

# DO BIG BANKS HAVE LOWER OPERATING COSTS?

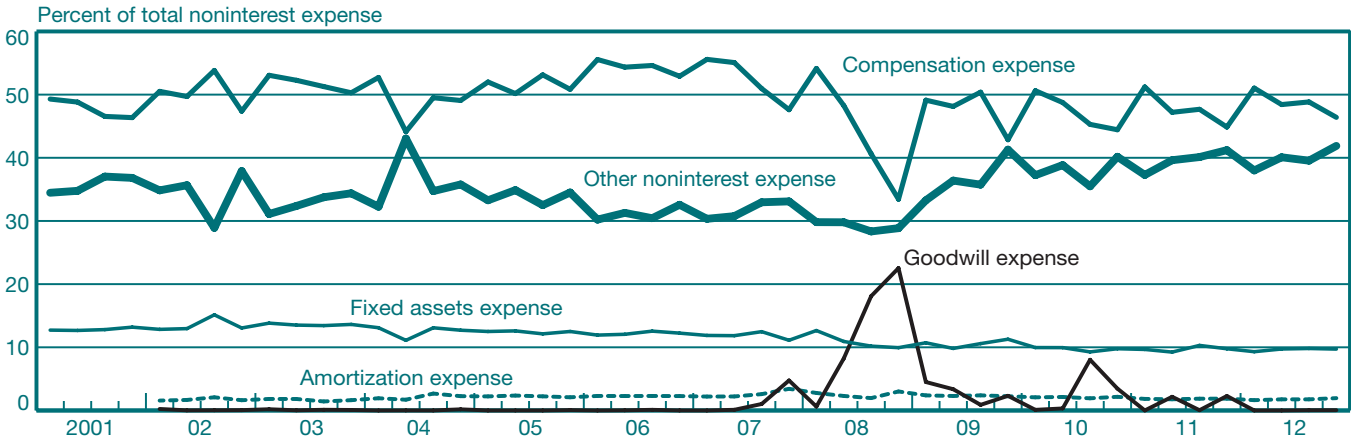
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## APPENDIX B: ADDITIONAL MATERIALS

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Time Series Plot: Components of Noninterest Expense



Source: Board of Governors of the Federal Reserve System, *Consolidated Financial Statements of Bank Holding Companies* (FR Y-9C data).

## APPENDIX B: ADDITIONAL MATERIALS

TABLE B1

### Estimated Effect of Changing Bank Holding Company Size on Operating Costs

Panel A. Limiting Asset Size to 4 Percent of GDP: Estimated Impact on Bank Holding Company Operating Costs, as of 2012:Q4

Name	(1) Quarterly Net Operating Revenue (\$bn)	(2) Quarterly Noninterest Expense (\$bn)	(3) Quarterly Efficiency Ratio (%)	(4) Assets (\$bn)	(5) 4 percent of GDP Size Limit (\$bn)	(6) Excess over GDP Size Limit (\$bn)	(7) Log of Total Assets, \$000s	(8) Log of 4 percent of GDP	(9) Change in Logs	(10) Coefficient from Table 4, Column 10 <sup>a</sup>	(11) Change to Efficiency Ratio	(12) Reduction in Operating Cost Efficiency (\$bn, quarterly)
JP Morgan Chase	23.60	15.98	67.74	2,359.14	656.81	1,702.33	21.58	20.30	-1.28	-4.15	5.31	1.25
Bank of America	18.62	18.48	99.22	2,212.00	656.81	1,555.19	21.52	20.30	-1.21	-4.15	5.04	0.94
Wells Fargo	22.06	12.98	58.85	1,422.97	656.81	766.16	21.08	20.30	-0.77	-4.15	3.21	0.71
Citigroup	18.15	14.48	79.80	1,864.66	656.81	1,207.85	21.35	20.30	-1.04	-4.15	4.33	0.79
Morgan Stanley	6.90	6.07	87.94	780.96	656.81	124.15	20.48	20.30	-0.17	-4.15	0.72	0.05
Goldman Sachs	9.59	5.37	56.01	938.77	656.81	281.96	20.66	20.30	-0.36	-4.15	1.48	0.14
Sum												3.88

Source: Authors' calculations.

