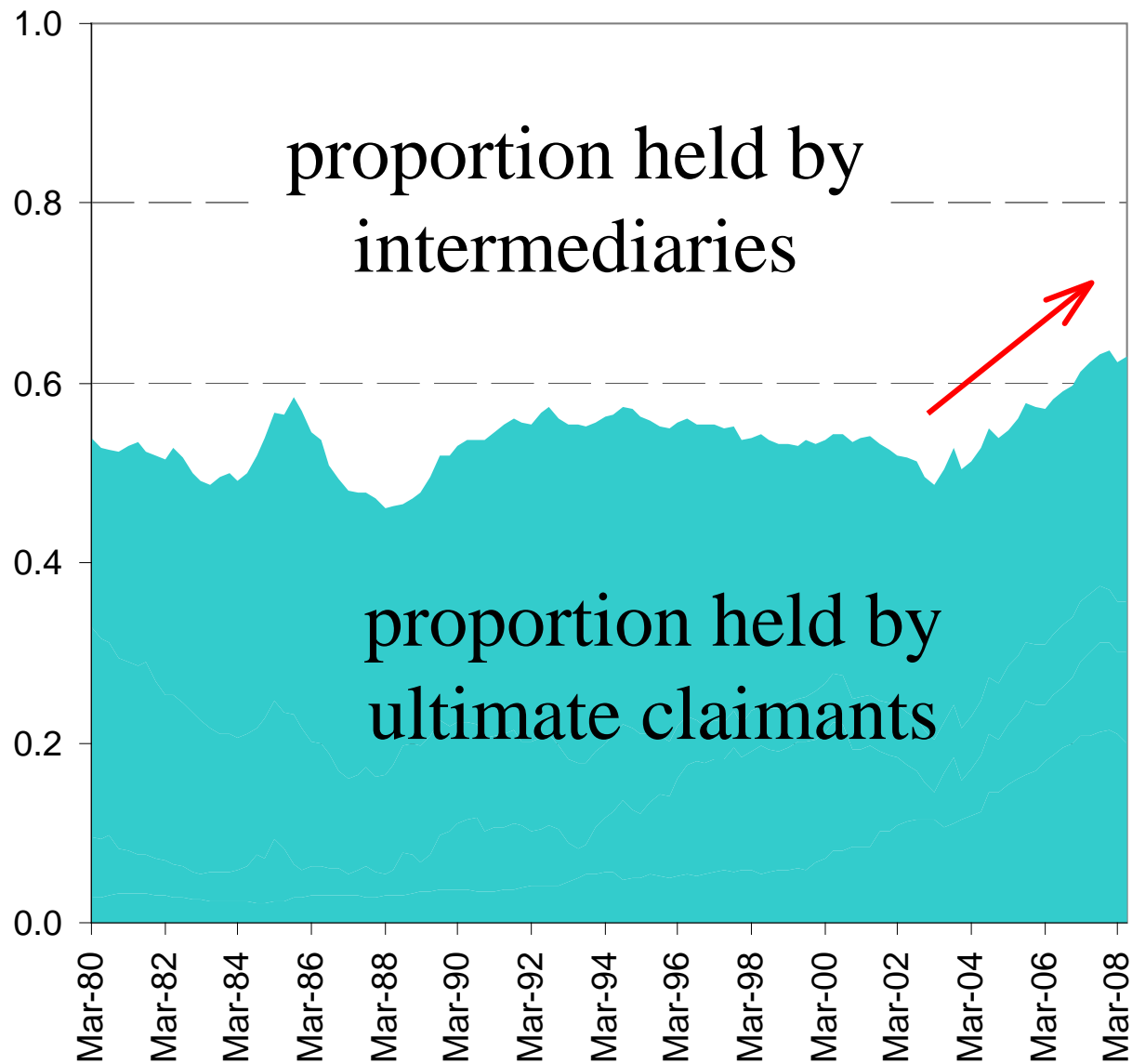
# Foreign Holding of US GSE Securities



# Funding Source for GSE Securities



# Funding Source for GSE Securities



# Case of Japan's Late 1980s

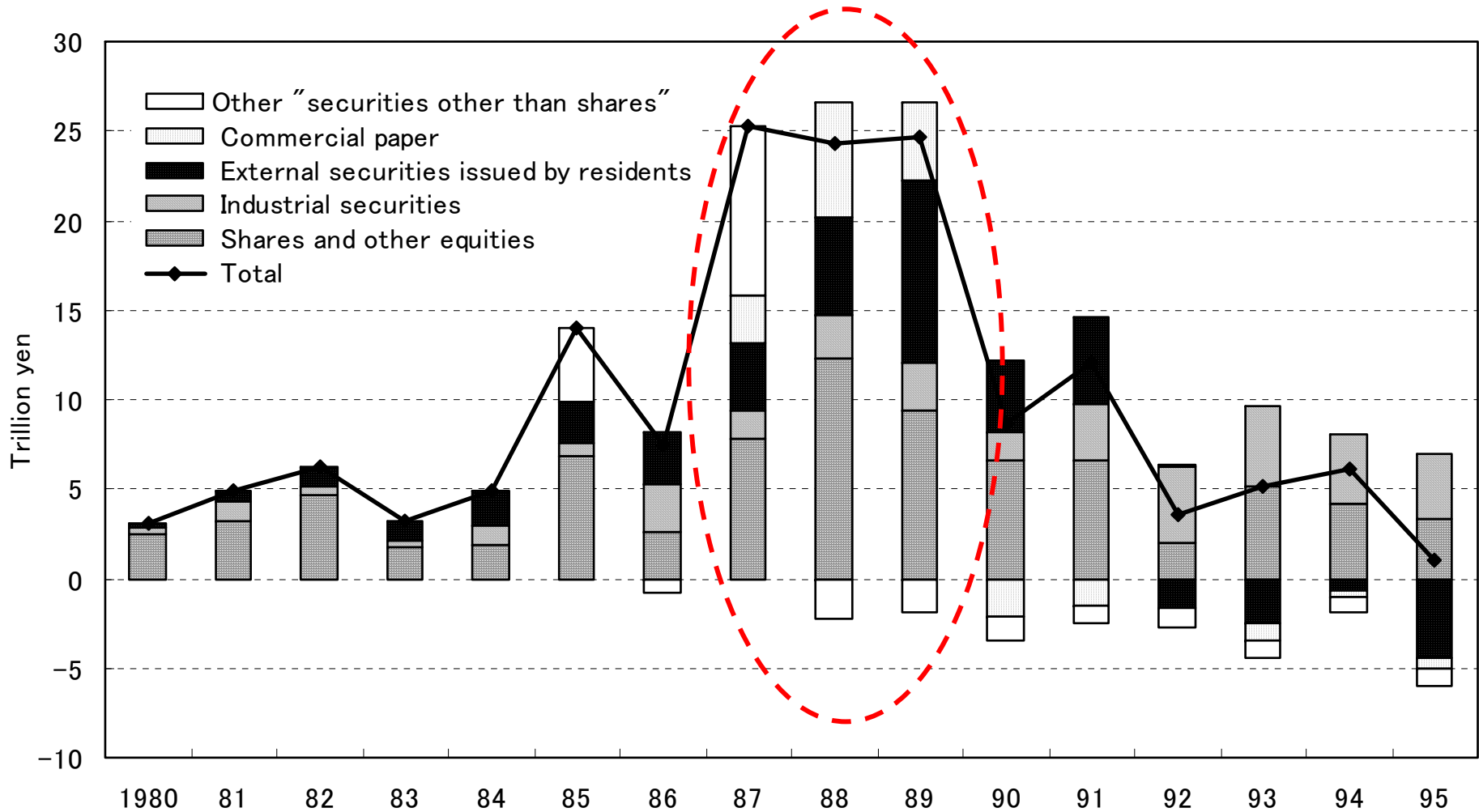
# Preceding Studies and This Paper

- Empirical features and insights are discussed by preceding studies
  - Borio and Lowe (2002), Borio and White (2003), Okina, Shirakawa and Shiratsuka (2001), and Posen (2000)
- This paper discusses them in a financial system perspective

