

Deposit Interest Rate Ceilings as Credit Supply Shifters: Bank Level Evidence on the Effects of Regulation Q

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Abstract

Shocks emanating from and propagating through the banking system have recently gained interest in the macroeconomics literature, yet they are not a feature unique to the 2008/09 financial crisis. Banking disintermediation shocks occurred frequently during the Great Inflation era due to fixed deposit rate ceilings. I estimate the effect of deposit rate ceilings inscribed in Regulation Q on the transmission of federal funds rate changes to bank level credit growth using a historic bank level data set spanning half a century from 1959 to 2013 with about two million observations. Measures of the degree of bindingness of Regulation Q suggest that individual banks' lending growth was smaller the more binding the legally fixed rate ceiling. Interaction terms with monetary policy suggest that the policy impact on bank level credit growth was non-linear at the ceiling "kink" and significantly larger when rate ceilings were in place. At the bank level, short-term interest rates exceeding the legally fixed deposit rate ceilings identify bank loan supply shifts that disappeared with deposit rate deregulation and thus weakened the credit channel of monetary transmission since the early 1980s.

Keywords: Monetary Transmission, Lending Channel, Regulation Q, Deregulation, Great Moderation, Shadow Banking

JEL Classification: E51, E52, E58, G18, G21



- 1 Deposit Deregulation and the Lending Channel
 - Motivation
 - Relation to the Literature
 - Empirical Work in Practice
 - Contribution(s)
- 2 Data, Specification, and Results
- 3 Conclusion









“All the legislative proposals need to be judged first of all against the central objective: We need to strengthen our ability to implement monetary policy in a variety of possible circumstances ...”

– Paul Volcker (1979)
Statement to Committee on Banking,
Housing and Urban Affairs, U.S. Senate.





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⇒ examine the consequences of the Depository Institutions
Deregulation and Monetary Control Act of 1980 (DIDMCA)
on monetary transmission





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⇒ examine the consequences of the Depository Institutions
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on monetary transmission **through credit using bank level data**



“The Great Moderation” (Bernanke, 2004)

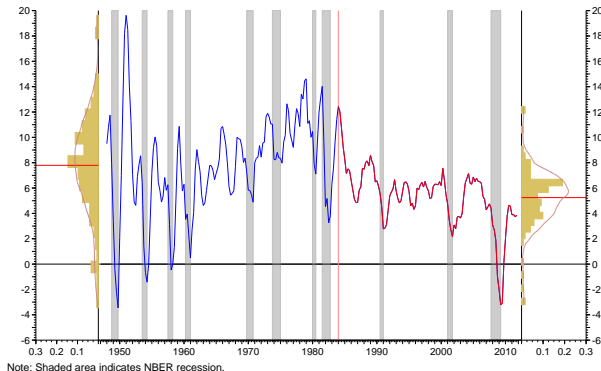


Figure: Four Quarter Percentage Change in Nominal GDP



Sources of the Great Moderation

Stock & Watson (2002) put forward three nonexclusive explanations for “the long and large decline in US output volatility” (**Blanchard & Simon, 2001**)

1. “Good Policy”

- Taylor (1993), Clarida, Galí, and Gertler (2000), Cogley and Sargent (2001, 2005)
⇒ shifts in monetary policy making – fighting inflation and stabilizing output
- Bernanke and Mihov (1998) and Sims and Zha (2006)
⇒ little evidence for a break in conduct of monetary policy

2. “Structural Change”

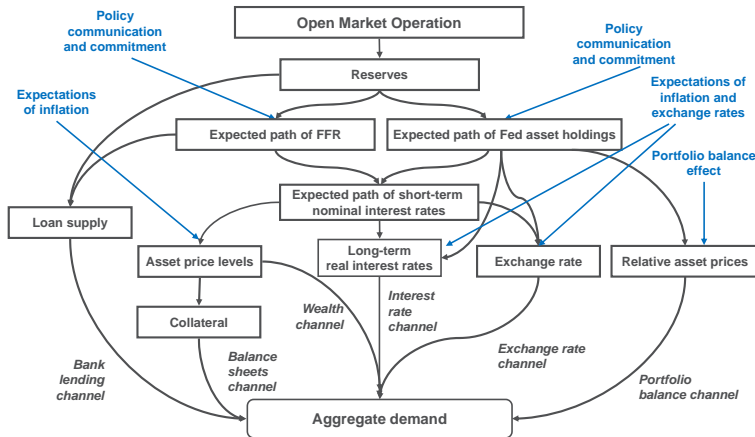
- innovations in financial market that facilitate intertemporal smoothing of consumption and investment (Blanchard & Simon, 2001),
- better inventory management through information technology
- marked shift in output from goods to services (Burns, 1960, Moore & Zarnowitz, 1987)

3. “Good Luck”

- reduction in structural shocks



Channels of Monetary Transmission



Stylized Commercial Bank Balance Sheet

Balance sheet of bank i in quarter t

Assets

- Reserves
- Securities
- Loans ($L_{i,t}$)
 - C&I Loans
 - Individual Loans
 - Mortgages ...

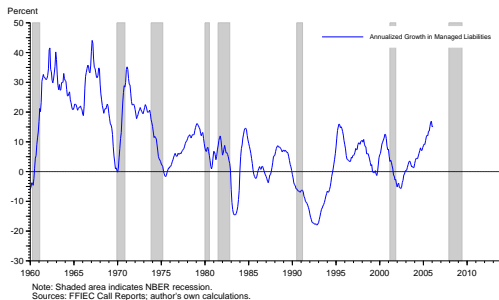
Liabilities

- Equity
- Debt
- Deposits
 - Demand Deposits
 - Time Deposits
- ...

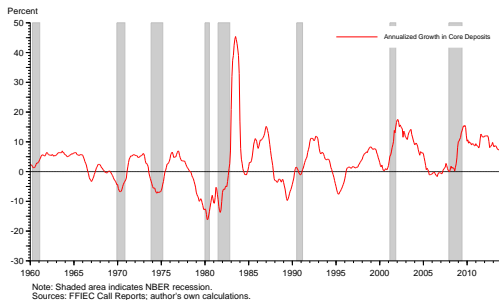
Denote any set of bank characteristics
of bank i at quarter t as $\mathbf{B}_{i,t}$.



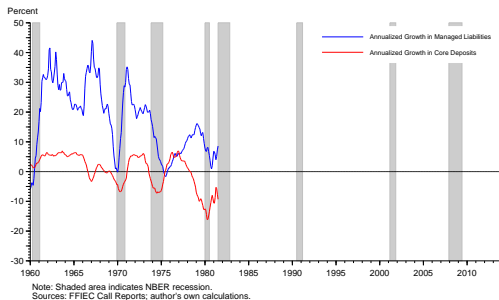
Balance Sheet Items Co-Movements



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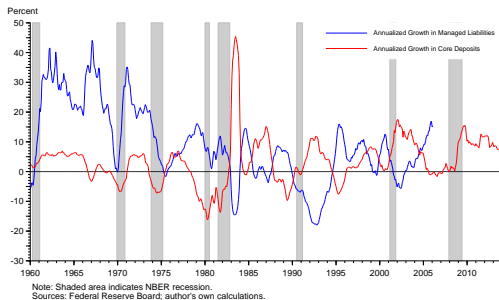


Figure: Changing Co-Movement Due to Financial Liberalization



Banking Act of 1933

Regulation Q of the Federal Reserve

- ... prohibited interest payments on demand deposits
- ... imposed interest rate ceilings on time and savings deposits at commercial banks.

Purpose at the time

- shelter banks from excessive competition
- discourage risky investment
- prevent future bank failures

⇒ most of the ceilings phased out between 1980 and 1986 through the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA)

Deposit Rate Ceilings and Short-Term Interest Rates

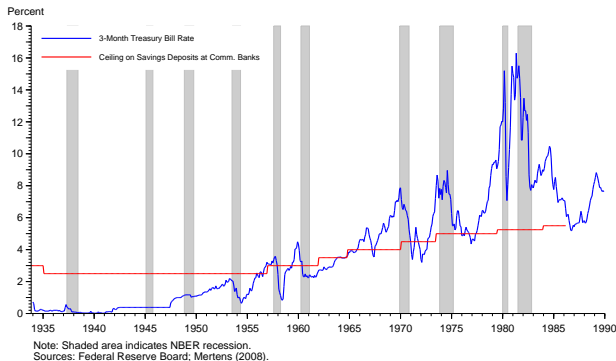


Figure: Fixed Deposit Rate Ceilings and Short-Term Rates



A Narrative Account of the 1966 Credit Crunch

Hendrickson (2011)

"By the third quarter of 1966, nonfinancial firms were cut off from the commercial loan market. It was largely monetary policy that kept banks from extending further credit to the corporate sector. Specifically, the Federal Reserve tightened monetary policy at the end of 1965 and increased the discount rate from four percent to 4.5 percent. In response, banks increasingly relied on time deposits as a source of funds because they had a lower reserve requirement than demand deposits. This allowed the commercial banks to accommodate loan demand. However, in June, the Federal Reserve increased the reserve requirement on time deposits making it more expensive for banks to raise funds through the time deposit market. Perhaps part of the motivation for the Federal Reserve was that the President had indicated he was counting on the Federal Reserve to keep credit in check to avoid inflation. At the same time, the Federal Reserve refused to raise the regulation Q ceiling on large time deposits and, in the summer, the market interest rate rose above the regulated rate for both long- and short-term certificates of deposit (CDs). These policies of the Federal Reserve made it difficult for banks to continue to lend which is why the corporate sector was shut out of the credit market towards the end of 1966. (...) [T]he credit crunch of 1966 exposed weaknesses in the regulatory regime; specifically in the constraints caused by binding price ceilings."