Notes: This table computes an estimate of the reduction in operating cost efficiencies that would occur if each of the six BHCs with assets greater than 4 percent of nominal GDP were reduced in size to 4 percent of GDP. Nominal GDP in 2012:Q4 was \$16,420.30 billion. Columns 1 and 2 present the net operating revenue and total interest expense for each firm in 2012:Q4. Column 3 presents the 2012:Q4 efficiency ratio (percent) for each firm, defined as total interest expense over net operating revenue. Column 4 presents the 2012:Q4 total assets for each firm, column 5 shows the asset size threshold of 4 percent of nominal GDP, and column 6 shows the dollar difference between each bank's asset size and the asset size threshold (column 4 less column 5). Column 7 shows the natural log of each firm's total assets, column 8 shows the natural log of the asset size threshold, and column 9 shows the difference between the natural log of total assets and the natural log of the asset threshold (column 8 less column 7). Column 10 is the coefficient on the natural log of assets from Table 4, column 10. The change to the efficiency ratio (percent), column 11, is calculated as the change in logs (column 9) multiplied by the coefficient on the log assets (column 10). Column 12, the quarterly change in noninterest expense, is calculated as the change to the efficiency ratio, column 11, multiplied by net operating revenue, column 1.

<sup>a</sup>If we instead apply the smaller coefficient from Table 4, column 2, of -1.892, we obtain a total estimate of \$1.77 billion per quarter instead of \$3.88 billion per quarter.

## APPENDIX B: ADDITIONAL MATERIALS

TABLE B1

### Estimated Effect of Changing Bank Holding Company Size on Operating Costs

Panel B: Estimated Impact of Increasing Total Assets by \$1 Billion, for a Bank Holding Company of Mean Size

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Mean Industry Net Operating Revenue (\$m)	Mean Industry Noninterest Expense (\$m)	Mean Industry Efficiency Ratio (%)	Mean Industry Assets (\$m)	Mean Industry Assets + \$1bn (\$m)	Log Mean Industry Assets, \$000s	Log Mean Industry Assets + \$1bn, \$000s	Change in Logs	Coefficient from Table 4, Column 10 <sup>a</sup>	Change to Efficiency Ratio	Increase in Operating Cost Efficiency (\$m, quarterly)
100.60	66.83	66.43	9,064.66	10,064.66	16.02	16.12	0.10	-4.15	-0.43	-0.44

Source: Authors' calculations.

Notes: This table computes an estimate of the operating cost efficiencies that would occur if a BHC of mean size increased its assets by \$1 billion. Column 1 presents the mean industry net operating revenue, defined as the sum of net interest income and noninterest income, in millions of dollars. Column 2 presents the mean industry total noninterest expense, and column 3 shows the mean industry efficiency ratio, defined as net operating revenue over total interest expense. Columns 4 and 5 present the mean industry assets and the mean industry assets increased by \$1 billion, respectively. Columns 6 and 7 show the log of mean industry assets and the log of the mean industry assets increased by \$1 billion, respectively. Column 8 shows the change in the log of mean industry assets and the log of mean industry assets + \$1 billion, that is, the difference between columns 6 and 7. Column 9 presents the coefficient on the natural log of assets from Table 4, column 10 in the first row, and the coefficient on the natural log of assets from Table 4, column 2, in the second row. The change to the efficiency ratio (percent), column 10, is calculated as the change in logs (column 8) multiplied by the coefficient on the log assets (column 9). Column 11, the quarterly change in noninterest expense is calculated as the change to the efficiency ratio, column 10, multiplied by the mean industry net operating revenue, column 1.

<sup>a</sup>If we instead apply the smaller coefficient from Table 4, column 2, of -1.892, we obtain a total estimate of \$-0.20 million per quarter instead of \$-0.43 million per quarter.

## APPENDIX B: ADDITIONAL MATERIALS (CONTINUED)

TABLE B2

### Methodology for Classifying Memorandum “Write-In” Items

Panel A: Classification of Standardized Subcategories into Nine Author-Defined Categories

Standardized Other Noninterest Expense Categories	Mnemonic	Author-Defined Noninterest Expense Categories
Data processing expenses	BHCKC017	Information technology and data processing
Advertising and marketing expenses	BHCK0497	Corporate overhead
Directors’ fees	BHCK4136	Directors’ fees and other compensation
Printing, stationery, and supplies	BHCKC018	Corporate overhead
Postage	BHCK8403	Corporate overhead
Legal fees and expenses	BHCK4141	Legal
FDIC deposit insurance assessments	BHCK4146	FDIC assessments and other government-related expenses
Accounting and auditing expenses	BHCKF556	Corporate overhead
Consulting and advisory expenses	BHCKF557	Consulting and advisory
Automated teller machine (ATM) and interchange expenses	BHCKF558	Retail banking
Telecommunications expenses	BHCKF559	Information technology and data processing

Note: FDIC is Federal Deposit Insurance Corporation.

