

The Effects of Bank Mergers on Interest and Non-Interest Costs

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The Effects of Bank Mergers on Interest and Non-Interest Costs

- I. Issues
- II. Previous Research
- III. Data
- IV. Accounting Issues
- V. Findings
- VI. Conclusions

ISSUES

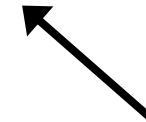
- Do mergers cut costs?
- Non-interest costs versus interest costs
- Are financials (mis-)statements?

PREVIOUS RESEARCH

- Existing evidence inconclusive
- A number of survey papers
 - Berger, Demsetz, and Strahan (1999)
 - De Long (2001)
 - Houston, James, and Ryngaert (2001)
 - Davis (2000)
 - Jones and Critchfield (2005)

DEFINING COSTS

Interest Costs + Non-interest Costs



Interest on deposits

Labor Costs

Interest on non-deposits

Premises & Equip
ONIE

DATA

- 1782 MERGERS

1987 to 2001

Banks, not BHCs

No other mergers 2 years before or after

No failed-bank or assisted mergers

DATA

- SOURCES

FFIEC Call Reports, quarterly

FRB Chicago Merger file

MEASURING PERFORMANCE

- Change in Relative Cost =

$$\left[\overline{X}_A - \overline{X}_A^{\text{PEER}} \right] - \left[\overline{X}_B - \overline{X}_B^{\text{PEER}} \right]$$

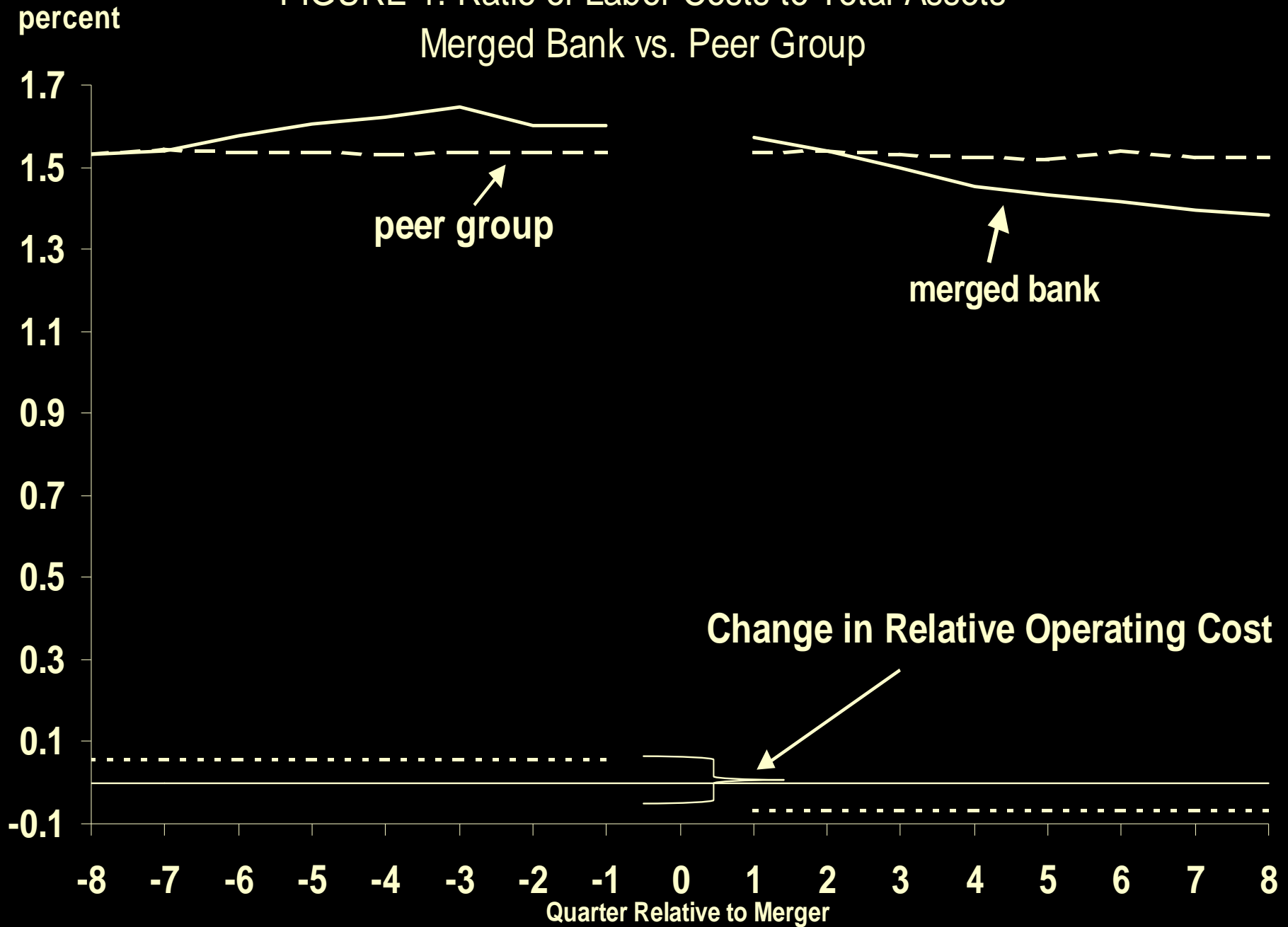
X = interest costs, non-interest costs, and their components;