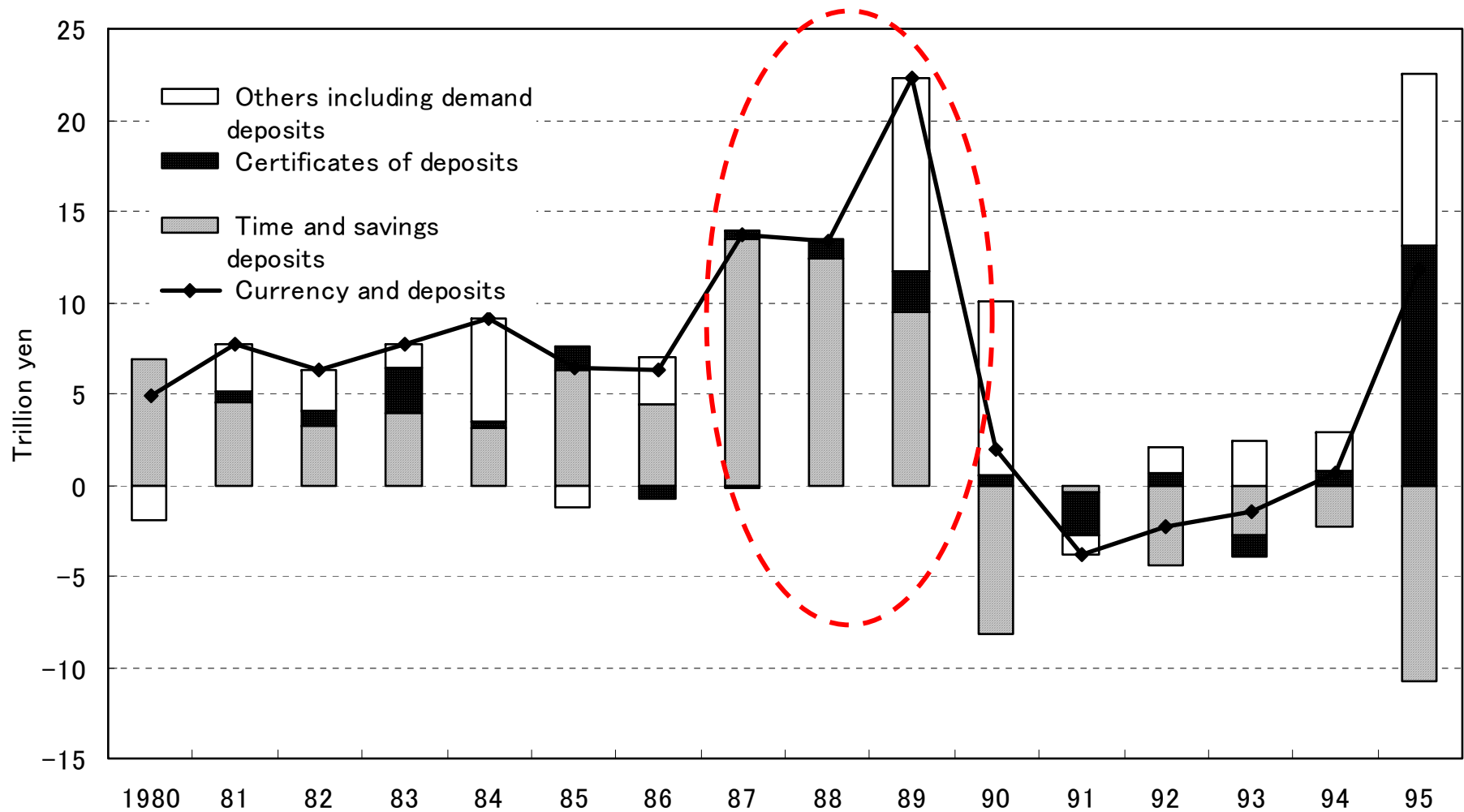
# Security Financing by Listed Firms, 1972-98

year	Total securities (million yen)	Distribution (%)		Foreign bonds	
		Stock	Bonds	as % total	as % total bonds
1972	1,784,689	58.4	41.6	0.0	0.0
1973	2,240,766	41.9	58.1	0.1	0.2
1974	1,741,396	31.2	68.8	3.4	4.9
1975	3,187,449	31.4	68.6	11.7	17.0
1976	2,302,001	29.9	70.1	18.1	25.8
1977	2,543,740	36.3	63.7	14.7	23.1
1978	2,972,270	30.2	69.8	16.4	23.5
1979	3,298,028	28.9	71.1	24.0	33.8
1980	2,883,285	36.5	63.5	24.1	37.9
1981	4,400,028	43.8	56.2	19.8	35.2
1982	4,084,502	33.0	67.0	27.7	41.3
1983	4,048,420	19.8	80.2	44.8	55.9
1984	5,409,408	19.3	80.7	44.0	54.5
1985	6,890,503	12.5	87.5	51.0	58.2
1986	8,395,196	10.4	89.6	48.2	53.8
1987	14,455,291	20.8	79.2	39.9	46.6
1988	17,636,098	27.1	72.9	30.5	41.9
1989	28,410,407	31.1	68.9	41.4	60.0
1990	14,441,448	26.3	73.7	35.8	48.5
1991	12,500,454	6.5	93.5	63.5	67.9
1992	9,619,910	4.4	95.6	60.2	62.9
1993	11,143,567	7.4	92.6	45.0	48.6
1994	8,499,604	11.0	89.0	22.6	25.4
1995	8,094,650	7.9	92.1	23.2	25.1
1996	13,616,878	15.2	84.8	18.3	21.6
1997	10,162,545	11.4	88.6	23.4	26.4
1998	15,906,750	9.7	90.3	10.0	11.1

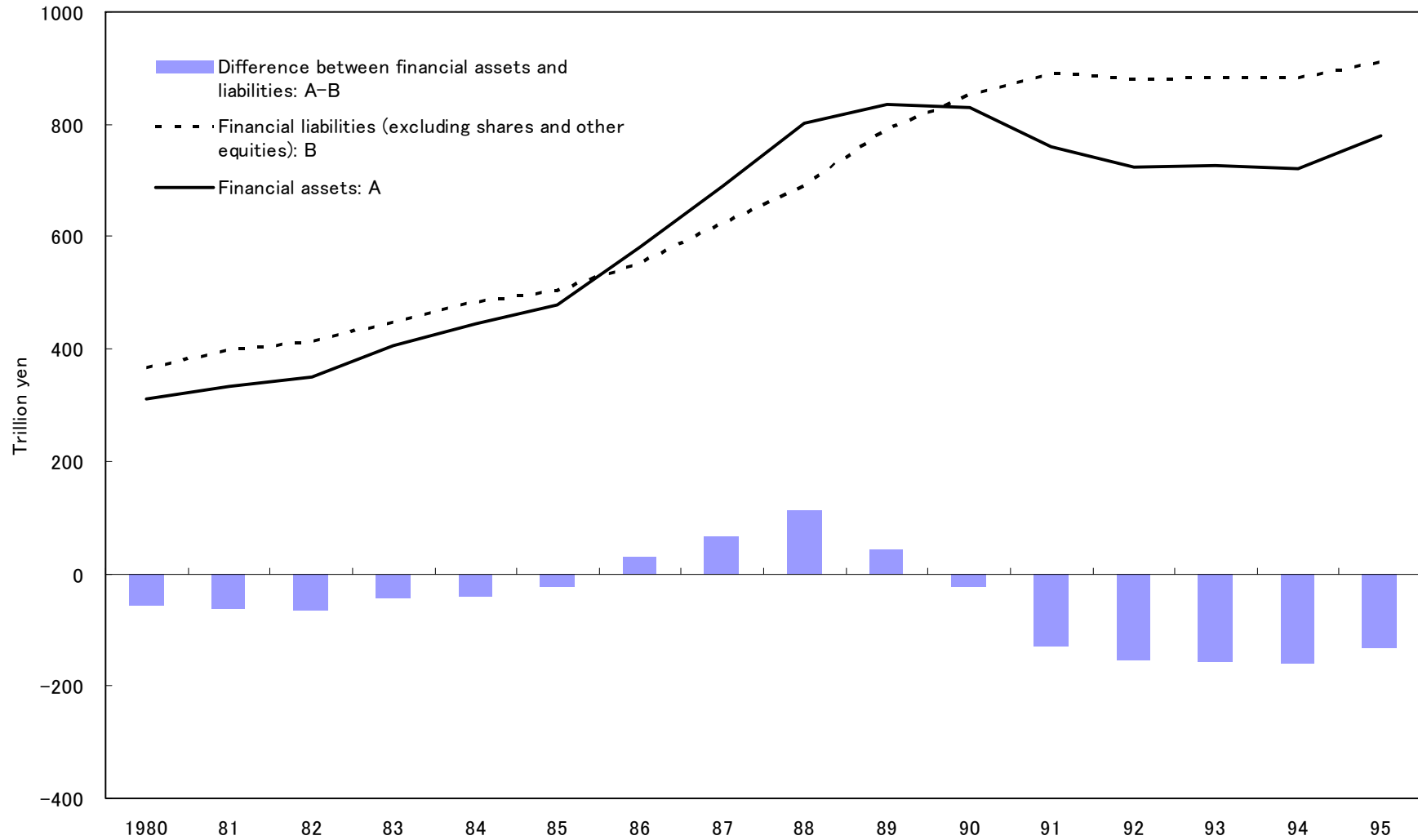
# Fundraising by Private Non-financial Corporations (Securities)