## APPENDIX B: ADDITIONAL MATERIALS (CONTINUED)

TABLE B2  
Methodology for Classifying Memorandum “Write-In” Items

Panel B: Classification of “Write-In” Items into Subcategories

Midlevel Subcategory	Code	Author-Defined Other Noninterest Expense Category	Percentage Nonmissing
Write-in items			
Brokerage / clearing	A01	Other financial services	0.58
Custodian fees	A02	Other financial services	0.20
Trust-related	A03	Other financial services	0.92
Advisor commissions / management fees	A04	Other financial services	0.72
Deferred compensation	B01	Directors’ fees and other compensation	0.68
Agent expenses / insurance commissions	B02	Directors’ fees and other compensation	0.08
Benefits	B03	Directors’ fees and other compensation	0.24
Options / incentives	B04	Directors’ fees and other compensation	0.06
Severance	B05	Directors’ fees and other compensation	0.02
Unclassified commissions	B06	Directors’ fees and other compensation	0.14
Other / unknown compensation	B07	Directors’ fees and other compensation	0.42
Computer software / IT / internet banking	C01	Information technology and data processing	13.10
Bank card unknown	D01	Retail banking	1.46
Card interchange / card exchange	D02	Retail banking	0.78
Card processing	D03	Retail banking	0.62
Card rewards	D04	Retail banking	0.40
Card service	D05	Retail banking	0.32
Other / unknown credit card	D06	Retail banking	3.14
Affordable / low-income housing	E01	FDIC assessments and other government-related expenses	1.24
Regulation / assessment / compliance	E02	FDIC assessments and other government-related expenses	4.50
New markets tax credit investments	E03	FDIC assessments and other government-related expenses	0.06
Fees for small business loans	E04	FDIC assessments and other government-related expenses	0.02
Community Reinvestment Act	E05	FDIC assessments and other government-related expenses	0.30
Other / unknown government-related	E06	FDIC assessments and other government-related expenses	0.04
Insurance losses / insurance provision	F01	Other financial services	0.26
Premiums	F02	Other financial services	0.26
Other / unknown insurance-related	F03	Other financial services	5.74
Servicing	G01	Retail banking	0.52
Reps and warranties	G02	Retail banking	0.26
Owned real estate	G03	Retail banking	27.05
Collection / repossession	G04	Retail banking	7.28
Bad debt	G05	Retail banking	1.82
Credit reports	G06	Retail banking	0.42
Mortgage-related	G07	Retail banking	2.60
Fraud	G08	Retail banking	0.44
Other / unknown loan	G09	Retail banking	8.20
Corporate debt and equity issuance / repayment	H01	Corporate overhead	3.70
Hedging	H02	Corporate overhead	0.56
Foreign Exchange	H03	Corporate overhead	0.00
Other / unknown treasury-related	H04	Corporate overhead	0.48
Taxes	I01	Corporate overhead	12.32