(Hendrickson, 2011, p. 177)



Duca (1995)

“In non-VAR models, not properly accounting for Reg Q upwardly biases the estimated real rate elasticity of U.S. GDP and yields rate elasticities that are not stable enough for practical use. (...) [A]ccurately measured Reg Q innovations are significant in VARs and (...) have impulse response functions that do not change much as samples are extended beyond the early 1980s.”

→ Estimate effect of Regulation Q on bank level credit growth

Why might this be a good idea?



Bernanke and Blinder (1992)

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THE AMERICAN ECONOMIC REVIEW

SEPTEMBER 1992

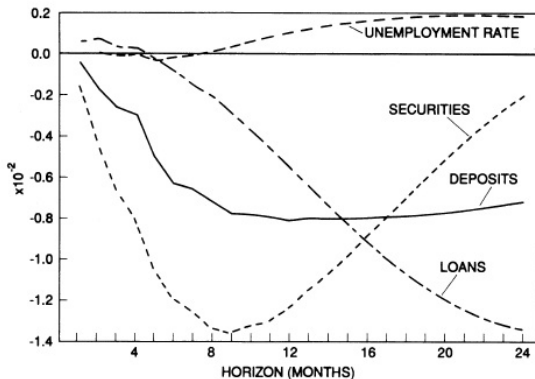
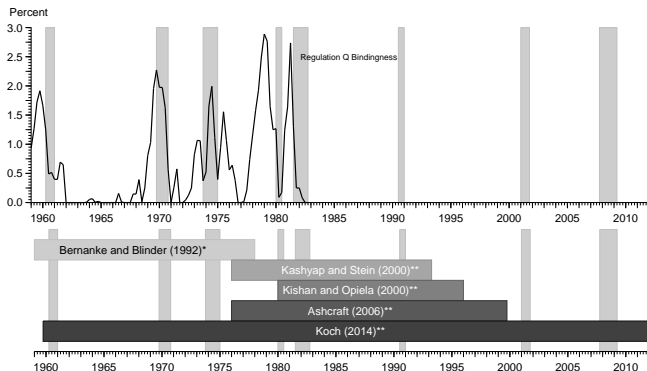


FIGURE 4. RESPONSES TO A SHOCK TO THE FUNDS RATE

Figure: Bernanke and Blinder (1992) VAR Impulse Responses



When was Regulation Q binding?



Note: The vertical gray bars denote NBER recession dates. *) evidence based on aggregate data **) evidence based on bank-level data.
Source: Duca (1996)



The Taylor Principle and the Great Moderation

Taylor (1993) \Rightarrow Stabilizing Policy Response to Inflation

Although there is not a consensus about the size of the coefficients of policy rules, it is useful to consider what a representative policy rule might look like. One policy rule that captures the spirit of the recent research and which is quite straightforward is:

$$r = \underline{p} + .5y + \underline{.5(p - 2)} + 2 \quad (1)$$

where

- r is the federal funds rate,
- p is the rate of inflation over the previous four quarters
- y is the percent deviation of real GDP from a target.

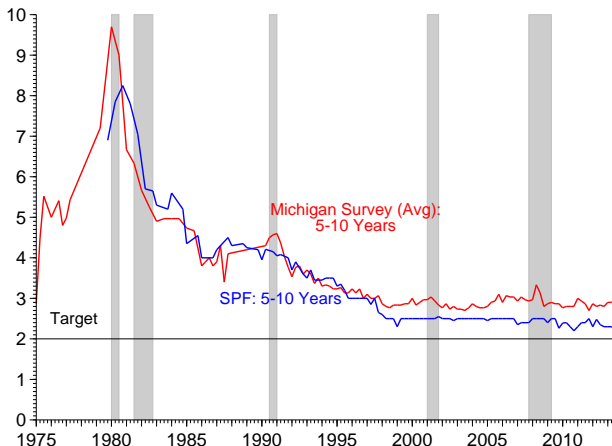
That is,

- $y = 100(Y - Y^*)/Y^*$ where
- Y is real GDP, and
- Y^* is trend real GDP (equals 2.2 percent per year from 1984.1 through 1992.3).



The Taylor Principle and the Great Moderation

Timing of anchoring of inflation expectations



Cúrdia & Woodford (2010)

– Different Marginal Utilities of Consumption

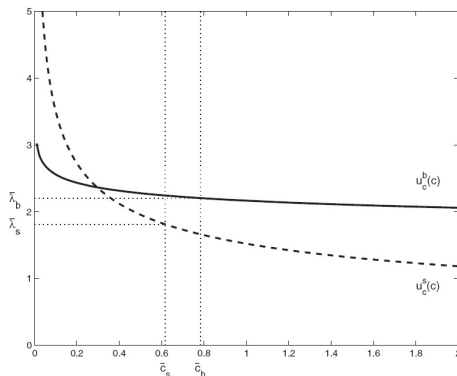


FIG. 1. Marginal Utilities of Consumption for Households of the Two Types.

Note: The values c^s and c^b indicate steady-state consumption levels of the two types, and $\bar{\lambda}^s$ and $\bar{\lambda}^b$ their corresponding steady-state marginal utilities.



Cúrdia & Woodford (2010)

– Financial Intermediation Frictions and Policy

Intermediation requires real resources.

In order to provide b of loans require total real outlays of

$$b_t + \chi_t b_t + \Xi_t(b_t)$$

\Rightarrow assume $\Xi(b) = \tilde{\Xi} b^\theta$ for intermediation technology with $\theta \approx 5$

Competitive loan supply

$$1 + i_t^b = (1 + i_t^d)(1 + \omega_t)$$

Equilibrium credit spread

$$\omega_t = \omega_t(b_t) = \chi_t + \Xi'_t(b_t)$$

Monetary policy

$$i_t^d = i_t^d(\Pi_t, Y_t)$$



Cúrdia & Woodford (2010)

– Spread- and Credit-Adjusted Taylor Rules

Spread-adjusted Taylor rule

$$\hat{i}_t^d = r_t^n + \phi_\pi \pi_t + \phi_y \log \left(\frac{Y_t}{Y_n^t} \right) - \phi_\omega \hat{\omega}_t$$

- $\phi_\pi = 1.5, \phi_y = 0.5/4$
- output gap relative to natural flexible-price equilibrium (distortions at steady state values)
- r_t^n – natural rate of interest

Alternatively, **credit-adjusted** Taylor rule

$$\hat{i}_t^d = r_t^n + \phi_\pi \pi_t + \phi_y \log \left(\frac{Y_t}{Y_n^t} \right) - \phi_b \hat{b}_t$$



Cúrdia & Woodford (2010)

– Welfare Trade-Offs

TABLE 4

WELFARE CONSEQUENCES OF INCREASING ϕ_ω , IN THE CASE OF DIFFERENT DISTURBANCES

$\varphi \times 10^5$	χ_t	$\tilde{\epsilon}_t$	\tilde{C}_t^b	\tilde{C}_t^s	G_t	b_t^g	Z_t, H_t	μ_t^w	τ_t
Baseline persistence ($\rho_\xi = 0.90$)									
$\phi_\omega = 0.25$	27.59	27.59	-1.07	-2.94	-0.37	28.17	-0.07	9.43	9.32
$\phi_\omega = 0.50$	42.52	41.72	-3.20	-8.88	-1.22	42.54	-0.22	18.77	18.57
$\phi_\omega = 0.75$	44.20	41.77	-6.42	-17.89	-2.57	42.47	-0.45	28.04	27.74
$\phi_\omega = 1.00$	32.03	27.10	-10.75	-30.02	-4.42	27.31	-0.76	37.23	36.83
High persistence ($\rho_\xi = 0.99$)									
$\phi_\omega = 0.25$	0.25	4.16	-3.92	-9.58	-2.15	2.73	-0.45	7.71	7.70
$\phi_\omega = 0.50$	-15.89	-10.15	-8.47	-20.67	-4.64	-13.12	-0.97	15.37	15.35
$\phi_\omega = 0.75$	-49.05	-43.64	-13.65	-33.33	-7.48	-48.25	-1.55	22.96	22.93
$\phi_\omega = 1.00$	-99.88	-97.03	-19.46	-47.52	-10.66	-103.40	-2.22	30.49	30.45

NOTES: Each column indicates a different type of disturbance, while each row corresponds to a given degree of spread adjustment. A value of 1 means a welfare increase equivalent to a permanent 0.001% increase in consumption by households of both types.