# Financial Investments by Private Non-financial Corporations (currency & deposits)

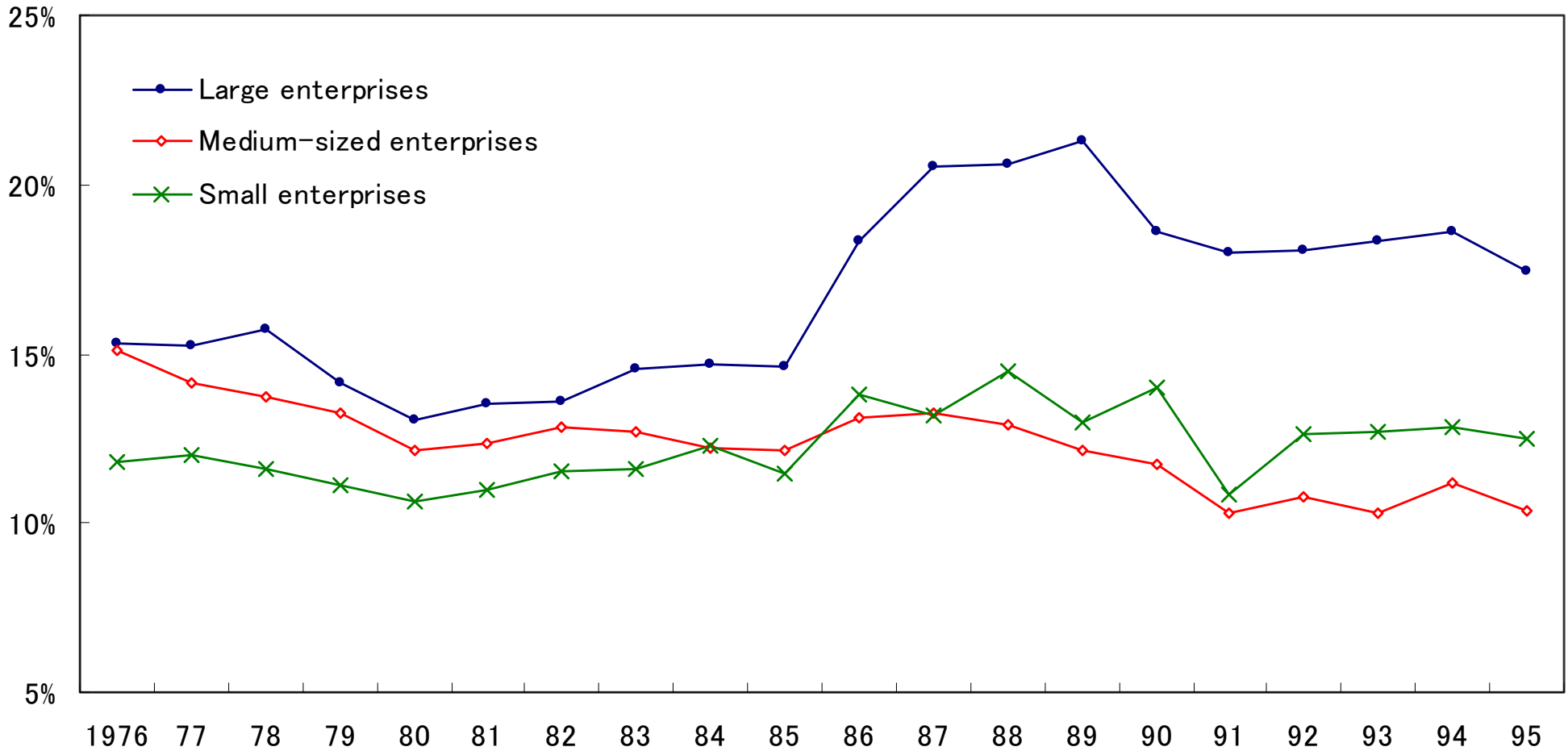


# Net Financial Position of Private Non-financial Corporations

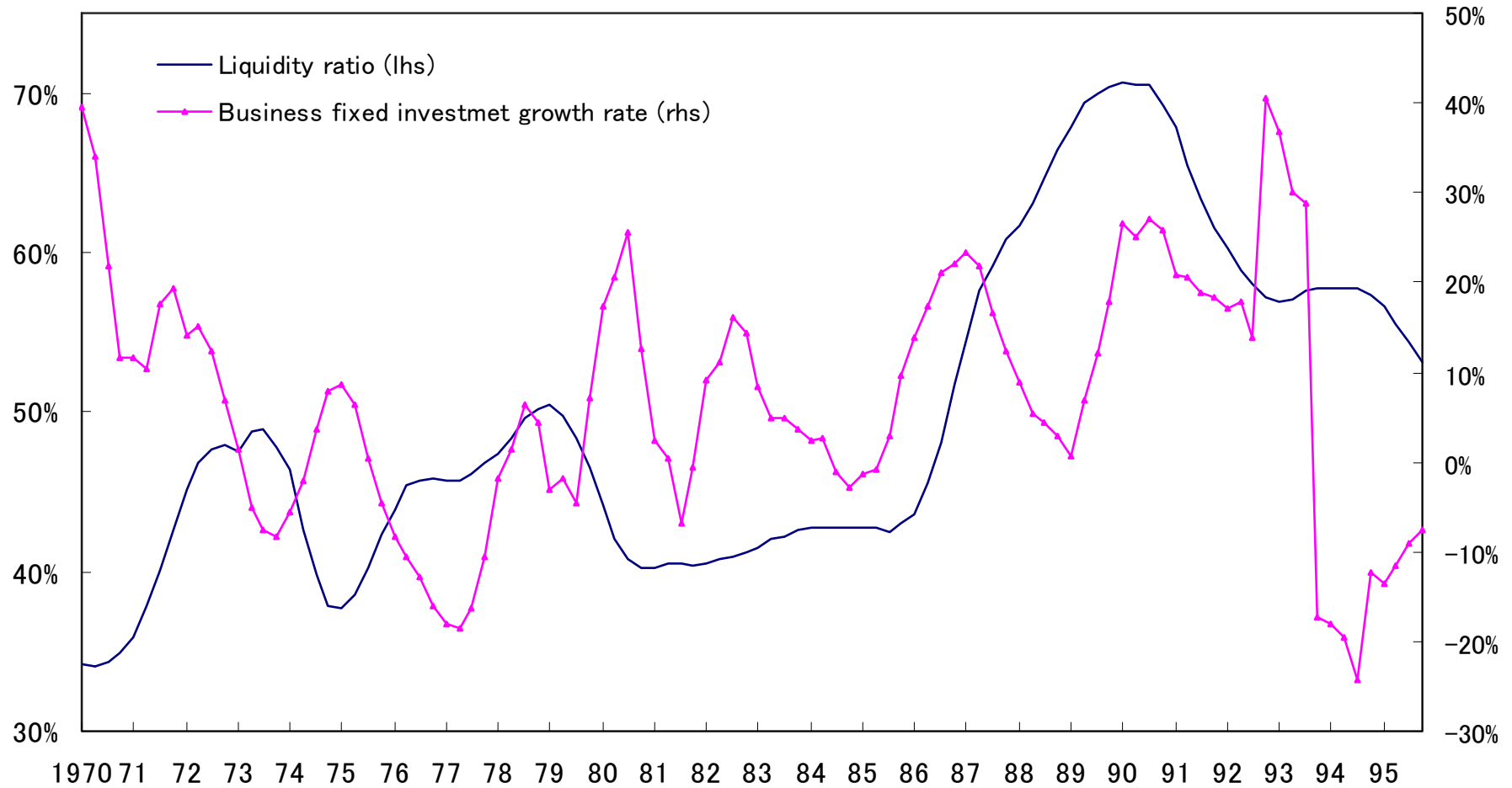


# Manufacturing Firms' Liquidity Ratio

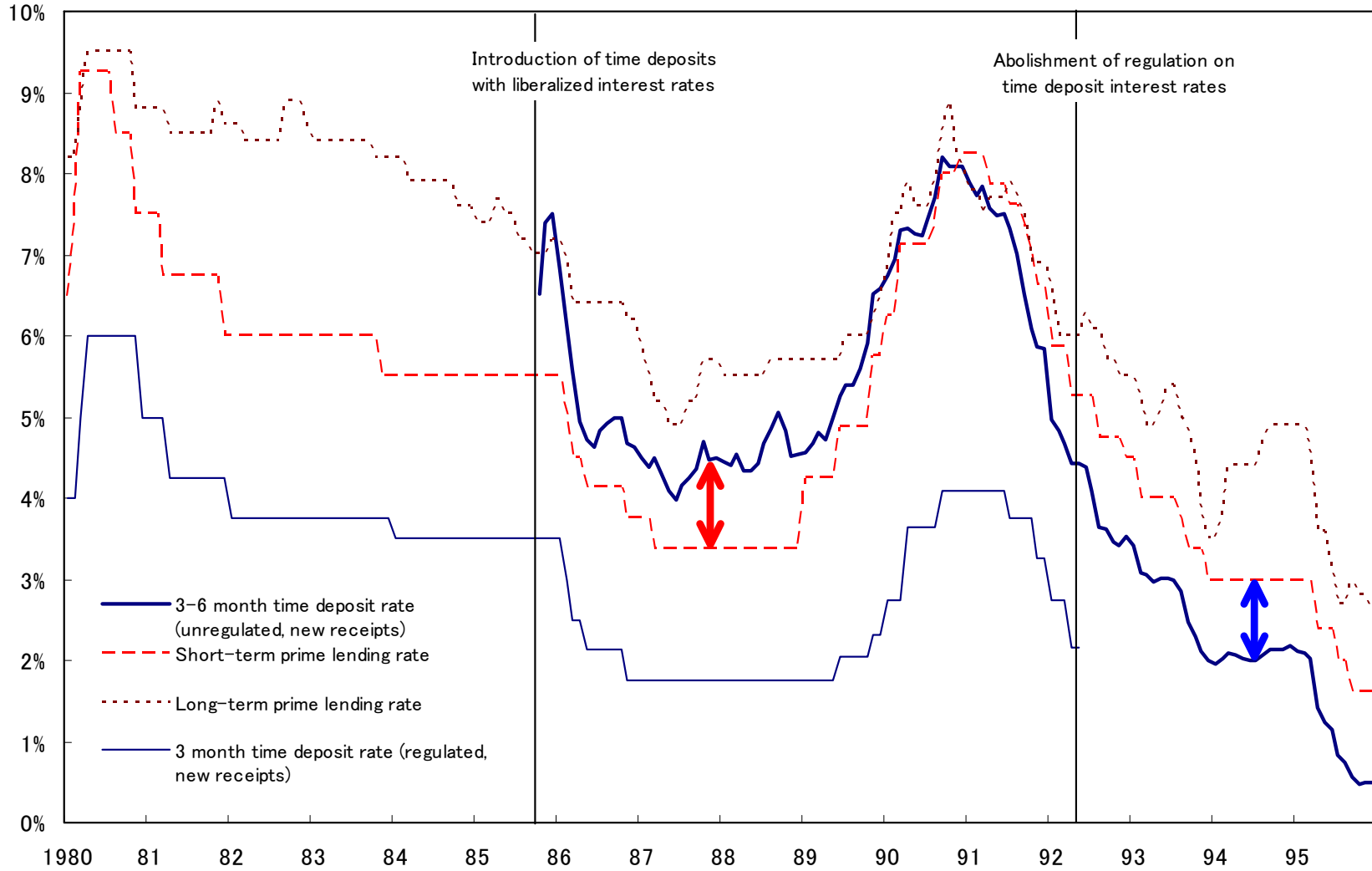
= (cash and deposits + securities assets) / sales



