M E M O R A N D U M

TO: Incentive-based Compensation Arrangements Reproposal File (S7-07-16)

FROM: John C. Cook
Senior Special Counsel, Division of Economic and Risk Analysis

DATE: November 18, 2016

RE: Presentation by Sanjai Bhagat

On November 3, 2016, Sanjai Bhagat (Provost Professor of Finance, University of Colorado) presented "Financial Crisis, Corporate Governance, and Bank Capital"[1] to staff from the Division of Economic and Risk Analysis (DERA) as part of DERA's seminar program.

[1] The slides from the presentation are attached hereto.

Financial Crisis, Corporate Governance, and Bank Capital

Presentation for

U.S. Securities & Exchange Commission

Washington, DC

November 3, 2016

Sanjai Bhagat
Provost Professor of Finance, University of Colorado
http://leeds-faculty.colorado.edu/bhagat/

Investment Scenario #1

Consider the following investment strategy:

- 6 possible cash flow outcomes
  - 5 outcomes of $500 million
  - Sixth outcome is a random loss that increases over time
    - Sixth outcome = -$(0.5 + ε)(t) billion; for t between years t_1 and t_2, and
    - Sixth outcome = -$(0.5 + ε)($t_2$) billion; for t greater than t_2 years,
  - Each with equal probability
- Investment strategy has a negative NPV
- Probability and magnitude of the cash flows are known only to the bank executives
- **Should the bank invest in this project? → NO**

Investment Scenario #2

Given the information disclosed to the investing public, the stock market is led to believe that the trading strategy can lead to the following:

- 6 possible cash flow outcomes
  - 5 outcomes of $500 million
  - Sixth outcome is a random loss which is time-invariant
    - Sixth outcome = -$(0.5 + ε) billion
  - Each with equal probability
- Given the information disclosed to the investing public, above investment strategy has a positive NPV

Bank invests in project. Share price goes up.

Managers liquidate shares … take money off the table.

The Good

Bank executives were faithfully working in the interests of their long-term shareholders;

the poor performance of their banks during the financial crisis was the result of Unforeseen Risk that had a significant negative impact on the bank's investment and trading strategy.

Implication

Normal CEO Net Trades during and prior to financial crisis period

Net Trades: stock sales – buys – option exercise price

The Bad (and The Ugly)

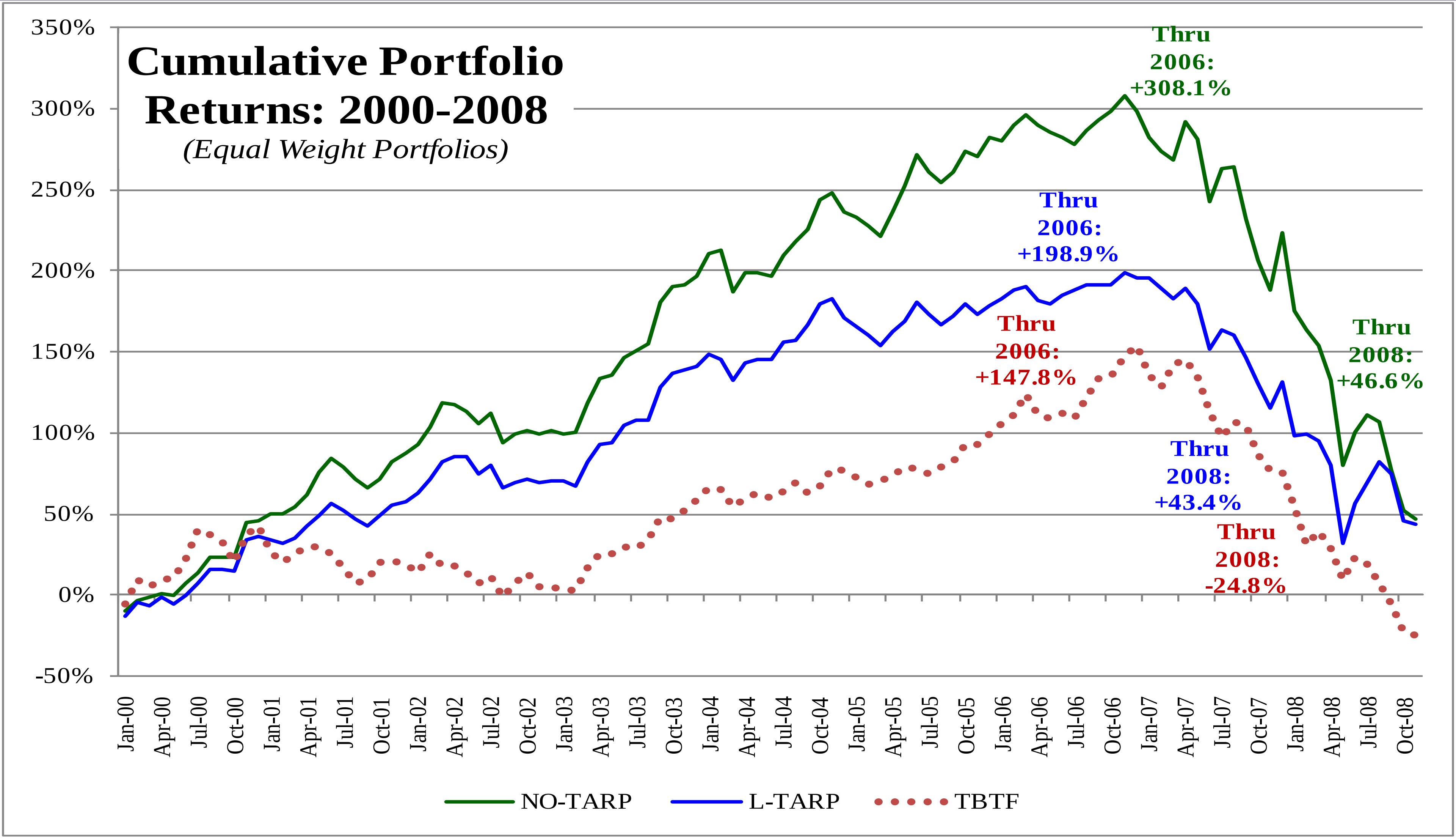
Incentives generated by executive compensation programs led to excessive risk-taking by banks contributing to the financial crisis of 2008;