Modigliani-Miller (1958)

- **Modigliani-Miller (1958)**

With frictionless financial markets, firms' capital structure is indeterminate, and the aggregate mix of debt versus equity is irrelevant for the evolution of the real economy

- In the light of the M-M result, until 2008 business cycle theory had largely abstracted from incorporating financial factors into models of aggregate fluctuations:
 - IS-LM framework
 - Real business cycle models
 - New Keynesian synthesis



Bernanke and Gertler (1989)

- **Bernanke and Gertler (1989)**

Reflecting informational asymmetries between borrowers and lenders, borrowers' balance sheets can play an important role in the propagation of economic shocks

- the **financial accelerator**

- Financial accelerator:

- Informational frictions in credit markets induce a wedge between the cost of external and internal funds
 - the **external finance premium (EFP)**
- Size of the EFP depends inversely on the borrower's net worth
- Declines in equity valuation and/or unexpected deflation reduce borrower's net worth
- Procyclical net worth leads to countercyclical EFP, enhancing swings in borrowing, investment, and output



Financial Frictions – Theory

- **Fisher (1933), Bernanke (2004)**
Role of “debt-deflation” during the Great Depression
- **Akerlof (1970), Stiglitz and Weiss (1981)**
Microeconomic implications of informational asymmetries in goods and financial markets
- banking theory literature from Diamond & Dybvig (1983) to Dang, Gorton, Holmström, & Ordoñez (2014) and Hanson, Shleifer, Stein, & Vishny (2014)
- DSGE models, see BGG (1999) and various follow ups
- Kiyotaki and Gertler (2013), Gertler and Karadi (2011, 2012), Curdia and Woodford (2010, 2011)



Financial Frictions – Bank Level Evidence

- **Kashyap and Stein (2000)** – Banks with large and liquid asset bases better able to smooth lending during periods of tight policy
- **Kishan and Opiela (2000)** – High equity capital to assets
- **Loutskina (2005)**
 - Banks whose loan books readily securitized
- **Ashcraft (2006)** – Banks affiliated with a holding company
- **Jonas and King (2008)**
 - Banks close to the efficiency frontier
- **Cetorelli and Goldberg (2013)**
 - Banks with international exposure
- **Jiménez, Ongena, Peydró, and Saurina (2012, 2014)**
 - loan level data and bank balance sheets



Stylized Commercial Bank Balance Sheet

Balance sheet of bank i in quarter t

Assets

- Reserves
- Securities
- Loans ($L_{i,t}$)
 - C&I Loans
 - Individual Loans
 - Mortgages ...

Liabilities

- Equity
- Debt
- Deposits
 - Demand Deposits
 - Time Deposits
- ...

Denote any set of bank characteristics
of bank i at quarter t as $\mathbf{B}_{i,t}$.



Estimating the Policy Impact on Bank Level Lending

Typical estimates of bank lending responses to monetary policy:

$$\begin{aligned}\Delta L_{i,t} &= \alpha + \beta M_t + \gamma' \mathbf{B}_{i,t-1} \\ &+ \delta' \mathbf{B}_{i,t-1} M_t + \text{other controls} + \varepsilon_{i,t}\end{aligned}$$

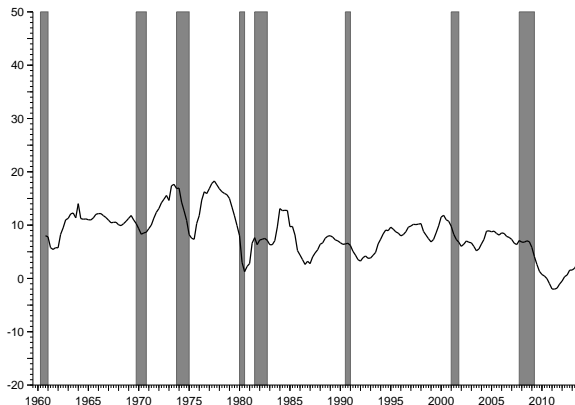
- $\Delta L_{i,t}$ growth of total loans measured at current prices,
- M_t monetary policy,
- $\mathbf{B}_{i,t}$ set of bank characteristics,
- $\varepsilon_{i,t}$ error term,

and i denotes bank entity and t indexes time



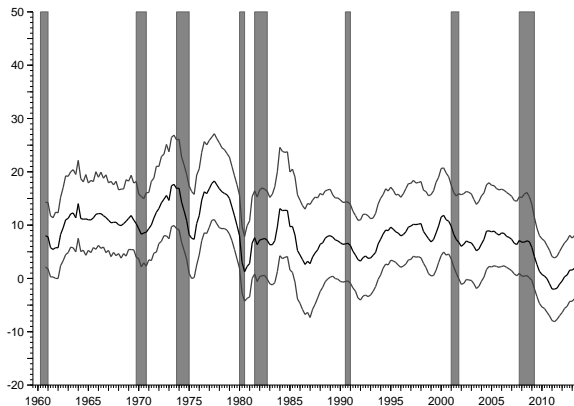
Heterogeneity in Lending Growth

Four Quarter Bank Level Credit Growth



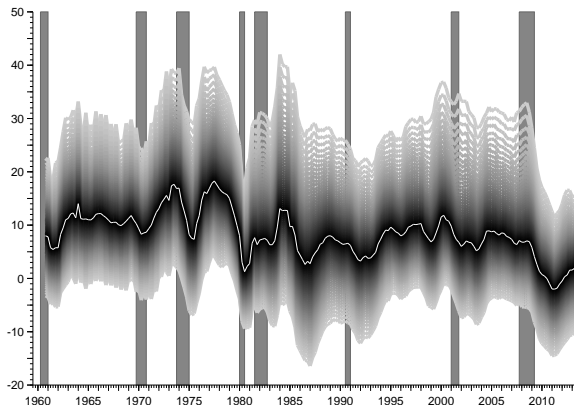
Heterogeneity in Lending Growth

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Heterogeneity in Lending Growth

Four Quarter Bank Level Credit Growth



Issues in Bank Level Evidence and Contributions

Issues in bank level evidence

- Heterogeneity in specific characteristic interpreted as pure loan supply effect
- **However**, amalgam of possible loan supply and loan demand effects depending on customer mix, risk taking behaviour etc.
- Little/no attention to important regulatory changes

Contributions

1. Extension up to recently available data, 2013 Q4, extension back to 1959 Q4 \Rightarrow 50+ years of quarterly data
2. Controlling for **bank level heterogeneity** in credit growth cyclicalities with respect to non-policy factors
3. Estimation of loan supply effect of regulatory change in the DIDMCA 1980, that is, the abolition of **Regulation Q**



- 1 Deposit Deregulation and the Lending Channel
- 2 Data, Specification, and Results
 - Microeconomic Data
 - Macroeconomic Data
 - Specification
 - Estimation Results
- 3 Conclusion



Microeconomic Data – Bank Level Data

- Reports of Condition and Income (RCRI) submitted to the FDIC (“call reports”) [▶ Report Form](#)
- quarterly bank balance sheet data from 1959 Q4 to 2013 Q4
- excluding mergers (merged banks enter as new ones)
- about two million observations
- outliers exclusion using absolute DFITS statistic (see Welsch and Kuh, 1977)



Microeconomic Data – Bank Level Data

Obtaining consistent entity-level time-series following Kashyap and Stein (2000) and by reading the original report forms:

- **Loans**

“Total Loans minus Allowances for Loan Losses”

- **Assets**

“Total Assets”

- **Cash**

“Cash & Due”

- **Securities**

“Total Investment Securities”, “Assets Held in Trading Accounts”

- **Capitalization**

book value of “Equity Issued plus Cumulated Value of Retained Earnings”



Microeconomic Data – Bank Level Data

- four bank level controls

1. bank size
1. capitalization
3. cash
4. securities

⇒ controls limited by consistent availability throughout sample

- demeaned by

1. quarterly mean (ratios)
2. quarterly median (size)

- normalized by

1. quarterly standard deviation (ratios)
2. quarterly percentile (size)



