What Do a Million Observations on Banks Say About the TRANMISSION of MONETARY POLICY?

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OUTLINE

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INTRODUCTION

KEY QUESTIONS

Bank Lending Channel ?

How do different banks responds to policy shocks?

Is the impact stronger for banks with less liquid balance sheet?

KEY FINDINGS

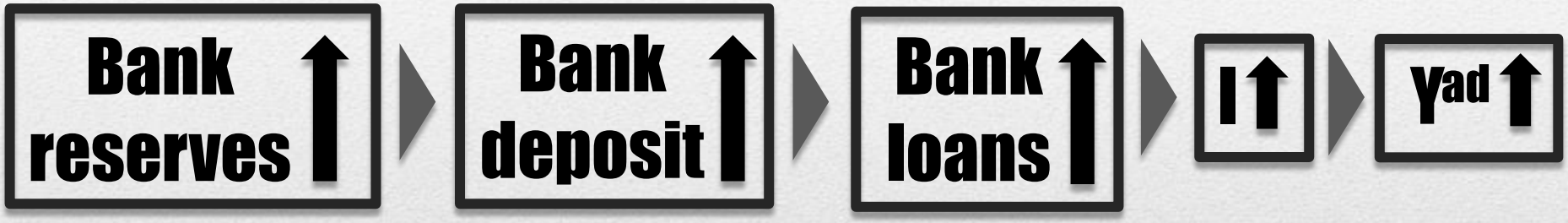
I. Existence of Bank Lending Channel

II. Stronger impact of monetary policy on lending for bank with less liquid B/S

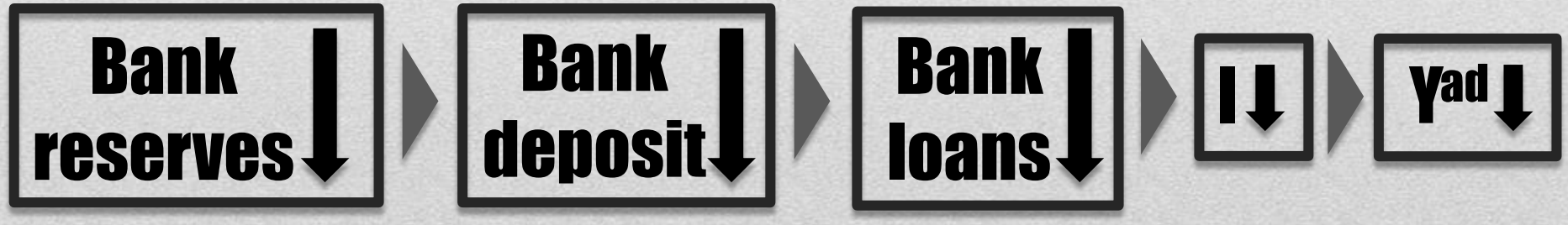
>>Largely attributed to smaller banks

BANK LENDING CHANNEL

Expansionary Monetary Policy

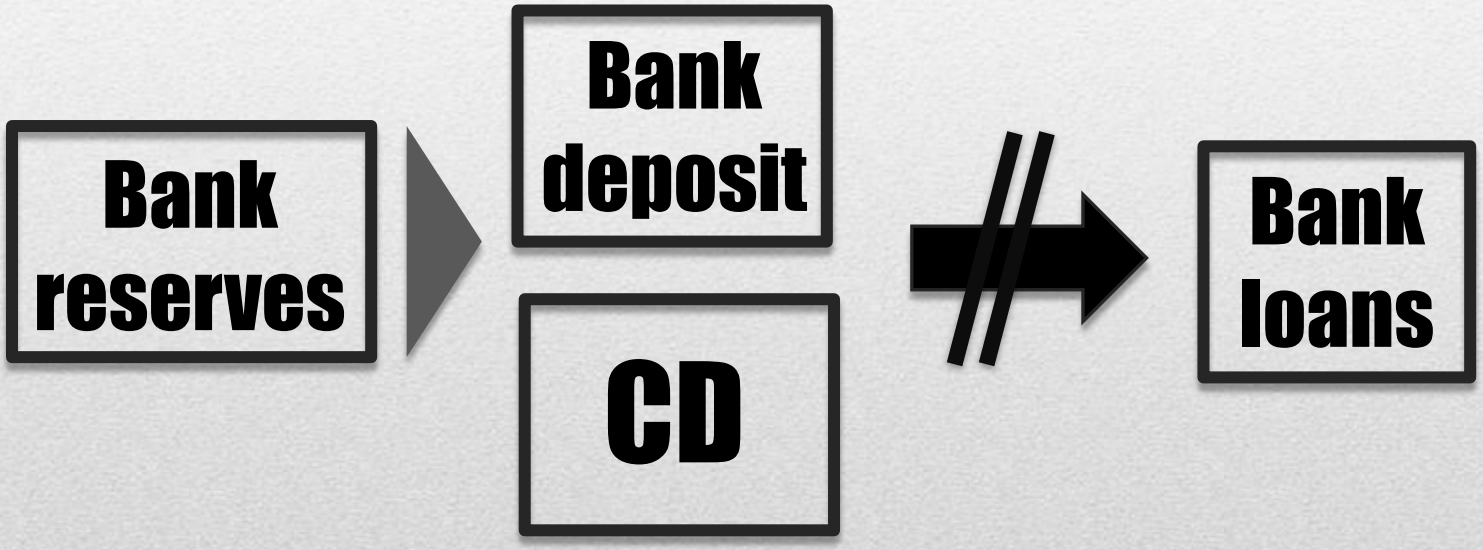


Contractionary Monetary Policy