# Liquidity Ratio and Investment Growth



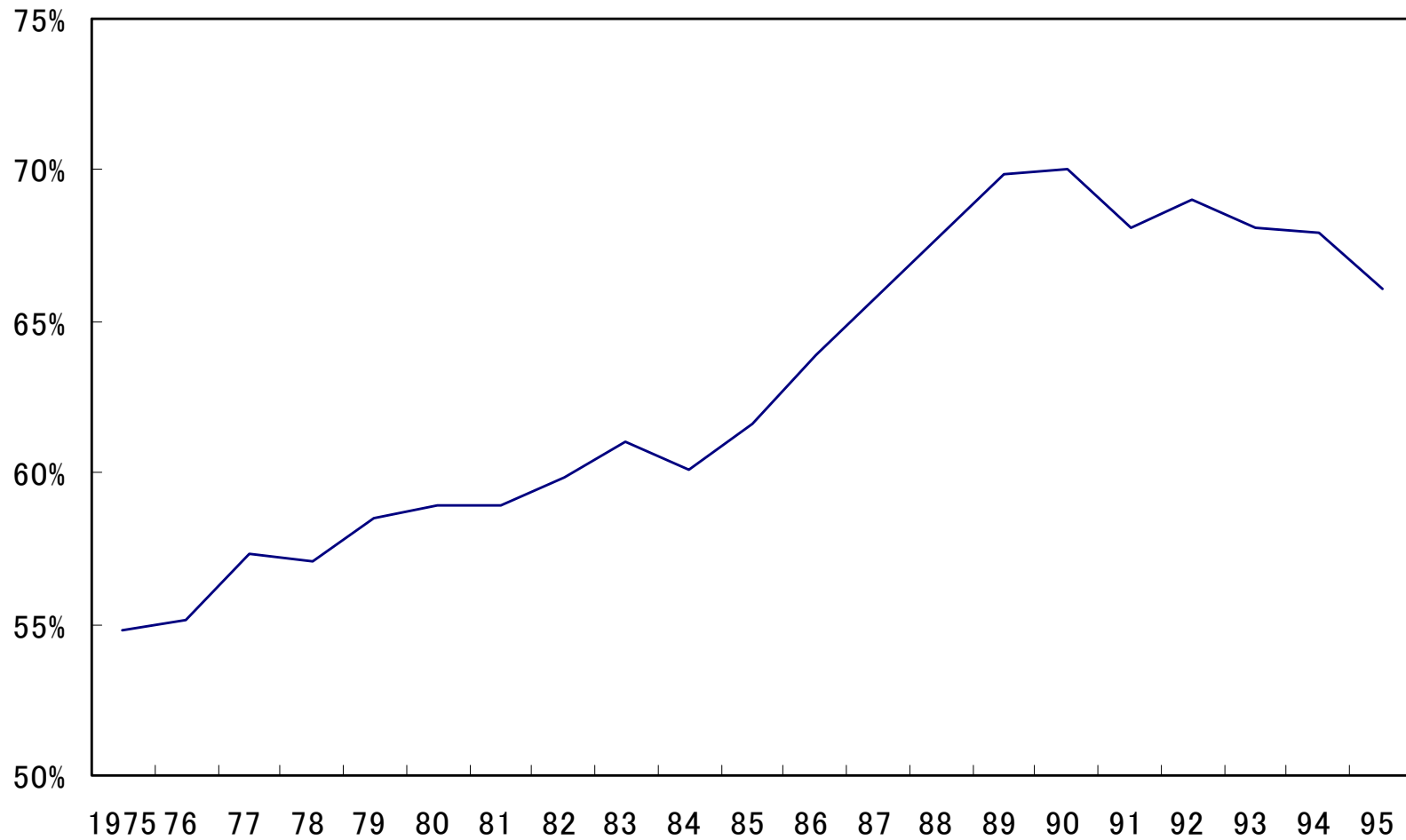
# Time Deposit Rates and Prime Lending Rates



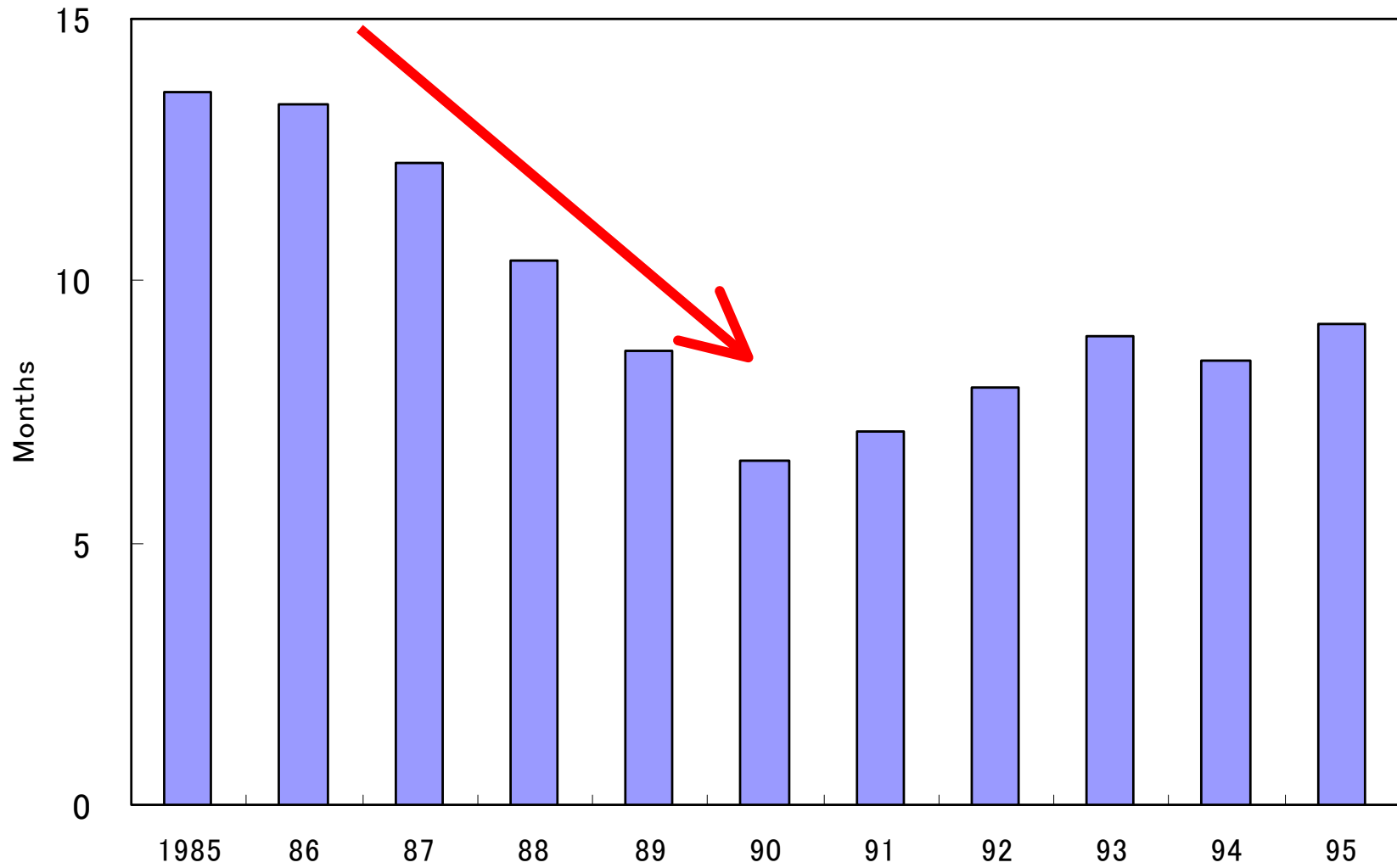
# CP-Deposit Arbitrage

- BOJ (1989)
  - Interest rate margins between CPs and time deposits with liberalized interest rate for large non-financial firms
- De Brouwer (1996)
  - Interest rate margins between CPs and CDs for large non-financial firms