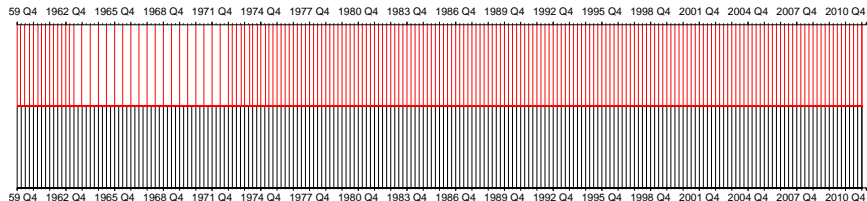
Microeconomic Data – Bank Level Data

	1960 Q4	1970 Q4	1980 Q4	1990 Q4	2000 Q4	2010 Q4
Total Assets (1000s)	18,257 (181,465)	40,379 (477,448)	115,350 (1,683,451)	199,898 (2,020,080)	392,525 (5,280,087)	1,026,274 (16,897,724)
Loans ratio	40.4 (11.3)	47.9 (11.2)	53.5 (11.6)	53.8 (15.8)	61.6 (15.8)	62.4 (15.8)
Deposits ratio	89.3 (3.4)	88.6 (4.4)	88.0 (5.3)	87.8 (9.1)	82.7 (11.5)	83.9 (8.8)
Capital ratio	9.3 (3.2)	8.6 (4.1)	9.0 (4.1)	9.3 (6.0)	11.4 (8.2)	10.9 (6.0)
Cash ratio	17.8 (7.0)	12.4 (5.8)	9.5 (5.7)	7.4 (5.8)	5.1 (5.3)	9.0 (9.2)
Securities ratio	39.1 (11.3)	34.3 (11.9)	28.5 (11.4)	29.0 (15.6)	25.0 (14.2)	21.4 (15.3)
Multi-bank holding company	2.4	7.0	15.9	29.6	25.4	15.7
One-bank holding company	0.0	8.9	17.8	39.8	52.5	66.5
Stand alone	97.6	84.1	66.3	30.6	22.1	17.8
No of Observations	12,958	13,317	14,199	11,450	7,859	6,197

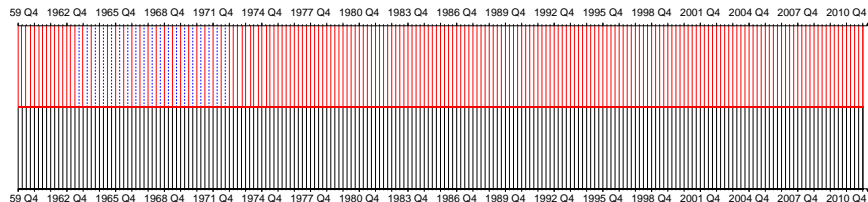
Table: Bank Characteristics, 1960 – 2010



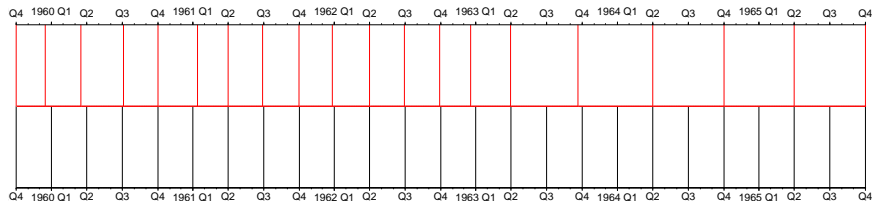
Microeconomic Data – Interpolation and Time-Shifts



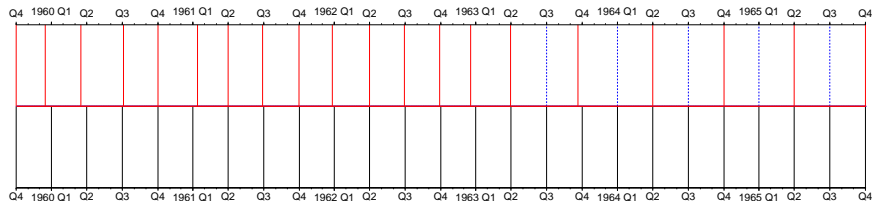
Microeconomic Data – Interpolation and Time-Shifts



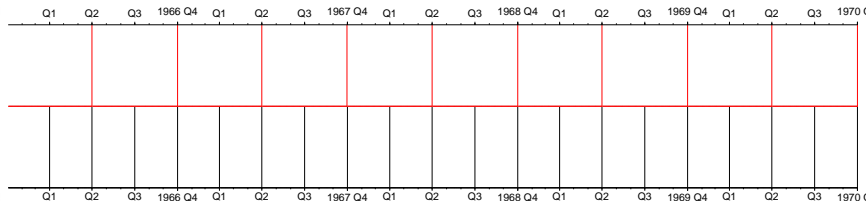
Microeconomic Data – Interpolation and Time-Shifts



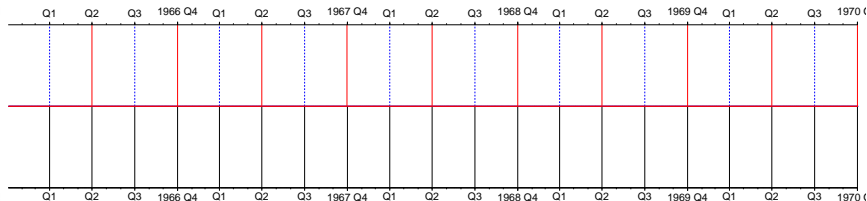
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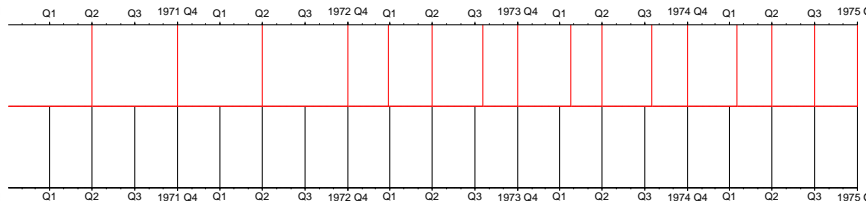
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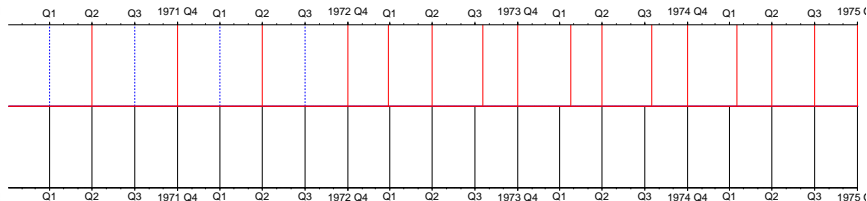
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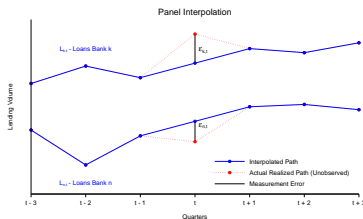


Microeconomic Data – Interpolation and Time-Shifts

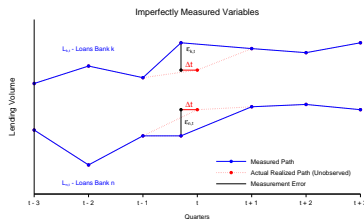


Microeconomic Data – Interpolation and Time-Shifts

Further assumptions due to incomplete data and irregular timing:



(a) Interpolation



(b) Irregular Timing



Macroeconomic Data – Description

- **Real Income Growth**

Seasonally adjusted chained-prices GDP (BEA)

- **Inflation Rate**

Core Personal Consumption Expenditure Deflator (BEA)

- **Monetary Policy**

Changes in the final day of quarter differences in the federal funds rate to mirror balance sheet availability

- **Regulatory Control**

Difference between short-term Treasury yield and rate ceilings, adjusting for financial innovation, the introduction of small-saver certificates (SSC) as a substitute for deposits