BANK LENDING CHANNEL

M-M >> No Bank Lending Channel



But banks, esp small one, might not be able to frictionlessly switch btw the two.

DATA & MODEL SPECIFICATION

DATA & VARIABLES

A. BANK-LEVEL DATA

Quarterly I/S and B/S data for all reporting banks from 1976Q1-1993Q2

L_{it} = LOAN AMOUNT >> TOTAL LOAN

>> C&I LOAN

$$B_{it} = \frac{\text{SECURITIES + FEDERAL FUND SOLD}}{\text{TOTAL ASSET}}$$

DATA & VARIABLES

A. BANK-LEVEL DATA

CATEGORIES

>> SMALL (< 95th percentile)

>> MEDIUM (95th -99th percentile)

>> LARGE (>99th percentile)

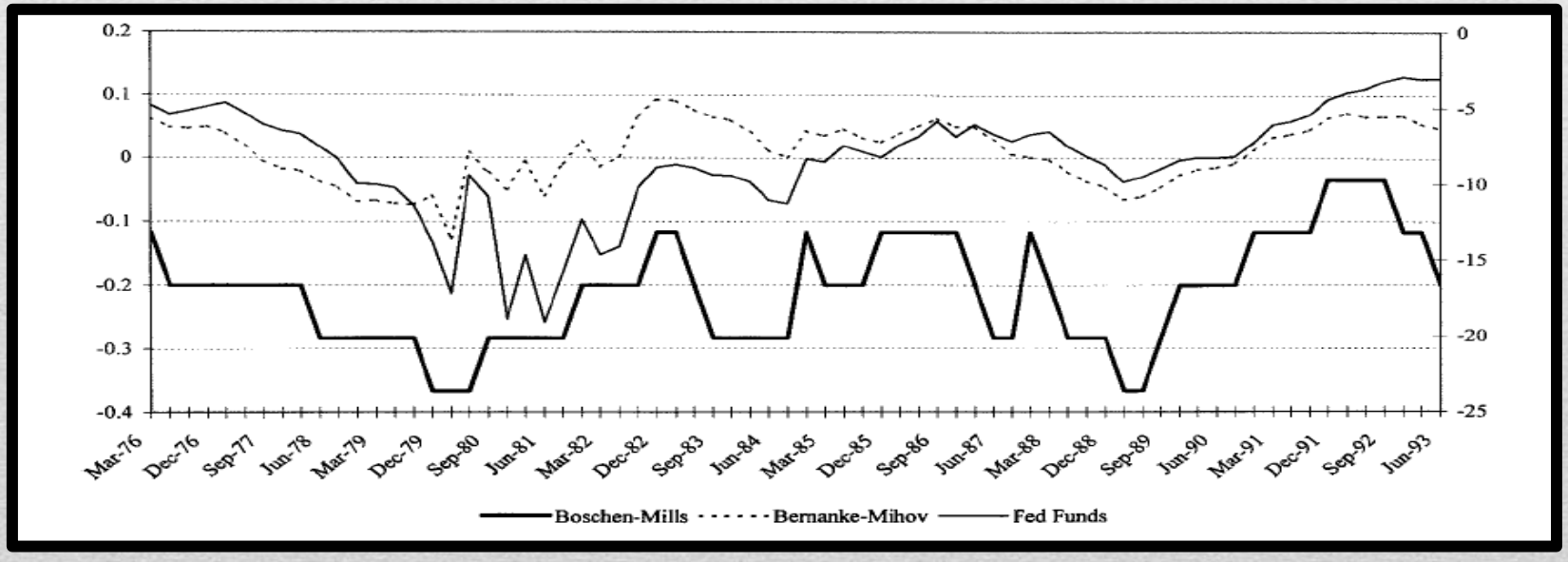
DATA & VARIABLES

B. MEASURES OF MONETARY POLICY (M_t)

>> Boschen-Mills (1995)

>> Federal Funds Rate (inverse)

>> Bernanke-Milhov (1998)