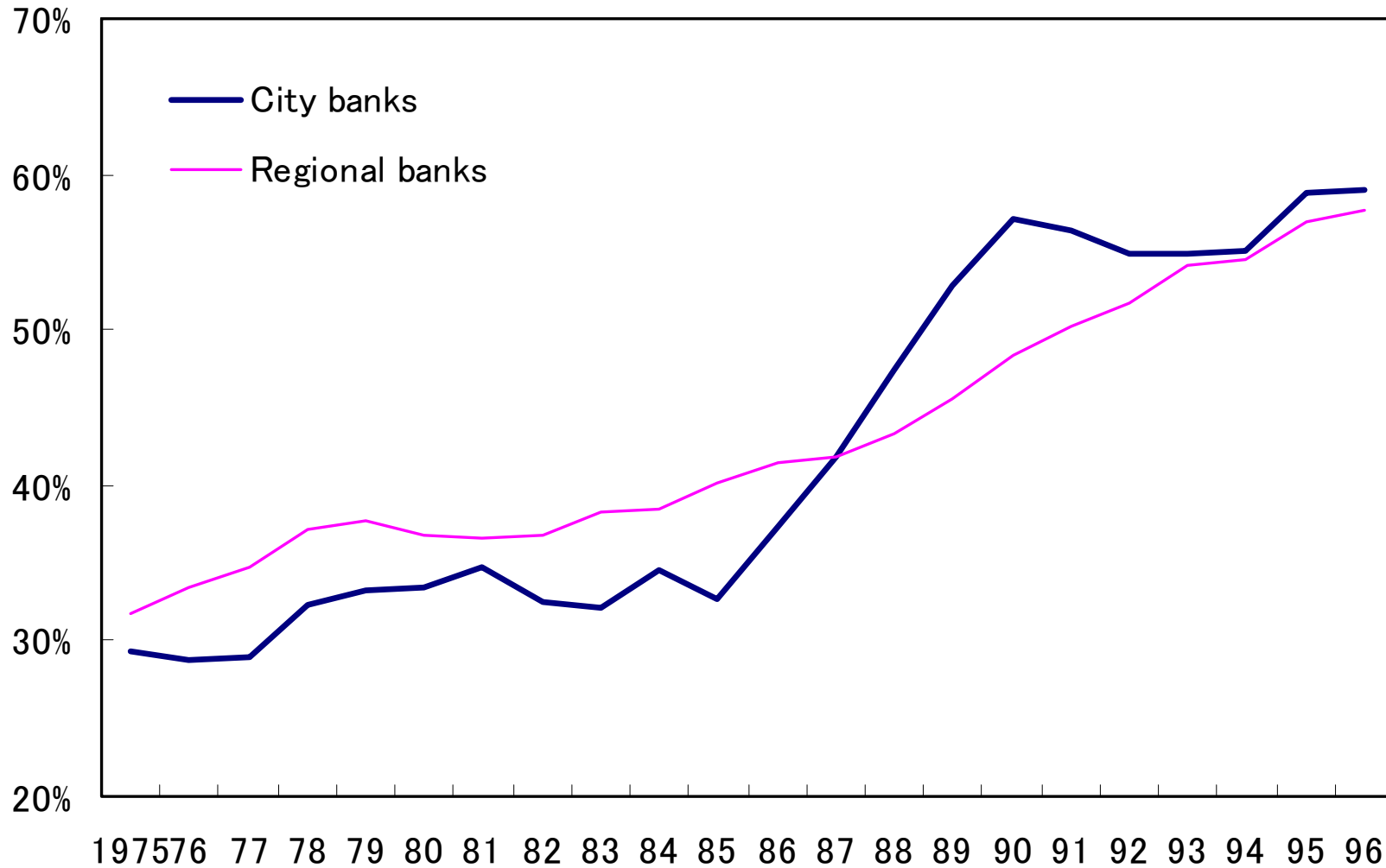
# Share of Time Deposits in Total Outstanding Deposits