⇒ see chart in motivation section



Macroeconomic Data – Real GDP Growth

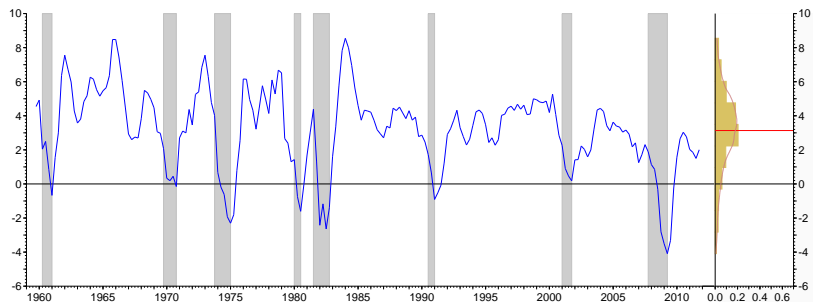


Figure: Four Quarter Change in Real GDP



Macroeconomic Data – Change in PCE Index

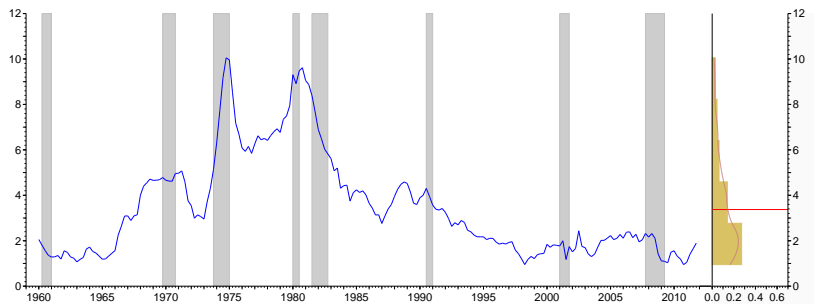


Figure: Four Quarter Change in PCE Index (ex food and energy)



Macroeconomic Data – Change in the Federal Funds Rate

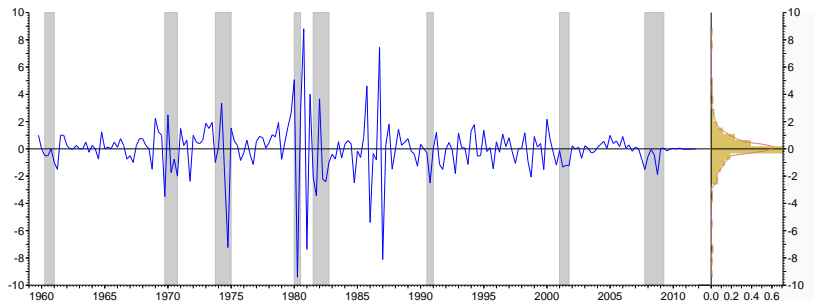


Figure: End-of-Quarter Change in the Federal Funds Rate



Regression Specification – Baseline

$$\begin{aligned} \Delta L_{i,t} = & \alpha + \sum_{\ell=1}^4 \rho_{\ell} \cdot \Delta L_{i,t-\ell} + \sum_{j=1}^3 \sum_{\ell=0}^4 \beta_{j,\ell} \cdot \mathbf{M}_{j,t-\ell} \\ & + \sum_{k=1}^3 \delta_k \cdot \mathbf{B}_{i,k,t-1} + \sum_{k=0}^3 \sum_{j=1}^3 \sum_{\ell=0}^4 \gamma_{k,j,\ell} \cdot \mathbf{B}_{i,k,t-1} \cdot \mathbf{M}_{j,t-\ell} \\ & + \text{other controls} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

- \mathbf{M}_t contains
 - Quarter-end-to-quarter-end change in the [federal funds rate](#) (mirror image of “snapshot” balance sheets)
 - Four quarter growth of [real GDP](#)
 - Four quarter growth of the [core PCE deflator](#)
- \mathbf{B}_i contains bank characteristics, note:
 - Timing of characteristics $t - 1$
 - Characteristics such that they are normalized for interpretation
 - Real income growth, inflation and policy interaction with the characteristics
- Seasonals, trend, Great Moderation dummy and policy interaction



Regression Specification – Details

$$\begin{aligned} \Delta L_{i,t} = & \alpha + \sum_{\ell=1}^4 \rho_{\ell} \cdot \Delta L_{i,t-\ell} + \sum_{j=1}^3 \sum_{\ell=0}^4 \beta_{j,\ell} \cdot \mathbf{M}_{j,t-\ell} \\ & + \sum_{k=1}^3 \delta_k \cdot \mathbf{B}_{i,k,t-1} + \sum_{k=0}^3 \sum_{j=1}^3 \sum_{\ell=0}^4 \gamma_{k,j,\ell} \cdot \mathbf{B}_{i,k,t-1} \cdot \mathbf{M}_{j,t-\ell} \\ & + \text{other controls} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

Previous literature unnecessarily restrictive by setting:

$$\sum_{\ell=0}^4 \gamma_{k,j,\ell} = 0 \quad \text{with} \quad j = 1, 2 \quad k = 1, 2, 3, 4 \quad (\text{Homogenous Loan Demand})$$

where ℓ again denotes lags. In this specification allow for

$$\sum_{\ell=0}^4 \gamma_{k,j,\ell} \neq 0 \quad \text{with} \quad j = 1, 2 \quad k = 1, 2, 3, 4 \quad (\text{Heterogeneous Loan Demand})$$



Regression Specification – Details

Interested in **policy response** of lending growth,
but note - amalgam of loan supply and demand:

$$H_0 : \sum_{\ell=0}^4 \beta_{3,\ell} = 0 \quad (\text{Policy Response})$$

Variations across proxies for bank level financial constraints in
order to identify loan supply shifters:

$$H_0 : \sum_{\ell=0}^4 \gamma_{k,3,\ell} = 0 \quad \text{with } k = 1, 2, 3, 4$$

(Bank Level Loan Supply Shifts)



Regression Specification – Deposit Rate Ceilings

$$(1) \quad + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=0}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (2)$$



Regression Specification – Deposit Rate Ceilings

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=0}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (2)$$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{pol \ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell} \quad (3)$$

$$+ \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{pol \ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}$$



Regression Specification – Deposit Rate Ceilings

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=0}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (2)$$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell} \quad (3)$$

$$+ \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{pol\ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}$$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (4)$$

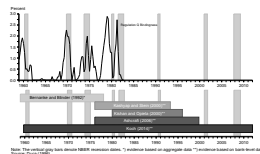
$$+ \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}$$

$$+ \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{pol\ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}$$



Regression Specification – Reg Q as Loan Supply Shifter

$$\begin{aligned}
 (1) \quad & + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \\
 & + \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell} \\
 & + \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}
 \end{aligned}$$



Note how the bindingness of Regulation Q is a **pure supply shifter** - does not directly influence loan demand at the bank level!

$$H_0 : \sum_{\ell=0}^4 \varrho_{\ell}^{level} = 0$$

(Regulation Q Credit Supply Shifter)

$$H_0 : \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} = 0 \quad \text{with} \quad k = 1, 2, 3, 4$$

(Heterogeneity in Regulatory Impact)



Results – Overview

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $\sum_{t=0}^4 \text{RegQ}_{t-\ell}$			-0.15*** (0.02)		-0.27*** (0.02)
(3) $\sum_{t=0}^4 \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.65*** (0.01)	-0.77*** (0.02)
(4) $\sum_{t=0}^4 \Delta ff_{t-\ell} + \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.41*** (0.02)	-0.31*** (0.02)
(5) $\sum_{t=0}^4 \Delta y_{t-\ell}$		0.48*** (0.01)	0.45*** (0.01)	0.39*** (0.01)	0.37*** (0.01)
(6) $\sum_{t=0}^4 \Delta p_{t-\ell}$		0.30*** (0.01)	0.35*** (0.01)	0.18*** (0.01)	0.26*** (0.01)
(7) $\sum_{t=0}^4 \text{GMod}_{t-\ell}$		-2.64*** (0.05)	-2.52*** (0.05)	-3.44*** (0.05)	-3.42*** (0.05)
(8) $\sum_{t=0}^4 \text{GMod}_{t-\ell} \cdot \Delta ff_{t-\ell}$		-1.84*** (0.05)	-1.74*** (0.05)	-2.71*** (0.05)	-2.82*** (0.05)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

► Size

► Equity

► Cash

► Securities

$$\Delta L_{i,t} = \alpha + \sum_{\ell=1}^4 \rho_{\ell} \cdot \Delta L_{i,t-\ell} + \sum_{j=1}^3 \sum_{\ell=0}^4 \beta_{j,\ell} \cdot \mathbf{M}_{j,t-\ell} \quad (1)$$

$$+ \sum_{k=1}^3 \delta_k \cdot \mathbf{B}_{i,k,t-1} + \sum_{k=0}^3 \sum_{j=1}^3 \sum_{\ell=0}^4 \gamma_{k,j,\ell} \cdot \mathbf{B}_{i,k,t-1} \cdot \mathbf{M}_{j,t-\ell}$$

+ other controls + $\varepsilon_{i,t}$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=0}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (2)$$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell} \quad (3)$$

$$+ \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{pol\ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell}$$

$$(1) + \sum_{\ell=0}^4 \varrho_{\ell}^{level} \cdot \text{RegQ}_{t-\ell} + \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \quad (4)$$

$$+ \sum_{\ell=0}^4 \varrho_{\ell}^{pol\ level} \cdot \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell}$$

$$+ \sum_{k=1}^3 \sum_{\ell=0}^4 \varrho_{k,\ell}^{pol\ inter} \cdot \mathbf{B}_{i,k,t-1} \cdot \text{RegQ}_{t-\ell} \cdot \Delta ff_{t-\ell}$$