## APPENDIX B: ADDITIONAL MATERIALS (CONTINUED)

TABLE B2  
Methodology for Classifying Memorandum “Write-In” Items

Panel B: Classification of “Write-In” Items into Subcategories

Midlevel Subcategory	Code	Author-Defined Other Noninterest Expense Category	Percentage Nonmissing
Investment in unconsolidated subsidiaries	I02	Corporate overhead	0.46
Unclassified depreciation	I03	Corporate overhead	0.28
M&A / restructuring / non-FDIC indemnification costs	I04	Corporate overhead	1.88
Travel / business development / recruitment / transportation / staff relations	I05	Corporate overhead	9.20
Leases / equipment	I06	Corporate overhead	0.68
Charity	I07	Corporate overhead	3.72
General / mixed corporate	I08	Corporate overhead	2.30
Operating leases	I09	Corporate overhead	0.62
Directly-owned electric / utility / janitorial / security / rent	I10	Corporate overhead	0.98
Directors and officers’ insurance	I11	Corporate overhead	0.36
Account analysis otherwise uncategorized	I12	Corporate overhead	0.04
Dues / memberships / subscriptions	I13	Corporate overhead	0.90
Other / unknown corporate / overhead	I14	Corporate overhead	0.10
Branch closing	J01	Retail banking	0.12
Brokered deposits	J02	Retail banking	0.04
Deposit costs / unknown banking	J03	Retail banking	0.76
Due from account / bank charge	J04	Retail banking	0.10
Home banking	J05	Retail banking	0.04
Foreign offices	J06	Retail banking	0.10
Lockbox fee	J07	Retail banking	0.04
Checks	J08	Retail banking	0.50
NOW accounts	J09	Retail banking	0.06
Robbery / bad checks / forgery / overdrawn accounts	J10	Retail banking	0.12
Correspondent banking / affiliate	J11	Retail banking	2.30
Armored car	J12	Retail banking	0.56
Other / unknown retail banking	J13	Retail banking	0.12
Off-balance-sheet	K01	Miscellaneous	0.48
Writedowns and writeoffs otherwise uncategorized	L01	Miscellaneous	1.22
Amortization otherwise uncategorized	L02	Miscellaneous	0.18
Miscellaneous - well defined, but without category	M01	Miscellaneous	0.20
Miscellaneous - item not understood	M02	Miscellaneous	0.32
Miscellaneous - unclassifiable / vague	M03	Miscellaneous	5.64
Miscellaneous - multiple items with values listed	M04	Miscellaneous	0.48
Trading expenses	N01	Other financial services	0.02
Litigation, settlements, and other legal	OF1	Legal	1.04
Provision of legal reserves	OF2	Legal	0.04
Realized gains / losses	ZA1	Miscellaneous	0.14
Preferred dividends	ZA2	Miscellaneous	0.04

## APPENDIX B: ADDITIONAL MATERIALS (CONTINUED)

TABLE B2  
Methodology for Classifying Memorandum “Write-In” Items

Panel B: Classification of “Write-In” Items into Subcategories

Midlevel Subcategory	Code	Author-Defined Other Noninterest Expense Category	Percentage Nonmissing
Write-in expenses that appear to fit in the standardized categories			
Data processing expenses	XA1	Information technology and data processing	0.24
Advertising and marketing expenses	XB1	Corporate overhead	1.42
Directors’ Fees (I)	XC1	Directors’ fees and other compensation	0.42
Directors’ Fees (II)	XC2	Directors’ fees and other compensation	0.14
Printing, stationery, and supplies	XD1	Corporate overhead	0.06
Postage	XE1	Corporate overhead	2.46
FDIC deposit insurance assessments	XG1	FDIC assessments and other government-related expenses	0.76
Accounting and auditing expenses	XH1	Corporate overhead	0.02
Consulting and advisory expenses	XI1	Consulting and advisory	9.40
Automated teller machine (ATM) and interchange expenses	XJ1	Retail banking	0.36
Telecommunications expenses	XK1	Information technology and data processing	0.18

Notes: This table presents our methodology for classifying “other” noninterest expense items reported in the Memoranda of Schedule HI in the FR Y-9C. Panel A shows the eleven standardized subcategories of other noninterest expense (NIE) that are included in the Memoranda, and the author-defined category that each standardized subcategory is aggregated into. BHCs are only required to report amounts in these standardized subcategories if the amount is greater than \$25,000 and exceeds 3 percent of total other NIE. The Memoranda also provides space for BHCs to report additional “write-in” expense items that are not captured by the eleven standardized fields. These write-in items are only reported if the item exceeds 10 percent of total other NIE. Overall, 30,457 text strings are written in by the BHCs in our sample since 2008, and 5,418 of these are unique. Panel B shows the classification of all write-in items from 2008 to 2012 into seventy-seven new subcategories created by the authors and the reallocation of the write-in items that should have been classified into the eleven standardized subcategories. The write-in items are not reported using standardized language, and as a result, classification was in part done by hand, and in part via Stata code that conducted Boolean searches for keywords within each text string. For each of the eighty-eight total subcategories, Panel B presents the percentage of nonmissing values (column “percentage nonmissing”), and the author-defined category into which the subcategory is aggregated (column “author-defined other NIE category”). M&A is mergers and acquisitions; FDIC is Federal Deposit Insurance Corporation.