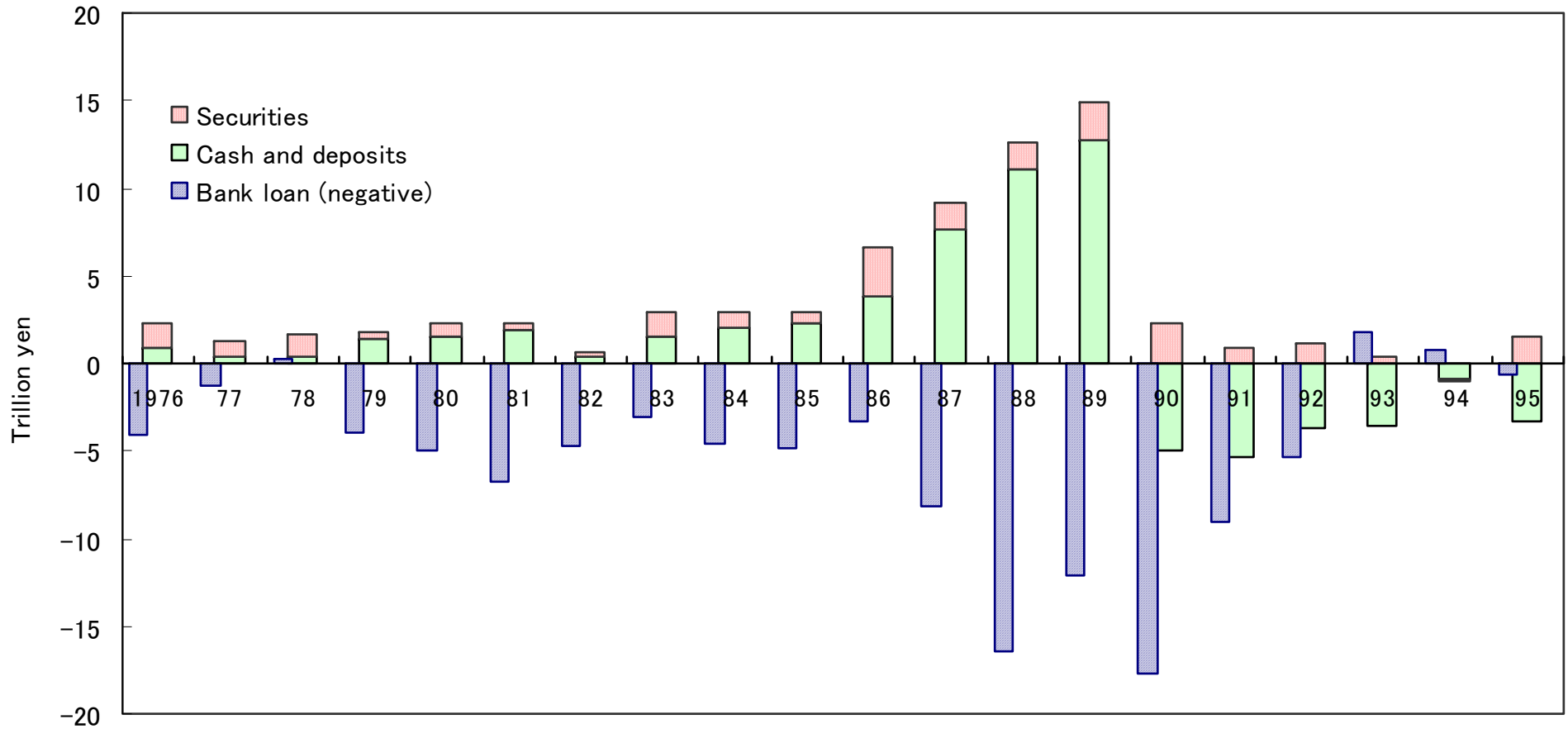
# Average Maturity of Time Deposits



# Ratio of Long-term Loans to Total Outstanding Loans



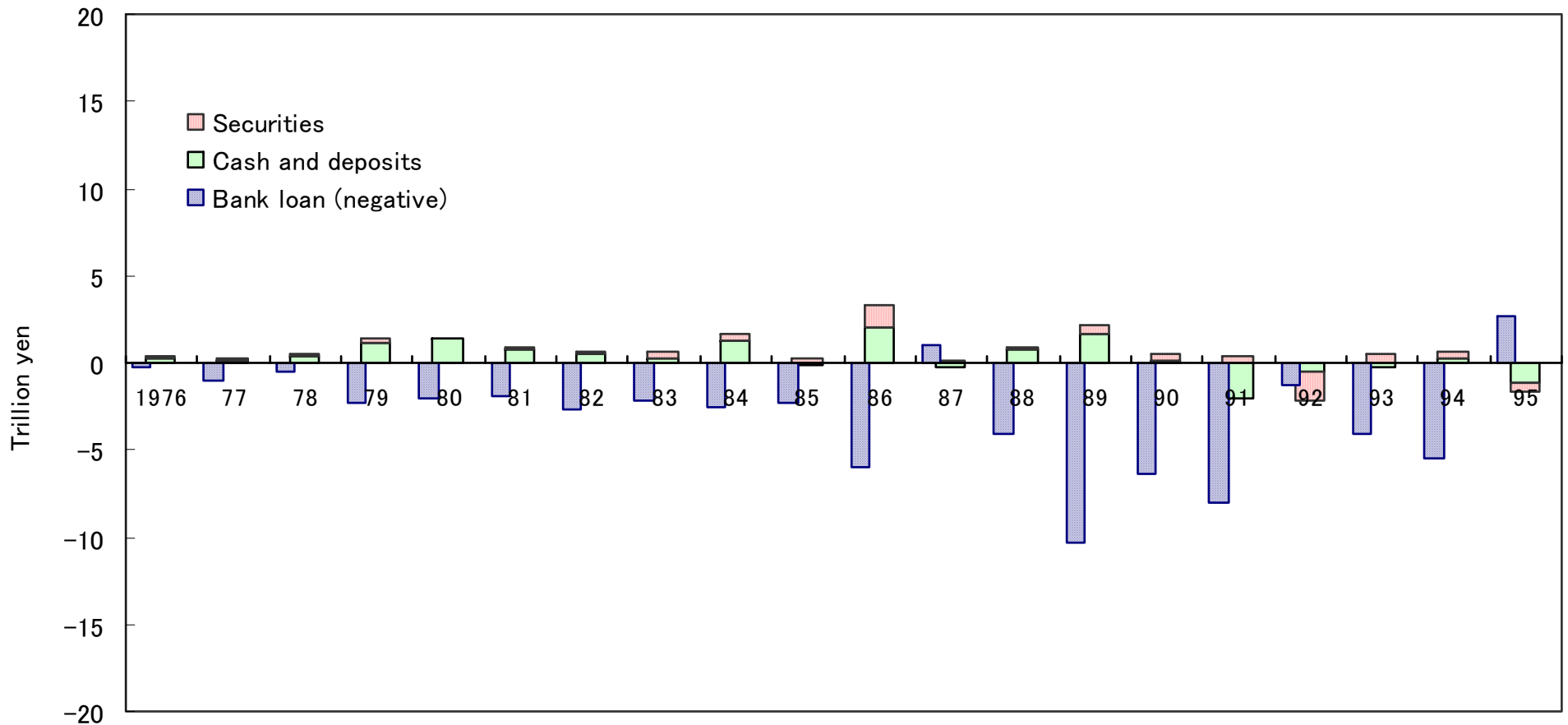
# Assets and Liabilities (Large Enterprises, All Industries) (y-o-y difference)



# Assets and Liabilities

## (Medium-sized Enterprises, All Industries)

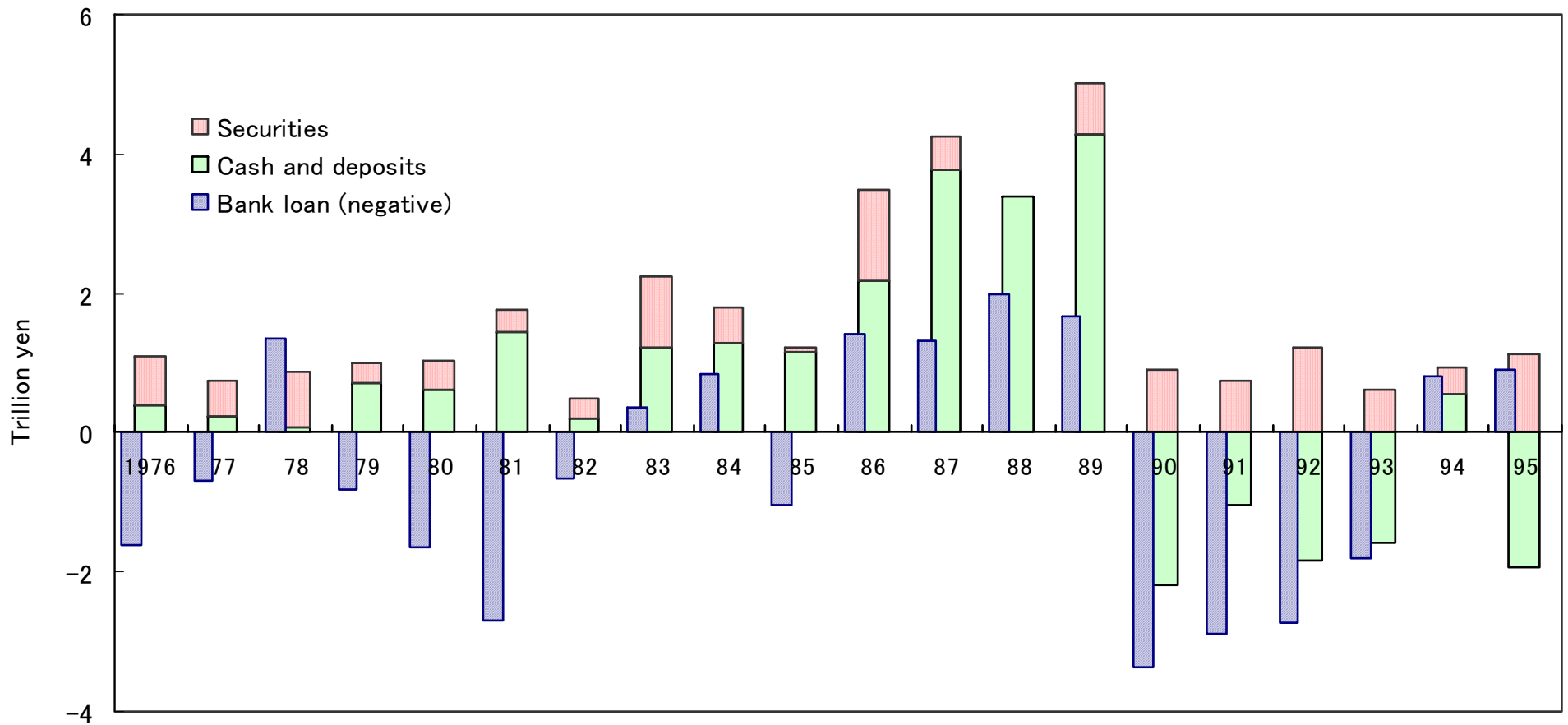
(y-o-y difference)