Results – Overview

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $\sum_{t=0}^4 RegQ_{t-\ell}$			-0.15*** (0.02)		-0.27*** (0.02)
(3) $\sum_{t=0}^4 RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.65*** (0.01)	-0.77*** (0.02)
(4) $\sum_{t=0}^4 \Delta ff_{t-\ell} + RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.41*** (0.02)	-0.31*** (0.02)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results – Overview

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(5) $\sum_{t=0}^4 \Delta y_{t-\ell}$		0.48*** (0.01)	0.45*** (0.01)	0.39*** (0.01)	0.37*** (0.01)
(6) $\sum_{t=0}^4 \Delta p_{t-\ell}$		0.30*** (0.01)	0.35*** (0.01)	0.18*** (0.01)	0.26*** (0.01)
(7) $\sum_{t=0}^4 \text{GMod}_{t-\ell}$		-2.64*** (0.05)	-2.52*** (0.05)	-3.44*** (0.05)	-3.42*** (0.05)
(8) $\sum_{t=0}^4 \text{GMod}_{t-\ell} \cdot \Delta \text{ff}_{t-\ell}$		-1.84*** (0.05)	-1.74*** (0.05)	-2.71*** (0.05)	-2.82*** (0.05)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results – Bank Size

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $Assets_{i,t-1}$		-1.69*** (0.20)	-1.70*** (0.21)	-1.37*** (0.21)	-1.39*** (0.21)
(3) $\sum_{t=0}^4 Assets_{i,t-1} \cdot \Delta ff_{t-\ell}$		0.44*** (0.06)	0.77*** (0.06)	-0.01 (0.10)	0.61*** (0.11)
(4) $\sum_{t=0}^4 Assets_{i,t-1} \cdot \Delta y_{t-\ell}$		-0.06*** (0.02)	-0.04* (0.02)	-0.05** (0.02)	-0.04* (0.02)
(5) $\sum_{t=0}^4 Assets_{i,t-1} \cdot \Delta p_{t-\ell}$		-0.28*** (0.02)	-0.20*** (0.02)	-0.33*** (0.02)	-0.26*** (0.02)
(6) $\sum_{t=0}^4 Assets_{i,t-1} \cdot RegQ_{t-\ell}$			-0.46*** (0.06)		-0.32*** (0.06)
(7) $\sum_{t=0}^4 Assets_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				0.40*** (0.05)	0.21*** (0.05)
(8) $\sum_{t=0}^4 Assets_{i,t-1} \cdot \Delta ff_{t-\ell} + Assets_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				0.39*** (0.07)	0.82*** (0.08)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results – Capitalization

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $Equity_{i,t-1}$		-0.36*** (0.07)	-0.46*** (0.08)	-0.39*** (0.07)	-0.43*** (0.08)
(3) $\sum_{t=0}^4 Equity_{i,t-1} \cdot \Delta ff_{t-\ell}$		0.08*** (0.03)	0.02 (0.03)	-0.13*** (0.05)	-0.31*** (0.06)
(4) $\sum_{t=0}^4 Equity_{i,t-1} \cdot \Delta y_{t-\ell}$		-0.02 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)
(5) $\sum_{t=0}^4 Equity_{i,t-1} \cdot \Delta p_{t-\ell}$		0.02** (0.01)	0.02* (0.01)	0.02*** (0.01)	-0.00 (0.01)
(6) $\sum_{t=0}^4 Equity_{i,t-1} \cdot RegQ_{t-\ell}$			0.12*** (0.03)		0.17*** (0.03)
(7) $\sum_{t=0}^4 Equity_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				0.12*** (0.02)	0.19*** (0.03)
(8) $\sum_{t=0}^4 Equity_{i,t-1} \cdot \Delta ff_{t-\ell} + Equity_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.01 (0.03)	-0.12*** (0.04)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results – Cash Holdings

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $Cash_{i,t-1}$		-0.19*** (0.05)	-0.09* (0.05)	-0.19*** (0.05)	-0.06 (0.05)
(3) $\sum_{t=0}^4 Cash_{i,t-1} \cdot \Delta ff_{t-\ell}$		0.06*** (0.02)	0.15*** (0.02)	-0.16*** (0.03)	-0.11*** (0.03)
(4) $\sum_{t=0}^4 Cash_{i,t-1} \cdot \Delta y_{t-\ell}$		0.00 (0.01)	-0.02*** (0.01)	0.01** (0.01)	-0.01 (0.01)
(5) $\sum_{t=0}^4 Cash_{i,t-1} \cdot \Delta p_{t-\ell}$		0.08*** (0.01)	0.11*** (0.01)	0.07*** (0.01)	0.08*** (0.01)
(6) $\sum_{t=0}^4 Cash_{i,t-1} \cdot RegQ_{t-\ell}$			-0.22*** (0.02)		-0.17*** (0.02)
(7) $\sum_{t=0}^4 Cash_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				0.17*** (0.01)	0.17*** (0.02)
(8) $\sum_{t=0}^4 Cash_{i,t-1} \cdot \Delta ff_{t-\ell} + Cash_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				0.01 (0.02)	0.06*** (0.02)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results – Securities Holdings

$\Delta L_{i,t}$	Model:	(1)	(2)	(3)	(4)
(1) $\sum_{t=0}^4 \Delta ff_{t-\ell}$		-0.75*** (0.02)	-0.80*** (0.02)	0.25*** (0.03)	0.46*** (0.03)
(2) $Securities_{i,t-1}$		-0.74*** (0.05)	-0.61*** (0.05)	-0.76*** (0.05)	-0.60*** (0.05)
(3) $\sum_{t=0}^4 Securities_{i,t-1} \cdot \Delta ff_{t-\ell}$		-0.15*** (0.02)	-0.22*** (0.02)	0.14*** (0.03)	-0.01 (0.03)
(4) $\sum_{t=0}^4 Securities_{i,t-1} \cdot \Delta y_{t-\ell}$		0.16*** (0.01)	0.14*** (0.01)	0.15*** (0.01)	0.12*** (0.01)
(5) $\sum_{t=0}^4 Securities_{i,t-1} \cdot \Delta p_{t-\ell}$		0.16*** (0.01)	0.15*** (0.01)	0.17*** (0.01)	0.17*** (0.01)
(6) $\sum_{t=0}^4 Securities_{i,t-1} \cdot RegQ_{t-\ell}$			-0.01 (0.02)		-0.07*** (0.02)
(7) $\sum_{t=0}^4 Securities_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.21*** (0.01)	-0.15*** (0.02)
(8) $\sum_{t=0}^4 Securities_{i,t-1} \cdot \Delta ff_{t-\ell} + Securities_{i,t-1} \cdot RegQ_{t-\ell} \cdot \Delta ff_{t-\ell}$				-0.06*** (0.02)	-0.16*** (0.02)
R^2		0.83	0.83	0.83	0.83
Observations		1,159,253	1,160,365	1,160,123	1,160,686

Robust standard errors after clustering at bank level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Changing Loan Demand Elasticities

Changes in loan demand elasticities support, rather than harm, the argument about Regulation Q as an identified loan supply shifter:

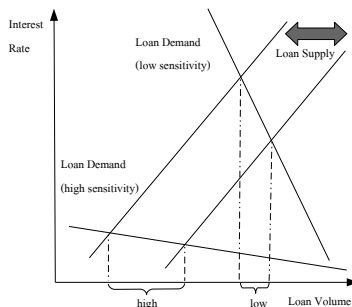


Figure: Structural Changes in Loan Demand Interest Rate Elasticities



Great Moderation?

Stock and Watson (2002), p. 161

“Both univariate and multivariate estimates of the break date center on 1984. When we analyze 168 series for breaks in their conditional variance, approximately 40 percent have significant breaks in their conditional variance in 1983 to 1985. Our 67 percent confidence interval for the break date in the conditional variance of four-quarter GDP growth (given past values of GDP growth) is 1982:4 to 1985:3, consistent with Kim and Nelson’s (1999) and McConnell and Perez-Quiros’s (2000) estimate of 1984:1.”