- *the excessive risk-taking would lead to short-term profits that would benefit bank executives;*
- *all this at the expense of large long-term losses hurting the long-term shareholders.*

Implication

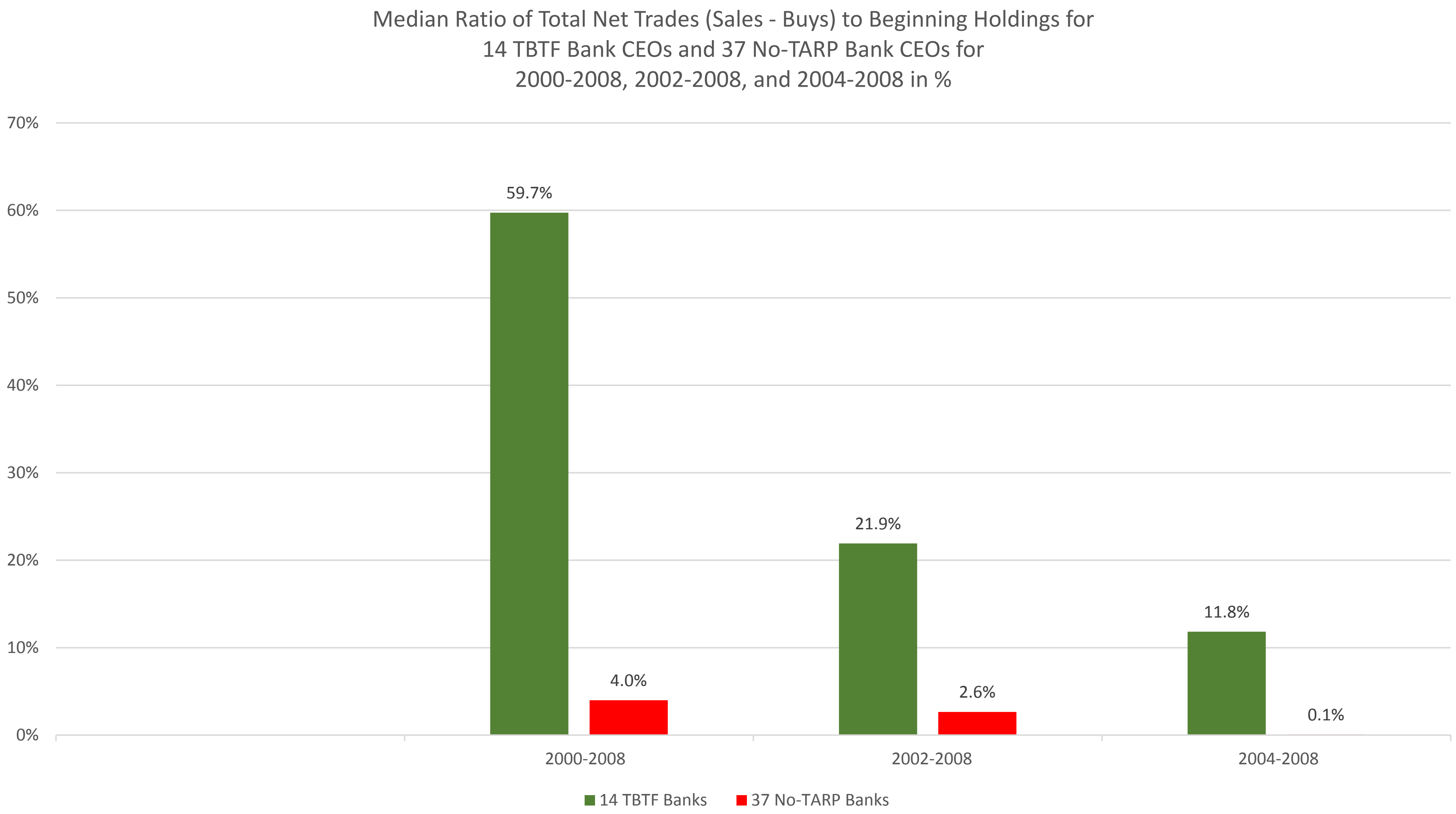
Abnormally large CEO Net Trades during and prior to financial crisis period

Stock Returns: 2000-2008



TBTF-bank CEOs sold significantly more of their stock than No-TARP bank CEOs7

TBTF-bank CEOs sold significantly more of their stock than No-TARP bank CEOs



TBTF-bank CEOs sold significantly more of their stock than No-TARP bank CEOs even after adjusting for other financial determinants of insider trading

	Dependent Variable: ***Net Trades$_t$***	
	(1)	(2)
Assets (log) $_t$	-1.232***	-1.344***
	(0.003)	*(0.001)*
Book-to-Market $_t$	-4.154***	-3.404***
	(0.002)	*(0.007)*
Return $_{t-1}$	-0.179	-0.365
	(0.904)	*(0.805)*
Stock Volatility $_t$	58.793*	36.806
	(0.086)	*(0.289)*
CEO Total Compensation $_{t-1}$	2.170***	2.004***
	(0.001)	*(0.003)*
CEO % Equity Compensation $_{t-1}$	9.649***	10.152***
	(0.000)	*(0.000)*
CEO Equity Holdings (log) $_{t-1}$	1.384***	1.325***
	(0.000)	*(0.000)*
Capital-to-Assets $_t$	**--**	**-43.147*** **
		(0.006)
TBTF Dummy	**4.198** **	**4.247** **
	(0.019)	***(0.016)***
L-Tarp Dummy	1.547	1.673*
	(0.117)	*(0.088)*
Number of Observations	883	883
Year controls	Yes	Yes
Firm fixed-effects	Yes	Yes