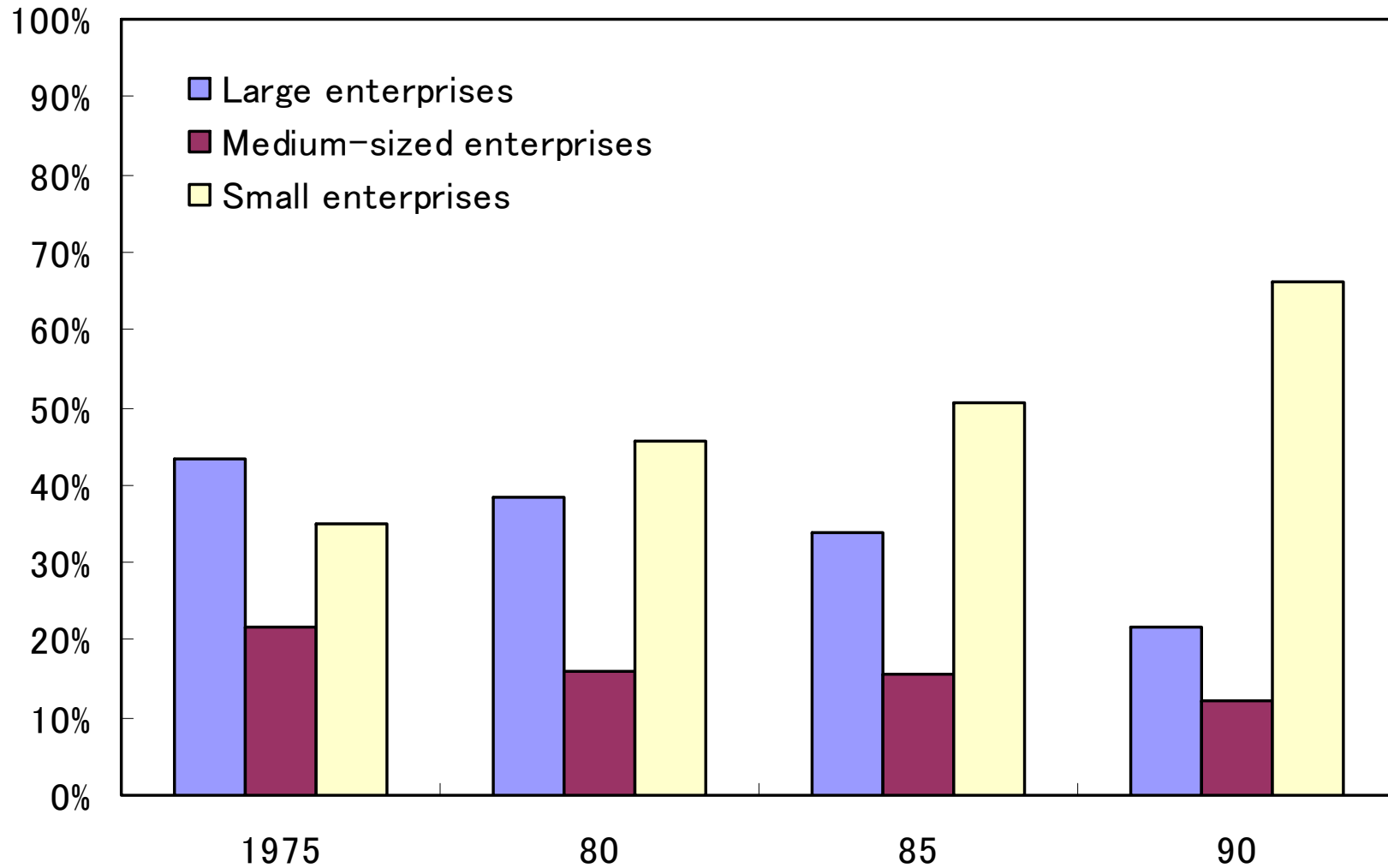
# Assets and Liabilities

## (Large Enterprises, Manufacturing Industries)

(y-o-y difference)



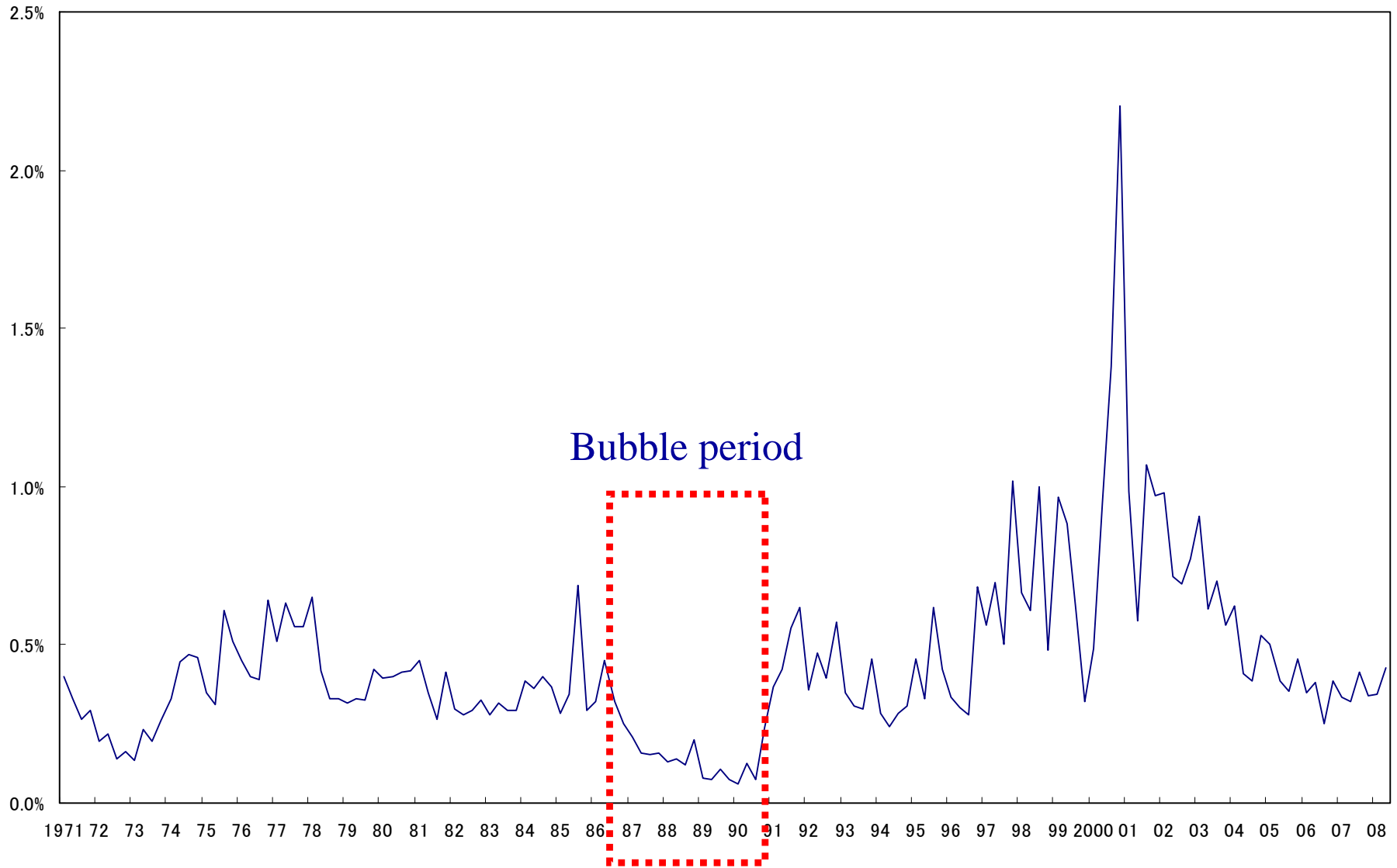
# Breakdown of Corporate Borrowers by Size



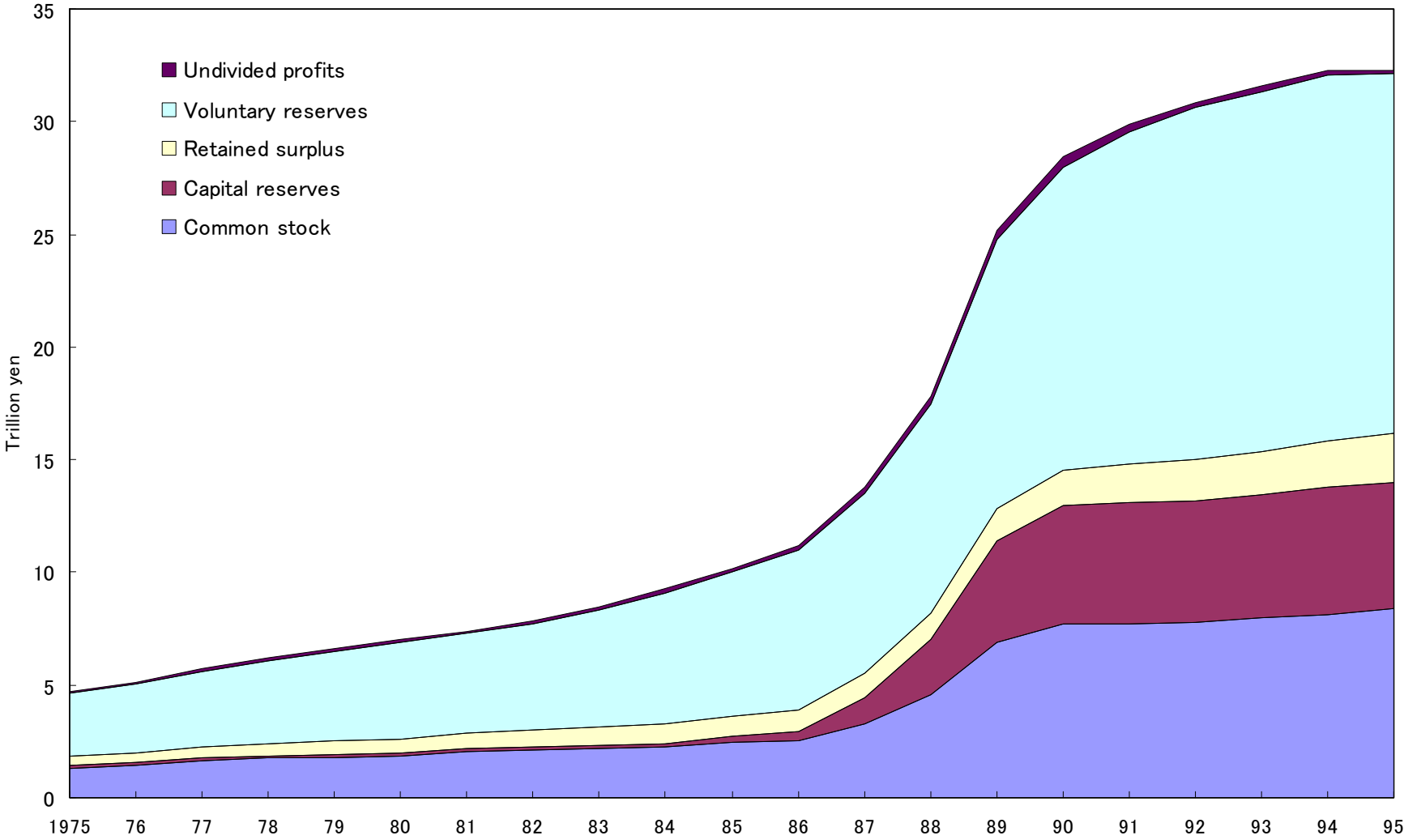
# Bank Lending to Real Estate-Related Sectors