Main Findings and Future Avenues

Main results

- Deposit ceilings ideal for identifying bank credit supply shifts
- The more binding Regulation Q, the less was mean lending
- Qualitative difference in policy transmission via credit
- Quantitative difference vis-a-vis constrained estimate by a factor of up to 10

Future directions

- Integrating work in monetary policy identification and the lending channel (see [Bowdler, Bluedorn, and Koch, 2015](#))



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Review: Channels of Monetary Transmission

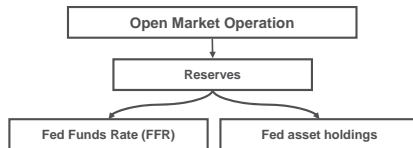
Six channels of transmission of policy changes to aggregate demand

1. Interest rate channel
2. Exchange rate channel
3. Wealth channel
4. Balance sheets channel
5. Bank lending channel
6. Portfolio balance channel

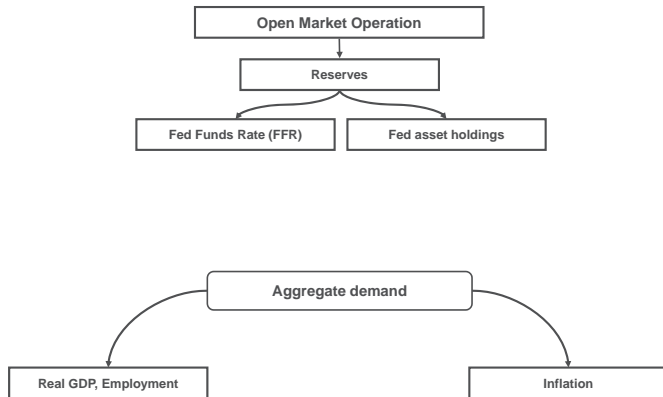
See McCarthy (2012, FRB NY)

*"The Federal Reserve in the 21st Century
The Monetary Transmission Mechanism"*

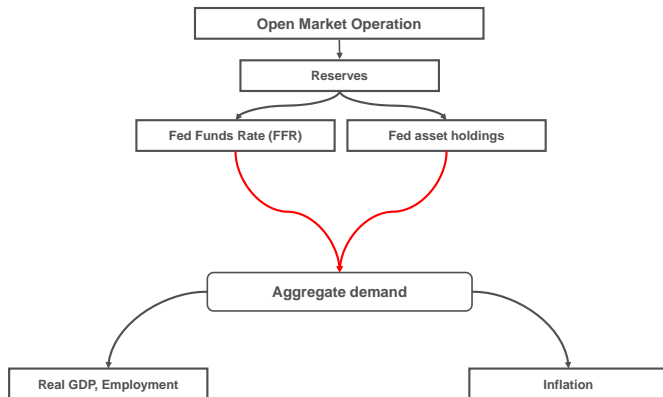
Review: Channels of Monetary Transmission



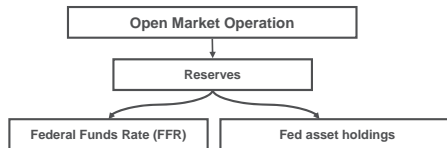
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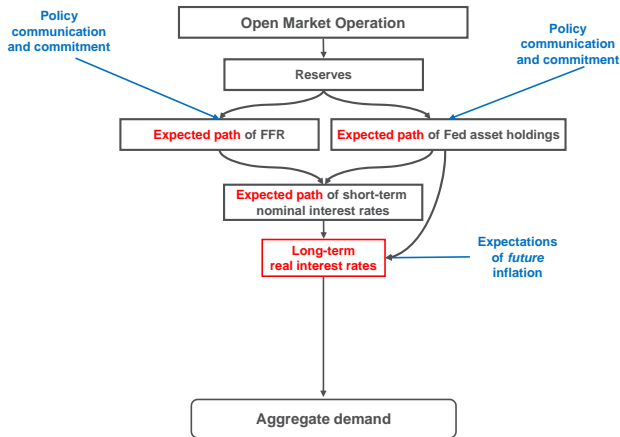
Review: Channels of Monetary Transmission



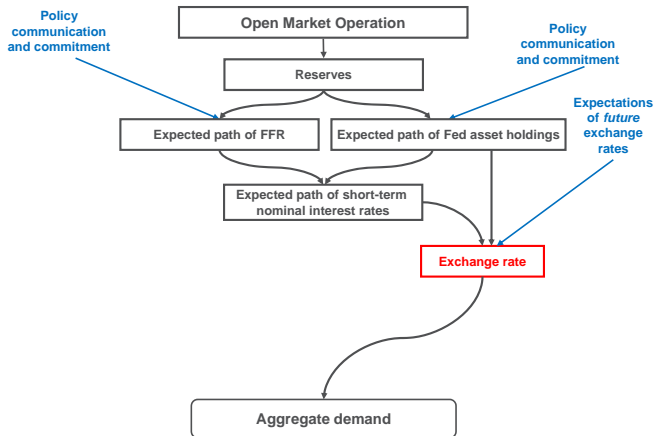
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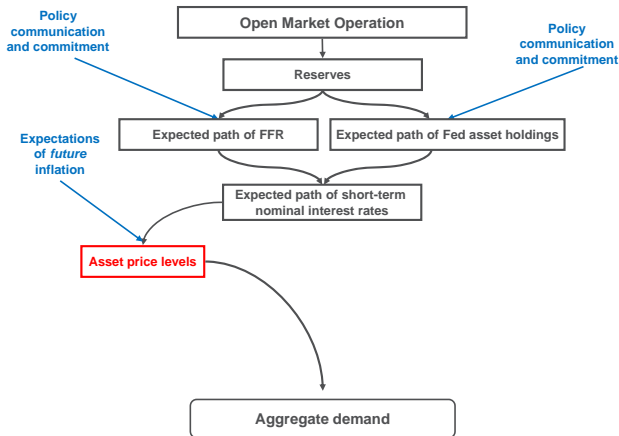
Review: Channels of Monetary Transmission



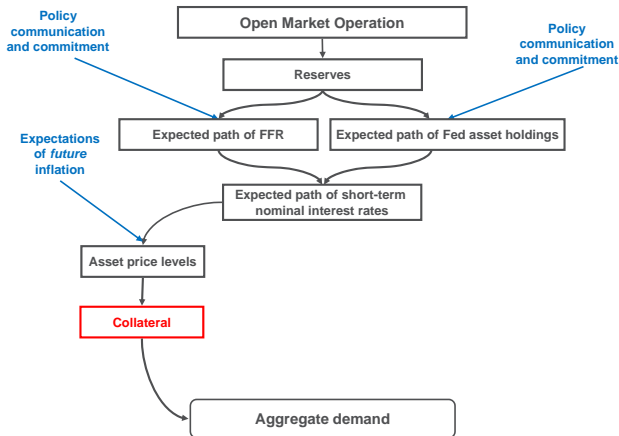
Review: Channels of Monetary Transmission



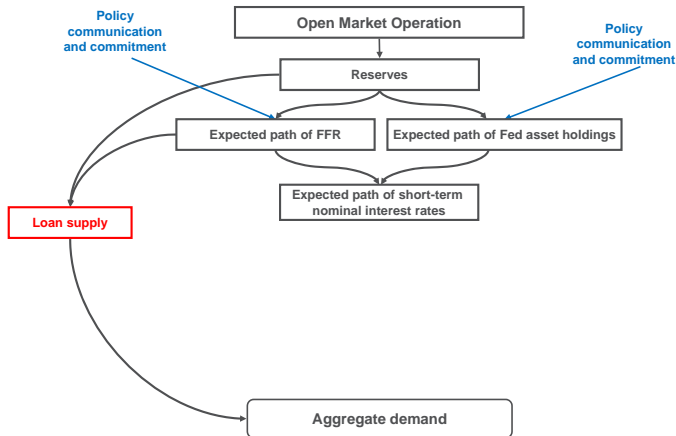
Review: Channels of Monetary Transmission



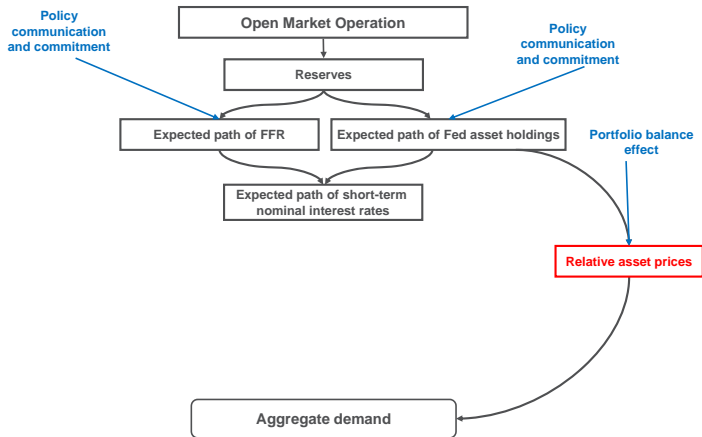
Review: Channels of Monetary Transmission