Summary of Results

- Bank executives at these 14 institutions took billions of dollars ‘off-the-table’ from 2000-2008, yet their shareholders lost considerable amounts of money.
- Yes, the CEOs did lose considerable sums in the crash of 2008.
- But, the 2008 paper losses were much less than the cash already realized during and prior to 2008.
- **Bank executive compensation was not aligned with the returns shareholders received during 2000-2008, or with the risks the firms took.**

Restricted Equity Proposal

Proposal to reform

Executive Compensation Policy

Annual cash compensation: $2 million limit

Executive incentive compensation plans should consist ***only*** of:

Restricted stock

Restricted stock options

This compensation would be "restricted" in the sense that the shares cannot be sold and the options cannot be exercised for a period of 1 to 3 years after the executive's resignation or last day in office

Restricted Equity Proposal

Restricted Equity Proposal

eliminates manager incentives to focus on short-term earnings

at the cost of long-term value-creation.

Lowers the probability of the implosion of big banks and associated financial crisis.

Restricted Equity Proposal

Restricted Equity Proposal applies equally to senior managers in the financial and non-financial sector.

Lowers the probability of future

Enrons

WorldComs

Qwests.

From criminal indictment and court verdict documents:

Senior managers in Enron, WorldCom, Qwest

made false and misleading statements to boost quarterly earnings, which led to (temporary) increase in share price.

Restricted Equity Proposal

Senior managers in Enron, WorldCom, Qwest made false and misleading statements to boost quarterly earnings, which led to (temporary) increase in share price.

These managers sold their shares (received as part of their incentive compensation) at the inflated share price.

Later, when the market learnt about the false and misleading statements, share prices cratered hurting mostly other public shareholders, and their employees through drop in value of ESOPS and loss of jobs.

Restricted Equity Proposal

Under the Restricted Equity Proposal:

Managers have to hold these shares and options for 1 to 3 years after their last day in office.

Senior managers in Enron, WorldCom, Qwest

would not have had the incentive to

make false and misleading statements to boost quarterly earnings and share price,

because they could not sell their shares at the higher share price in the short-term.

2 Key Points

- We are not advocating more compensation-related regulation
  - Boards of directors, not regulators, should determine
    1. The mix and amount of restricted stock and restricted stock options a manager is awarded
    2. The percentage of holdings a manager can liquidate each year, prior to retirement
    3. The number of years post-retirement/resignation required for the stock and options to vest
- This need not reduce executive compensation
  - The net present value of all salary and stock compensation can be higher than historical levels, so long as the managers invest in projects that lead to long-term value creation
  - This proposal limits annual cash amounts, not total amounts over time

Caveats - 1

- Under-diversification: If executives are required to hold restricted shares and options they would most likely be under-diversified

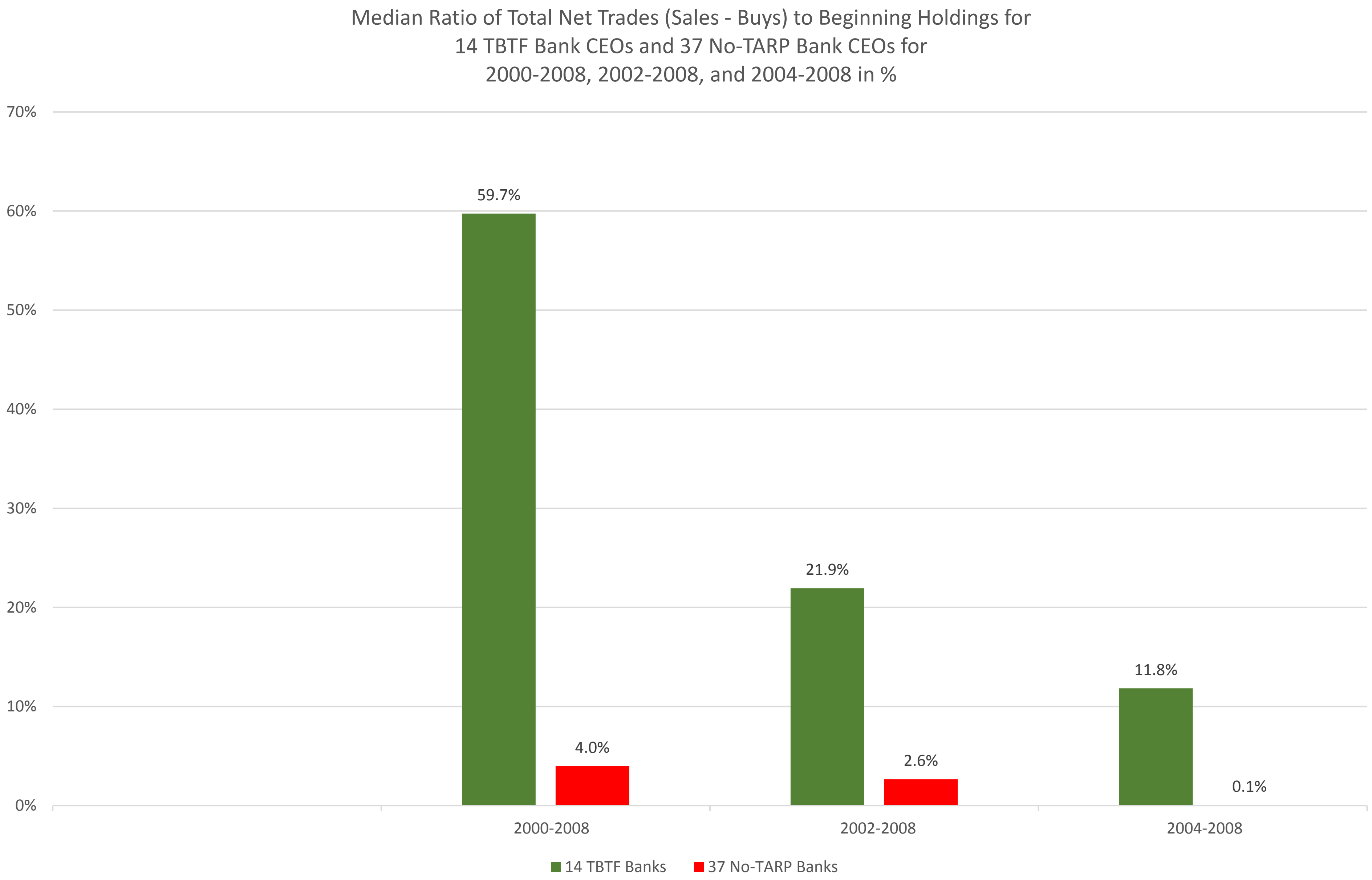
- **Problem:** This lowers the risk-adjusted expected return for the executive