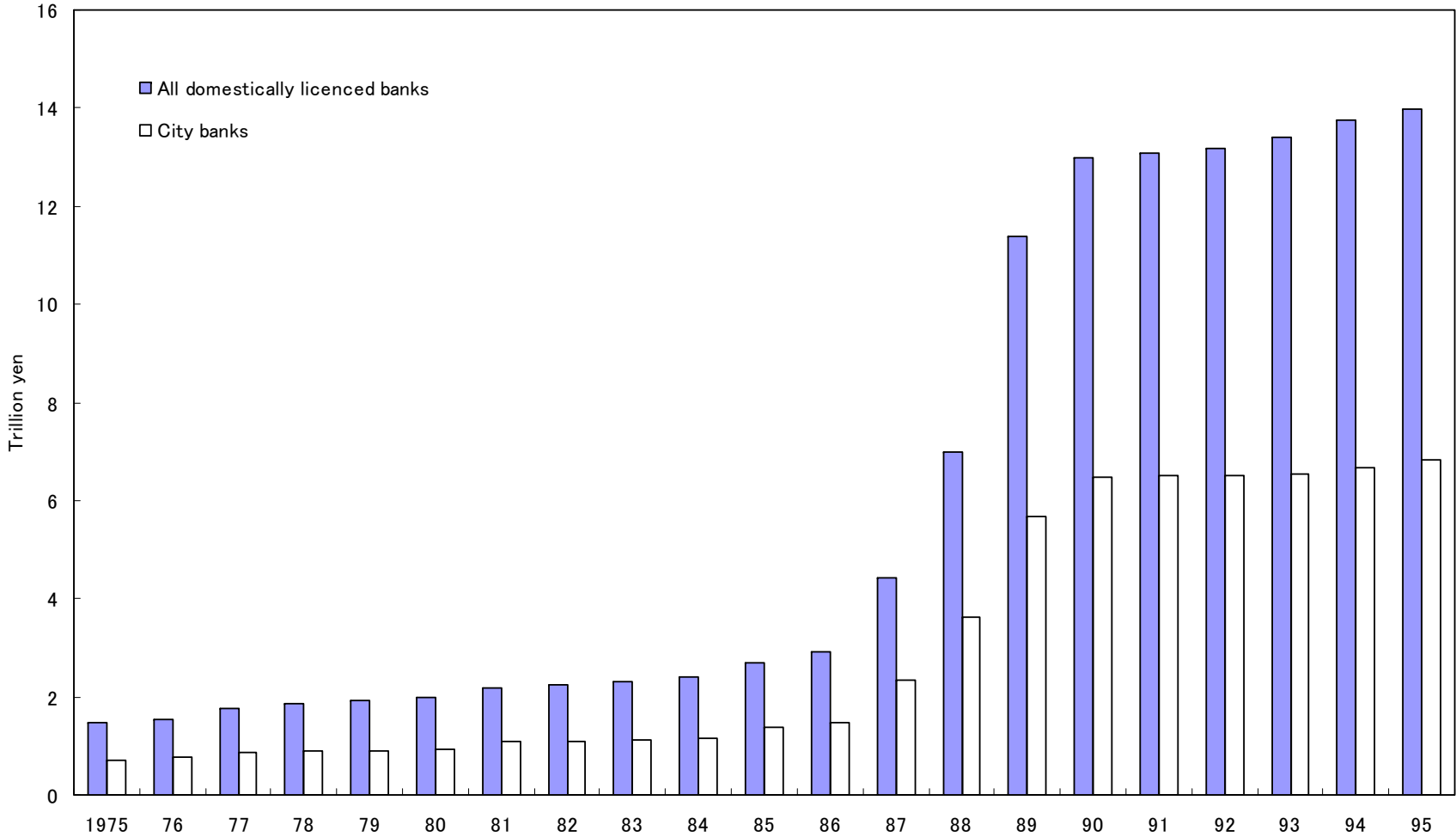
# Loan Default Rate



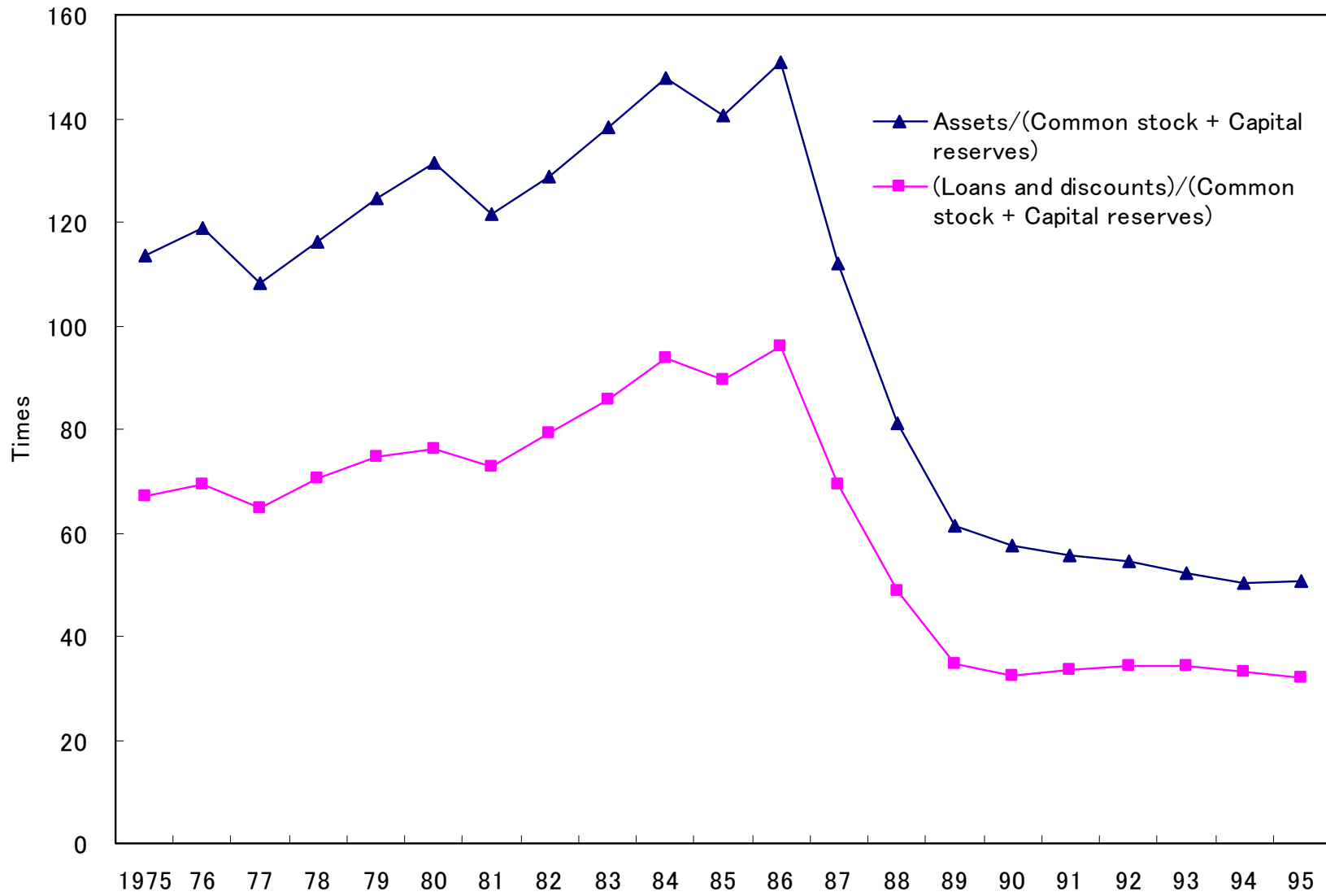
# Composition of Bank Capital



# Common Stock and Capital Reserves



# Leverage



# Macroeconomic Backdrop

- Financial Liberalization
  - Securities market
  - Banking sector
- Expectations of continued easy monetary policy
  - Government commitment
  - International context

# Policy Lessons

- Need for more comprehensive assessment of financial institutions
  - Some selected indicators (CAR, leverage, etc) can be misleading
  - FSP: balance sheet perspective for understanding changes in the financial system
  - Need to monitor broader balance sheet quantities for understanding banks' behaviors
- Role of prudential policy communication

## Policy Lessons (continued)

- Role of commitment in monetary policy
  - Debate on monetary policy “transparency” has been limited to expectations of long rates
  - Need to consider desirability of artificial compression of risk spreads
- Role of short term rates in determining funding costs for financial intermediaries
  - Short rates matter in their own right