A for after merger, B for before merger

Change in Relative Non-Interest Costs

- All costs scaled by total assets
- 8-Quarter means
- Peer banks for each merger
 - No mergers between 1987 and 2001
 - Matched by total assets
 - Small: \$10 million to \$100 million
 - Medium: \$100 million to \$1 billion
 - Large: \$1 billion to \$10 billion
 - Mega: over \$10 billion

FIGURE 1: Ratio of Labor Costs to Total Assets
Merged Bank vs. Peer Group



Change in Relative Interest Costs

- Scaled by total assets
- Also compute:
 - Change in Relative Interest Rate
 - Change in Relative Liability Component

ACCOUNTING ISSUES

- About 1/3 of sample mergers used “Purchase Accounting”
 - Mark-to-market
 - Premises
 - Equipment
 - Residual premium added to Intangible Assets

ACCOUNTING ISSUES

- REPORTED EXPENSES
 - Based on stocks of premises and intangibles
 - If recorded premises and intangible assets rise,
 - premises expense rises
 - ONIE rises

Table 1: Bank Mergers by Accounting Method

Assets of Acquiring Bank	Merger Accounting Method	
	Pooling	Purchase
< \$1Billion	64%	36%
> \$1Billion	82%	18%
Prior Affiliation	Pooling	Purchase
No	33%	67%
Yes	95%	5%

Table 2: Changes in Goodwill Amortization and Fixed Assets Expenses around Merger quarters

Dependent Variable	Independent Variables		Summary Statistics	
	Constant	Dummy for Purchase Accounting	R ²	F
1. Goodwill	0.013* (3.69)	0.038* (6.05)	0.05	10.7
2. Fixed Assets	0.071* (23.10)	0.001 (0.16)	0.04	7.1

Note: t-statistics in parentheses. * denotes statistically significant at the 5 percent level.

Table 3: Change in Relative Non-interest Costs

Dependent Variable	Independent Variables			Summary Statistics	
	Constant	Dummy for Purchase Accounting	Dummy for Prior Affiliation	R ²	F
1. Non-interest Expenses	-0.054* (-2.20)	0.004 (0.13)	0.066* (2.33)	0.005	4.4*
A. Labor	-0.034* (-2.52)	-0.017 (-1.08)	0.021 (1.41)	0.029	4.5*
B. Fixed assets	-0.000 (-0.04)	0.004 (0.67)	0.008 (1.30)	0.001	0.9
C. Other non-interest	-0.019 (-1.08)	0.017 (0.79)	0.037 (1.85)	0.002	1.9

Note: t-statistics in parentheses. * denotes statistically significant at the 5 percent level.