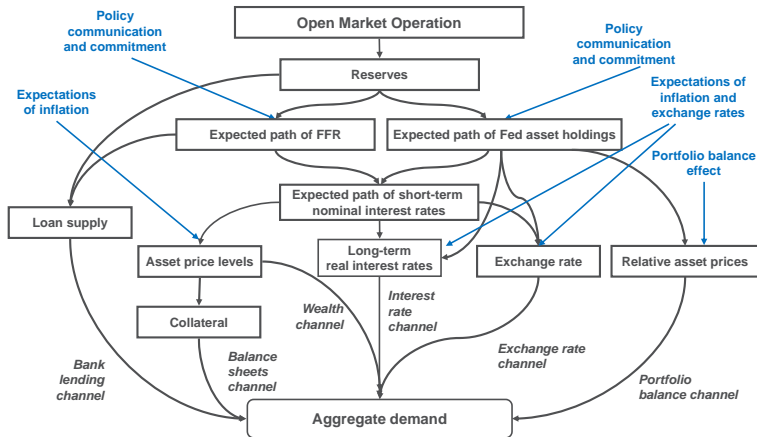
Review: Channels of Monetary Transmission



Review: Channels of Monetary Transmission



Review: Channels of Monetary Transmission



Reporting Forms: Now and Then

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RC-1

Consolidated Report of Condition for Insured Banks and Savings Associations for September 30, 2013

All schedules are to be reported in thousands of dollars. Unless otherwise indicated, report the amount outstanding as of the last business day of the quarter.

Schedule RC—Balance Sheet

Dollar Amounts in Thousands		RCFD	Tril	Bil	Mill	Thou	
Assets							
1. Cash and balances due from depository institutions (from Schedule RC-A):							
a. Noninterest-bearing balances and currency and coin ¹		0081					1.a.
b. Interest-bearing balances ²		0071					1.b.
2. Securities:							
a. Held-to-maturity securities (from Schedule RC-B, column A).....		1754					2.a.
b. Available-for-sale securities (from Schedule RC-B, column D)		1773					2.b.
3. Federal funds sold and securities purchased under agreements to resell:							
a. Federal funds sold in domestic offices		RCON B987					3.a.
b. Securities purchased under agreements to resell ³		RCFD B989					3.b.
4. Loans and lease financing receivables (from Schedule RC-C):							
a. Loans and leases held for sale		RCFD 5369					4.a.
b. Loans and leases, net of unearned income		B528					4.b.
c. LESS: Allowance for loan and lease losses		3123					4.c.
d. Loans and leases, net of unearned income and allowance (item 4.b minus 4.c)		B529					4.d.
5. Trading assets (from Schedule RC-D)		3545					5.
6. Premises and fixed assets (including capitalized leases)		2145					6.
7. Other real estate owned (from Schedule RC-M).....		2150					7.
8. Investments in unconsolidated subsidiaries and associated companies		2130					8.
9. Direct and indirect investments in real estate ventures		3656					9.
10. Intangible assets:							
a. Goodwill.....		3163					10.a.
b. Other intangible assets (from Schedule RC-M).....		0426					10.b.
11. Other assets (from Schedule RC-F)		2160					11.
12. Total assets (sum of items 1 through 11).....		2170					12.



Reporting Forms: Now and Then

Every blank space and schedule must be filled in or completed. Where there are no figures to report, the word "None" must be written or stamped. Printed items on this blank must not be scratched or amended in any manner. Any amounts which cannot be properly included in the printed items must be entered under "Other Assets" or "Other Liabilities."

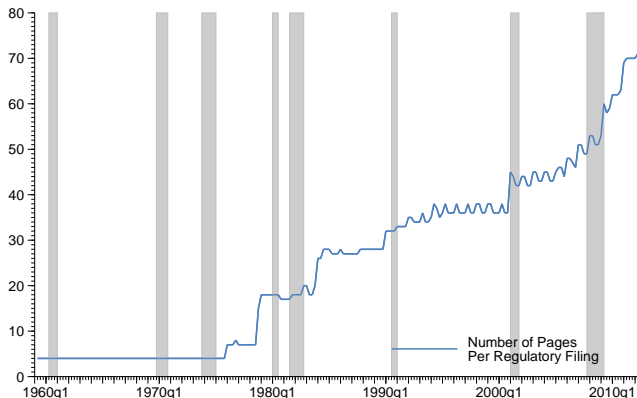
1137

REPORT OF condition of "The Monterey County Bank" At Salinas, in the State of California

RESERVE DISTRICT No. 12 No. 637 (State charter number of bank here) at the close of business on June 30, 1928

RESOURCES		DOLLARS	Cts.
1. Loans and discounts, gross, including rediscunts, and acceptances of other banks and foreign bills of exchange or drafts sold with indorsement of this bank. (Amount extended includes \$ None of acceptances of other banks)		2958647.40	1
2. Overdrafts—Secured, \$ NONE Unsecured, \$ 5466.81		5466.81	2
3. United States Government securities owned		1.000	3
4. Other bonds, stocks, and securities owned (including stock of Federal Reserve Bank)		1175534.69	4
5. Customers' liability (exclusive of acceptances) on account of outstanding acceptances, executed by this and by other banks for account of this bank		NONE	5
6. Banking house, \$ 252,113.75 Furniture and fixtures, \$ 26,465.93		548579.68	6
7. Real estate owned other than banking house		57974.00	7
8. Gold and gold certificates		435.00	8
9. All other cash in vault		74314.61	9
10. Reserve with Federal Reserve Bank		196226.67	10
11. Items with Federal Reserve Bank in process of collection (not available as reserve)		NONE	11
12. Due from banks (other than Federal Reserve Bank), bankers, and trust companies in the United States		107431.13	12
13. Exchanges for clearing house, and checks on other banks in same place		9566.63	13
Total of Items 11, 12, and 13, \$ 116997.76 (Amount not to be extended)		5736.15	14
14. Outside checks and other cash items		1472.39	15
15. Securities borrowed—United States, \$ NONE All other, \$ NONE		NONE	16
16. Other assets (If space not sufficient, attach schedule giving nature and amount of such items checked by separate due from foreign banks and foreign companies, if any are listed here)	Stewart v. Haines to transfer 125,338.88 24,620.65 Security Reserve Bank 37521.96 to Sec 40540 Haines to transfer 5065007.57 Total 76274.15		
LIABILITIES		DOLLARS	Cts.
17. Capital stock paid in		272,800	17
18. Surplus fund		110,000	18
19. Undivided profits	\$ 163,267.72		
(a) Plus reserves for	NONE		
(b) Less current expenses, interest and taxes paid or accrued		163,267.72	
(c) Net undivided profits (if a loss enter on line 16 "Other Assets")		NONE	
20. Reserved for expenses, taxes, and interest accrued and unpaid		163,267.72	19
21. Due to Federal Reserve Bank (deferred credits)		NONE	20
22. Due to banks (other than Federal Reserve Bank), bankers, and trust companies (inc. \$ NONE due to banks in foreign countries)		NONE	21
23. Certified and cashiers' or treasurers' checks outstanding		59,637.61	22
Total of Items 21, 22, and 23, \$ 59,637.61 (Amount not to be extended)			23

Reporting Forms: Now and Then

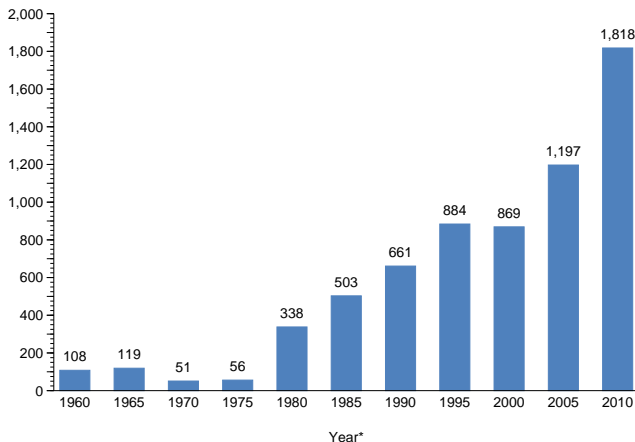


NOTES: Grey bars indicate recessions. Maximum number of report pages for domestic banks only.
1959:Q4-1983:Q4: Forms FFIEC 010, FFIEC 011, FFIEC 012, FFIEC 013, FFIEC 015 and temporary reporting supplements.
1984:Q1-2000:Q4: Forms FFIEC 032, FFIEC 033, FFIEC 034.
2001:Q1-present: Form FFIEC 041.
DATA SOURCES: Call Reports, Federal Financial Institutions Examination Council; Federal Reserve Bank of Dallas.



Reporting Forms: Now and Then

Number of Reported Entries in Call Reports



Note: * Q4 of Each Year.

Sources: FFIEC CALL Reports, Federal Reserve Bank of Dallas.