- **Solution:** Grant additional restricted stock and restricted stock options to the executive
  - Would require some prohibition (to be monitored by the board) against engaging in creative derivative transactions (such as equity swaps) or borrowing arrangements that would hedge the payoff from the restricted shares/options

Caveats - 2

- Lack of Liquidity of executives' compensation
- **Problem:** Given that the average tenure of these CEOs is about 5 years, a CEO may have to wait 6-8 years before being allowed to sell shares/options and realize their incentive compensation
- **Solution:** Allow sale or exercise of some portion of the executive's portfolio, possibly 5-10% of their shares/options

Liquidity: TBTF and No-TARP CEOs

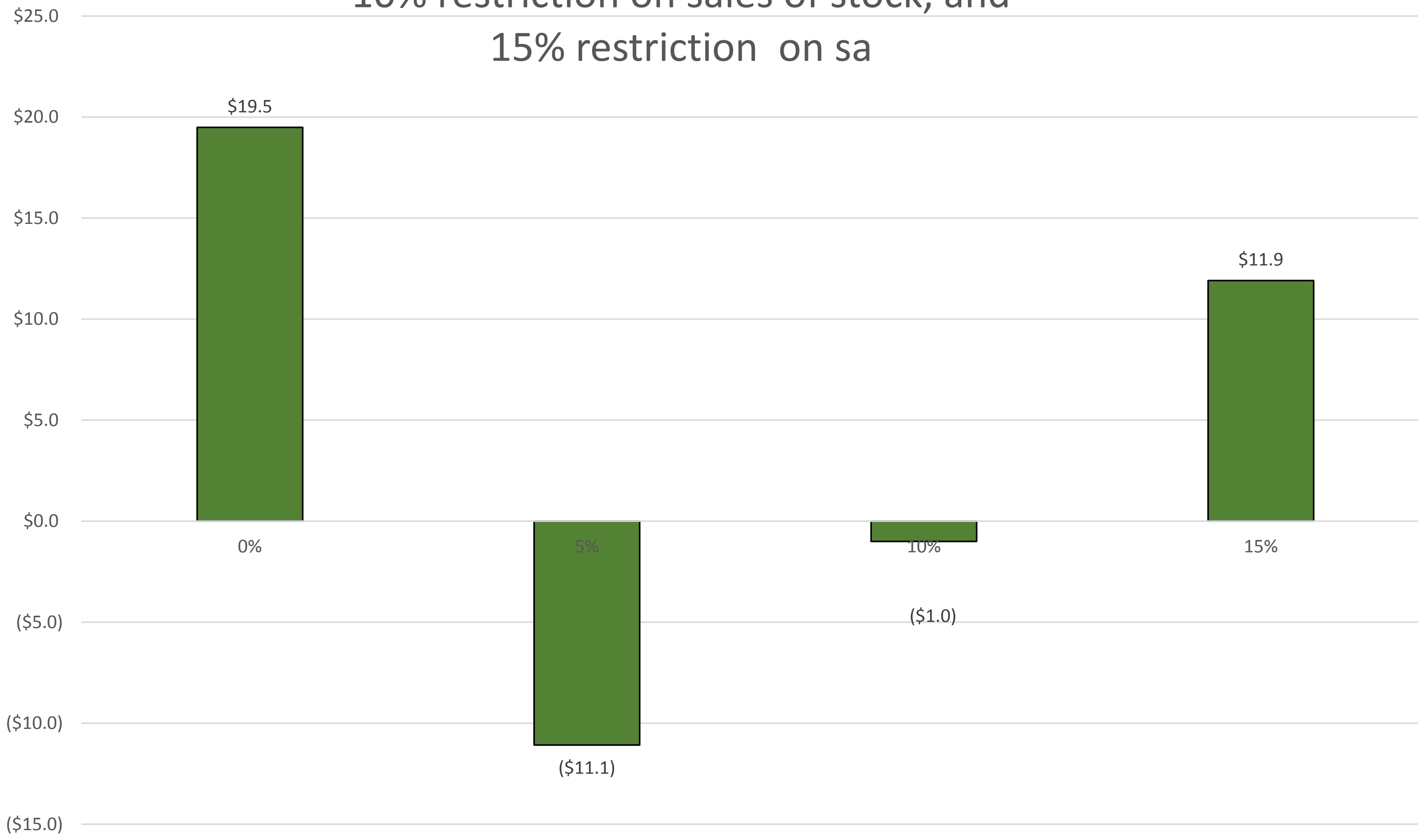


Restricted Equity Proposal

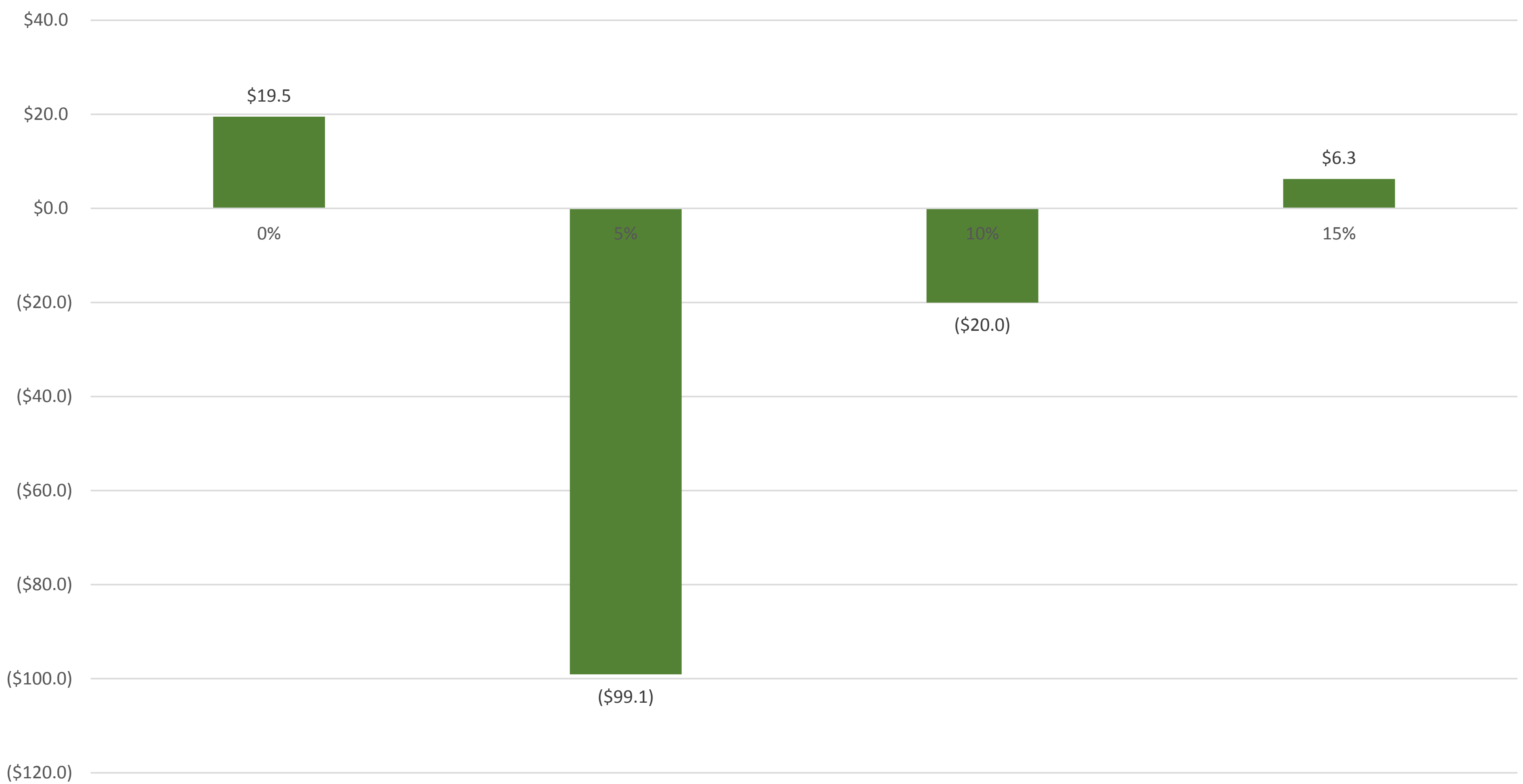
Would the Restricted Equity Proposal for providing incentive compensation to TBTF bank CEOs

have provided the correct incentives to maximize long-term shareholder value during 2000-2008?

Median NET CEO Payoff in $millions for the TBTF Bank CEOs during 2000-2008 with
NO restriction on cash compensation, and
No (0%) restriction on sales of stock,
5% restriction on sales of stock,
10% restriction on sales of stock, and
15% restriction on sa



Median NET CEO Payoff in $millions for the TBTF Bank CEOs during 2000-2008 with NO restriction on cash compensation, and No (0%) restriction on stock sales, $2 million salary, 5% sales restriction, $2 million salary, 10% sales restriction, and $2 million



Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Six U. S. agencies (Federal Reserve System, Federal Deposit Insurance Corporation, Federal Housing Finance Agency, Office of the Comptroller of the Currency, National Credit Union Administration, and the SEC) jointly proposed regulation to prohibit incentive-based compensation that would encourage “excessive” risk-taking by banks.

Agencies have done an impressive amount of analysis and used the theoretical and empirical financial economics literature to motivate their proposed regulations.

Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Requires <u>deferral</u> of at least 60% of the incentive-compensation for a period of at least four years, and <u>forfeiture</u> of all unvested deferred incentive-based compensation.

Deferral and forfeiture can be triggered by poor financial or non-financial performance due to "<u>inappropriate" risk taking</u>, among other events.

Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Requires clawback provisions that allow a bank to recover incentive-based compensation from the manager for a period of seven years following the incentive compensation vesting date.