Table 4: Change in Liability Costs, Interest Rates,
and Liability Amounts

	Liability Cost/ Total Assets	Interest Rate	Liability Amount/ Total Assets
1. Total Liabilities	-0.01	-0.01	-0.002*
A. Deposits	-0.06*	-0.02*	-0.009*
1) Large CDs	-0.01*	-0.01	-0.003*
2) Other Deposits	-0.04*	-0.03*	-0.005*
a) Transactions	-0.02*#	-0.05*#	-0.003*
b) Savings	0.03*#	0.10*#	0.009*
c) Other Time Deposits	-0.05*#	0.04#	-0.011*
B. Non-Deposits	0.05*	0.30*	0.006*
2. Capital	n/a	n/a	0.002*

Note: Data are first differences of ratios in percentage points.

* denotes statistically significant at the 5 percent level.

denotes lack of data for 1987 or 1988 mergers; reduced sample size to 1,506 mergers.

Labor/Capital vs Funding

- Regression analysis on the effects of changes in non-interest costs on interest costs, interest rates, and liability mix.

Table 5: Effects of Changes in Non-interest Costs on Liabilities' Costs

Dependent Variable	Constant	Expenses			Acquiring Bank Size			R ²	F
		Labor	Fixed Assets	Other Non-interest	Medium	Large	Mega		
Total Liabilities	0.030* (2.39)	-0.161* (-5.08)	-0.185* (-2.44)	0.039 (1.84)	-0.070* (-4.57)	0.002 (0.12)	0.105 (1.89)	0.048	14.8
A. Deposits	0.014 (1.01)	-0.025 (-0.70)	-0.016 (-0.18)	-0.003 (-0.13)	-0.076* (-4.36)	-0.190* (-6.93)	-0.312* (-4.90)	0.037	11.3
1) Large CDs	-0.022* (-2.24)	-0.091* (-3.63)	0.013 (0.21)	-0.071* (-4.20)	-0.002 (-0.18)	0.085* (4.44)	-0.081 (-1.82)	0.036	11.0
2) Other Deposits	0.037* (2.76)	0.066* (1.96)	-0.029 (-0.35)	0.068* (3.00)	-0.074* (-4.55)	-0.275* (-10.80)	-0.231* (-3.90)	0.070	22.2
a) Transactions	-0.009 (-1.76)	0.005 (0.40)	0.050 (1.62)	0.011 (1.30)	-0.007 (-1.21)	-0.045* (-4.65)	-0.024 (-1.07)	0.019	4.9
b) Savings	0.019* (2.00)	0.009* (3.37)	-0.075 (1.28)	-0.013 (-0.76)	0.026* (2.24)	-0.100 (-0.54)	0.017 (0.40)	0.008	1.9
c) Other Time Deposits	0.019 (1.38)	0.023 (0.70)	-0.199* (-2.44)	0.034 (1.47)	-0.073* (-4.50)	-0.230* (-8.97)	-0.099 (-1.68)	0.053	14.1
B. Non-Deposits	0.016 (1.33)	-0.135* (-4.62)	-0.169* (-2.40)	0.042* (2.14)	0.006 (0.45)	0.193* (8.65)	0.417* (8.06)	0.105	34.8

Note: t-statistics in parentheses. * denotes statistically significant at the 5 percent level.