MODEL SPECIFICATION

THE TWO-STEP REGRESSION APPROACH

STEP 1 CROSS SECTIONAL REGRESSION

$$\Delta \log(L_{it}) = \sum_{j=1}^{4} \alpha_{ij} \Delta \log(L_{it-j}) + \beta_t B_{it-1} + \sum_{k=1}^{12} \psi_{kt} FRB_{ik} + \varepsilon_{it}$$

Obtain betas, the measure of intensity of liquidity constraints

MODEL SPECIFICATION

THE TWO-STEP REGRESSION APPROACH

STEP 2 TIME-SERIES REGRESSION

UNIVARIATE

$$\beta_t = \eta + \sum_{j=0}^{4} \phi_j \, \Delta M_{t-j} + \delta TIME_t + u_t$$

BIVARIATE

$$\beta_t = \eta + \sum_{j=0}^{4} \phi_j \Delta M_{t-j} + \sum_{j=0}^{4} \gamma_j \Delta GDP_{t-j} + \delta TIME_t + u_t$$

For small banks, $\sum_{j=0}^{4} \phi_j$ should be negative

An expansionary monetary policy should lead to reduction in small banks' liquidity constraint, vice versa.

BASELINE RESULTS

BASELINE RESULTS: C&I LOAN

	Univariate	Bivariate
1 Boschen-Mills		
<95	−0.0438	−0.0131
	(0.0188)	(0.0187)
95–99	−0.0339	0.0094
	(0.0401)	(0.0303)
>99	0.0960	0.1411
	(0.0661)	(0.0428)
Small-Big	−0.1398	−0.1542
	(0.0611)	(0.0449)
2 Funds rate		
<95	−0.0267	−0.0151
	(0.0071)	(0.0089)
95–99	−0.0066	0.0097
	(0.0137)	(0.0112)
>99	0.0795	0.1175
	(0.0281)	(0.0314)
Small–Big	−0.1062	−0.1327
	(0.0296)	(0.0376)
3 Bernanke-Mihov		
<95	−1.8633	−0.5269
	(1.0933)	(1.2463)
95–99	0.7345	3.3461
	(2.1853)	(2.1119)
>99	4.7862	7.5911
	(3.5220)	(2.3927)
Small–Big	−6.6495	−8.1181
	(3.3966)	(3.0215)

$$\sum_{j=0}^{4} \phi_j < 0$$

Positive?

Bias

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WHY BIAS?

>> B_{it} is endogenous

Rational Buffer Stocking

Positive Bias

BASELINE RESULTS: TOTAL LOAN

	Univariate	Bivariate
1. Boschen-Mills		
<95	−0.0179	−0.0044
	(0.0110)	(0.0120)
95–99	−0.0129	0.0167
	(0.0236)	(0.0118)
>99	0.0516	0.0921
	(0.0522)	(0.0373)
Small–Big	−0.0695	−0.0965
	(0.0464)	(0.0348)
2. Funds rate		
<95	−0.0088	−0.0046
	(0.0037)	(0.0049)
95–99	−0.0126	−0.0040
	(0.0079)	(0.0060)
>99	0.0258	0.0460
	(0.0188)	(0.0152)
Small–Big	−0.0346	−0.0506
	(0.0182)	(0.0174)
3. Bernanke-Mihov		
<95	−0.1926	0.7827
	(0.5344)	(0.5780)
95–99	−0.2849	1.1191
	(1.1178)	(0.7766)
>99	3.6558	6.7373
	(2.5209)	(1.4636)
Small–Big	−3.8484	−5.9545
	(2.2180)	(1.5971)

Similar to the C&I case but weaker

- **Rational buffer stocking**
- **C&I loan is more readily adjustable**

ECONOMIC SIGNIFICANCE

ECONOMIC SIGNIFICANCE

TABLE 7—MOVEMENT IN AGGREGATE SMALL-BANK LENDING ACCOUNTED FOR BY CONSTRAINED BANKS FOUR QUARTERS AFTER A FEDERAL FUNDS-RATE SHOCK OF 100 BASIS POINTS

	Percentage change in lending due to constraints	Aggregate percentage change in lending
A. C&I loans		
1. Using univariate, small-bank sum of phi's	0.73	1.01[a]
2. Using bivariate, small-bank sum of phi's	0.41	3.33[b]
3. Using univariate, small–big bank differentials	2.90	1.01[a]
4. Using bivariate, small–big bank differentials	3.62	3.33[b]
B. Total loans		
1. Using univariate, small-bank sum of phi's	0.24	2.39[c]
2. Using bivariate, small-bank sum of phi's	0.13	3.15[d]
3. Using univariate, small–big bank differentials	0.95	2.39[c]
4. Using bivariate, small–big bank differentials	1.39	3.15[d]

CONCLUSION

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I. Existence of Bank Lending Channel

II. Stronger impact of monetary policy on lending for bank with less liquid B/S

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Q&A