Clawback can be triggered by

“(i) misconduct that resulted in significant financial or reputational harm to the bank;
(ii) fraud; or
(iii) intentional misrepresentation of information used to determine the manager’s incentive-based compensation”

Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Given the potential losses of tens or hundreds of millions of dollars,
affected bank managers are likely to <u>litigate</u>

- the occurrence of a particular trigger event, or
- the measurement of the “inappropriate” risk.

Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Restricted Equity proposal has an inherent clawback (and, deferral and forfeiture) feature that renders unnecessary intricate mechanisms requiring repayments (forfeiture) of incentive compensation or bonuses on income from transactions whose value proved illusory.

Executives are compensated in <u>equity that cannot be sold until one to three years after they leave the firm</u>

– hence, they cannot capture short-lived share price gains from transactions whose value is not long-lasting.

Dodd-Frank Act, Section 956
Incentive-based Compensation Arrangements

Proposed regulations cover bonuses,
but do not cover compensation derived from the sale of stock.

TBTF managers' compensation derived from sale of their bank's stock is usually

twice as large, or greater, than their compensation from salary and bonus.

Restricted Equity proposal would address this problem

incentive compensation of bank managers (stock and stock options) cannot be sold (or, the options exercised) until one to three years after they leave the firm.

Director Compensation Policy

All director compensation

(including incentive compensation)