Table 6: Effects of Changes in Non-interest Costs on Interest Rates

Dependent Variable	Constant	Expenses			Acquiring Bank Size			R ²	F
		Labor	Fixed Assets	Other Non-interest	Medium	Large	Mega		
Total Liabilities	0.025 (1.90)	-0.178* (-5.37)	-0.223* (-2.79)	0.039 (1.73)	-0.062* (-3.89)	0.010 (0.39)	0.100 (1.71)	0.049	15.1
A. Deposits	0.022 (1.61)	-0.139* (-4.10)	-0.185* (-2.27)	-0.003 (-0.14)	-0.064* (-3.93)	-0.045 (-1.74)	-0.159* (-2.66)	0.032	9.9
1) Large CDs	-0.059 (-1.63)	-0.167 (-1.83)	-0.603* (2.75)	0.030 (0.49)	0.044 (1.01)	0.118 (1.70)	0.283 (1.77)	0.007	2.2
2) Other Deposits	0.041* (2.99)	-0.073* (-2.11)	-0.292* (-3.49)	0.030 (1.27)	-0.078* (-4.66)	-0.167* (-6.29)	-0.322* (-5.25)	0.047	14.6
a) Transactions	-0.029 (-1.80)	-0.049 (-1.25)	0.048 (0.50)	-0.003 (-0.10)	-0.014 (-0.75)	-0.138* (-4.56)	-0.041 (-0.59)	0.017	4.2
b) Savings	0.073* (2.39)	-0.103 (-1.37)	0.087 (0.46)	0.044 (0.82)	0.049 (1.34)	-0.032 (-0.55)	-0.258 (-1.92)	0.007	1.8
c) Other Time Deposits	0.072* (3.65)	-0.039 (-0.83)	-0.271* (-2.28)	0.003 (0.09)	-0.035 (-1.49)	-0.135* (-3.61)	0.080 (0.94)	0.015	3.8
B. Non-Deposits	0.236* (2.09)	-0.880* (-3.11)	1.790* (2.63)	0.233 (1.22)	-0.021 (-0.16)	0.236 (1.10)	1.180* (2.37)	0.011	3.3

Note: t-statistics in parentheses. * denotes statistically significant at the 5 percent level.

Table 7: Effects of Changes in Non-interest Costs on Liabilities' Amount

Dependent Variable	Constant	Expenses			Acquiring Bank Size			R ²	F
		Labor	Fixed Assets	Other Non-interest	Medium	Large	Mega		
1. Total Liabilities	0.002* (2.64)	0.002 (0.72)	0.002 (0.32)	-0.000 (-0.10)	-0.004* (-4.20)	-0.013* (-7.83)	-0.048* (-12.30)	0.100	32.8
A. Deposits	-0.000 (-0.13)	0.026* (5.66)	0.023* (2.03)	0.003 (1.10)	-0.006* (-2.87)	-0.030* (-8.61)	-0.044* (-5.34)	0.085	27.5
1) Large CDs	-0.003* (-2.37)	-0.014* (-4.03)	-0.001 (-0.12)	-0.013* (-5.46)	-0.002 (-1.01)	0.009* (3.43)	-0.017* (-2.89)	0.046	14.2
2) Other Deposits	0.003 (1.51)	0.040* (8.12)	0.024* (2.00)	0.016* (4.80)	-0.005* (-2.01)	-0.039* (-10.5)	-0.026* (-3.05)	0.132	44.8
a) Transactions	0.002 (1.35)	0.023* (5.45)	0.033* (3.28)	0.007* (2.64)	-0.006* (-2.99)	-0.014* (-4.51)	-0.011 (-1.57)	0.059	18.5
b) Savings	0.003 (1.69)	0.016* (3.25)	-0.006 (-0.48)	0.002 (0.60)	0.012* (4.91)	-0.004 (-1.05)	-0.002 (-0.18)	0.028	8.6
c) Other Time Deposits	-0.003 (-1.60)	0.002 (0.41)	-0.003 (-0.36)	0.007* (2.46)	-0.010* (-5.36)	-0.021* (-7.00)	-0.013 (-1.91)	0.032	9.8
B. Non-Deposits	0.003 (1.48)	-0.025* (-5.71)	-0.021* (-2.01)	-0.004 (-1.23)	0.002 (0.95)	0.017* (5.26)	-0.004 (-0.51)	0.054	17.0
2. Capital	-0.002* (-2.64)	-0.002 (-0.72)	-0.002 (-0.32)	0.000 (0.10)	0.004* (4.20)	0.013* (7.83)	0.048* (12.80)	0.100	32.8

Note: t-statistics in parentheses. * denotes statistically significant at the 5 percent level.

CONCLUSIONS

- Mergers cut non-interest costs, particularly labor costs, on average.
- Total interest costs unaffected by mergers, on average.

CONCLUSIONS

- Interest expenses tend to rise by about 20 cents per dollar of non-interest cost cut.
- Banks cutting non-interest costs tend to raise their deposit rates.
- Banks cutting non-interest costs tend to experience deposit run-offs, and they raise large CDs and non-deposit fundings.