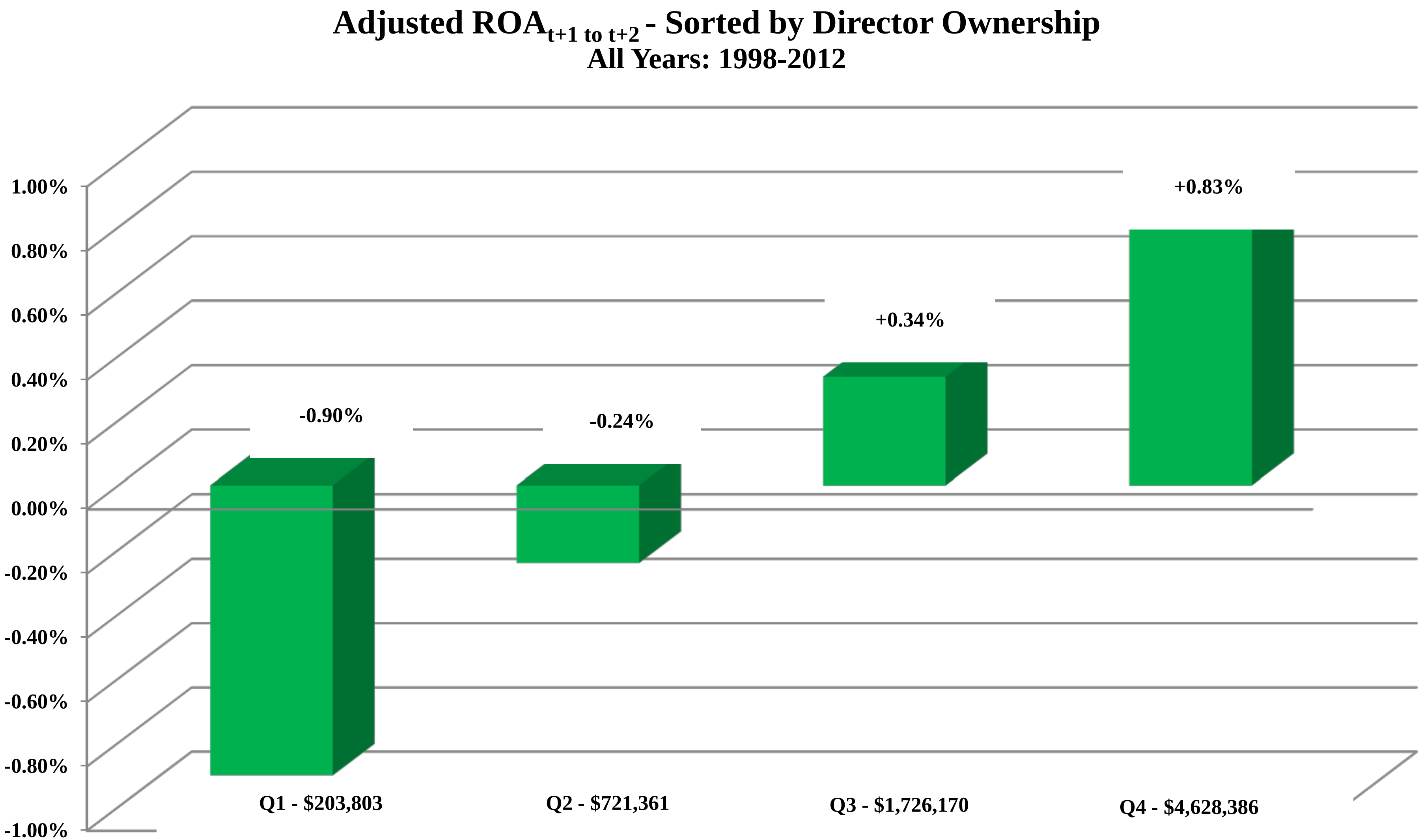
should consist only of

restricted equity

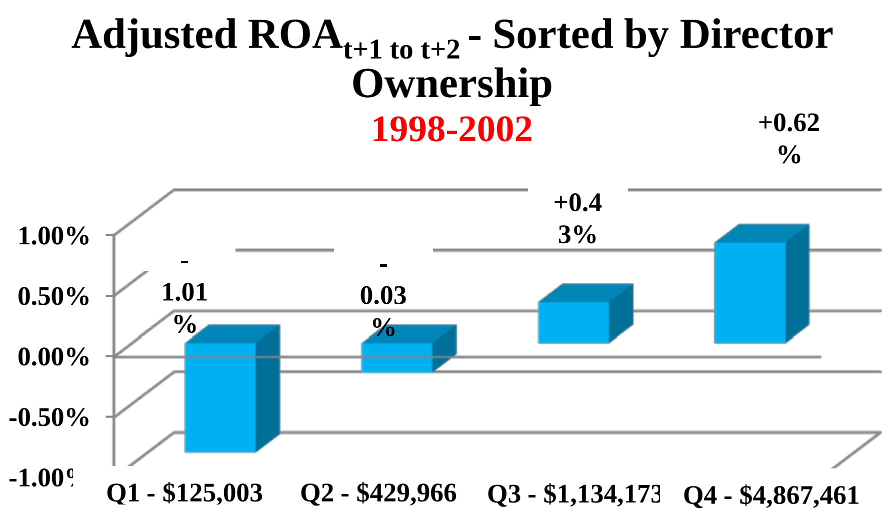
(restricted stock and restricted stock option) –

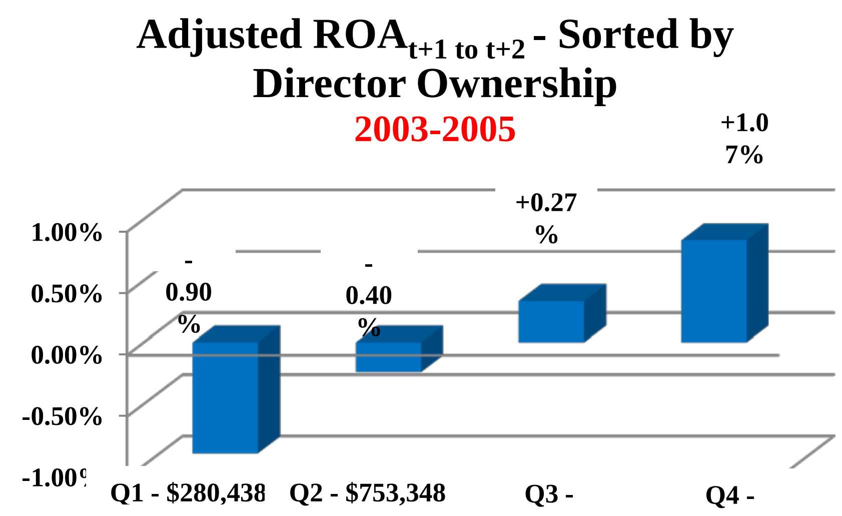
restricted in the sense that the director cannot sell the shares or exercise the options for one to three years after their last board meeting.

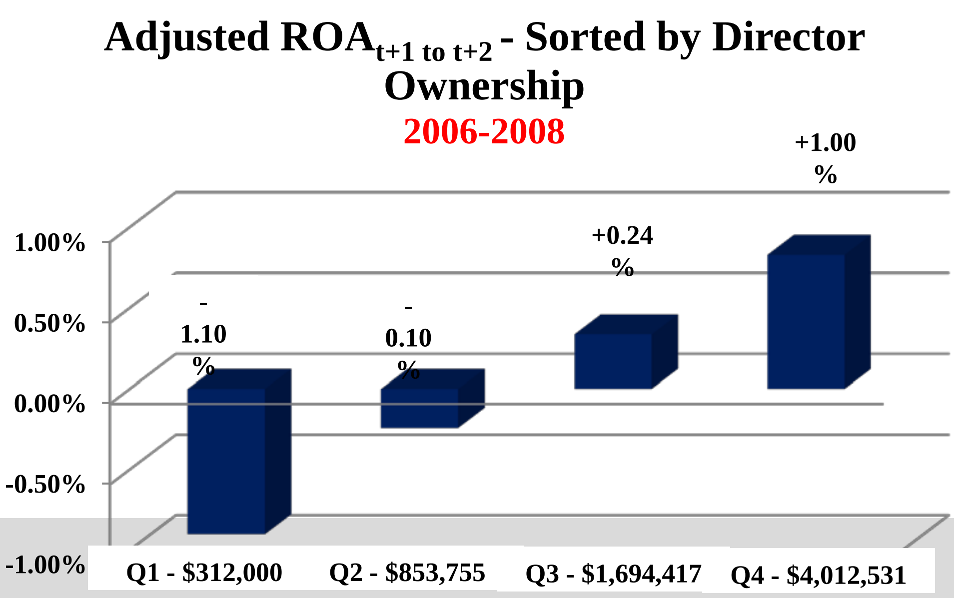
Companies perform better when directors own more stock

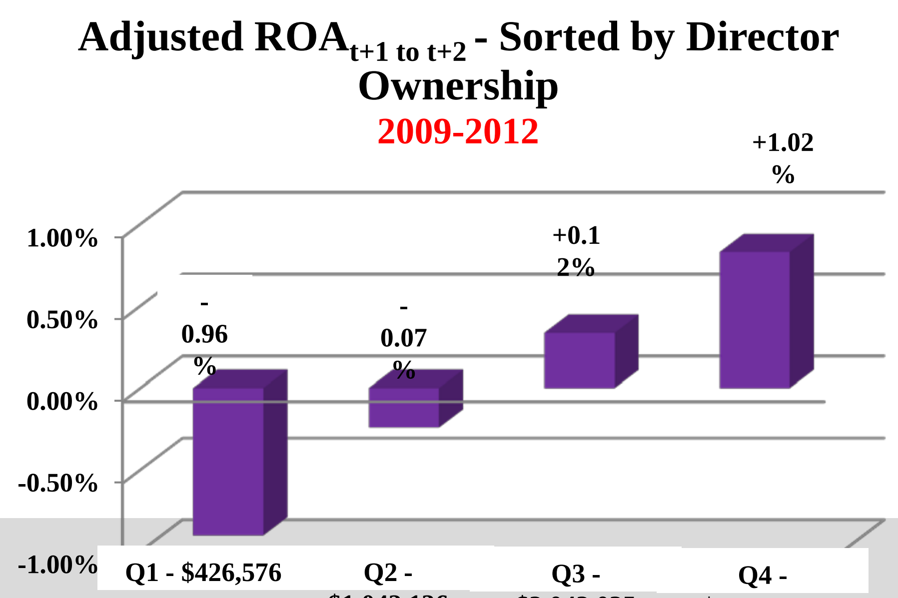


Companies perform better when directors own more stock







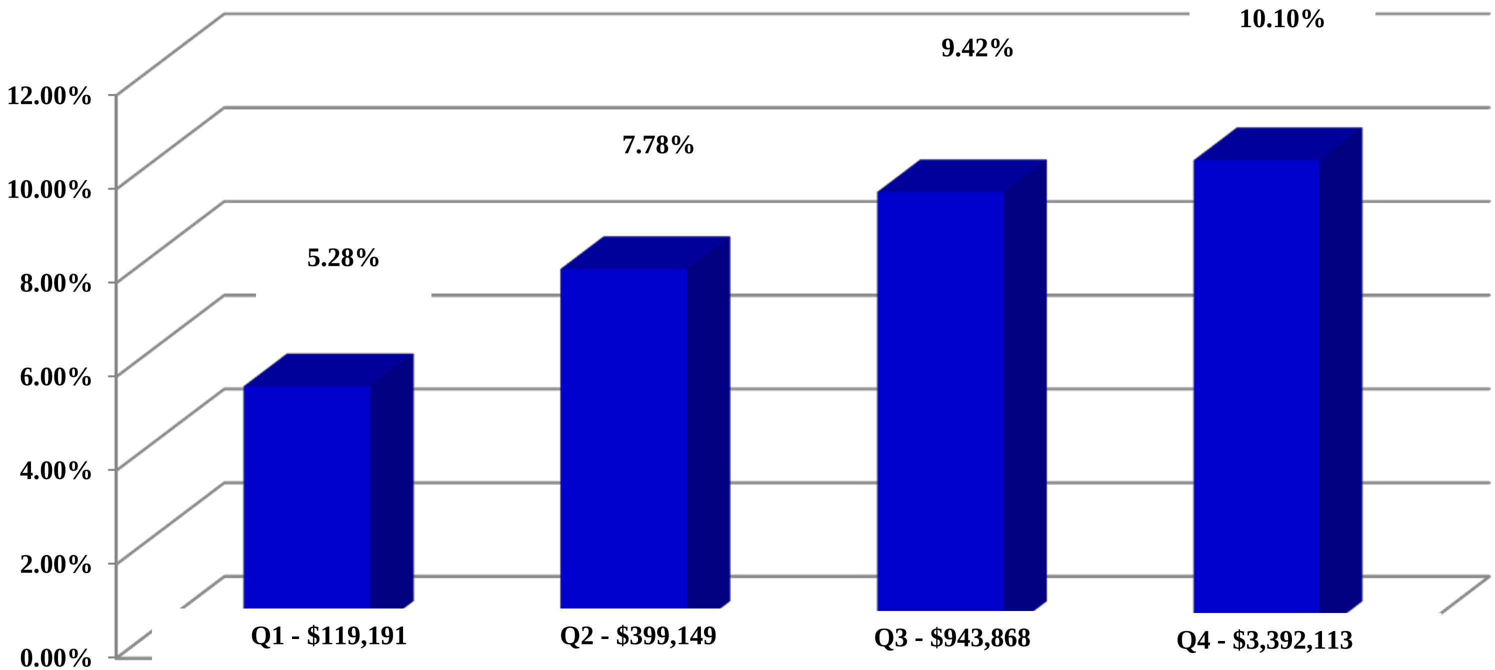


Poorly performing CEOs are more likely to be disciplined when directors own more stock

Probability of Disciplinary Turnover

during 1998-2012 for Firms with the Lowest Quartile Stock Returns over the Previous 2 Years

Sorted by Director Ownership



No-TARP bank directors owned more stock than TBTF- bank directors

	TBTF Firms (n = 14)	No-TARP Firms (n = 37)
SAMPLE PERIOD: All years, 2000-2008		
Capital-to-Asset Ratio	7.0%	9.6%
Median Value of CEO Net Trades	**$4,003,010**	**$0**
Median Value of Director Ownership	**$1,557,749**	**$2,039,645**
CEO Net Trades-to-Director Ownership Ratio		
25th Percentile	0.0	0.0
Median	1.9	0.0
75th Percentile	7.4	0.3
95th Percentile	23.9	3.0

Bank Capital Requirements Reform

Equity based incentive programs
lose their effectiveness in motivating managers
(and directors)
to enhance shareholder value
as a bank's equity value approaches zero
(as they did for the too-big-to-fail banks in 2008).

Now the managers have an incentive to undertake
high risk but negative NPV projects.

Bank Capital Requirements Reform

Three criteria for evaluating bank capital reform programs:

- simplicity,
- transparency,
- focus on creating and sustaining long-term shareholder value without any expectation of taxpayer-funded bailouts.

Bank Capital Requirements Reform

Bank capital requirements reform proposal

- Numerator: Tangible common equity
- Denominator: Total assets (independent of risk)
  - – not the risk-weighted capital approach that is at the core of Basel
  - – includes both balance sheet and off-balance sheet assets.
- Ratio of tangible common equity to total assets should be at least 20% .

Large Bank Capital Requirement Recommendations

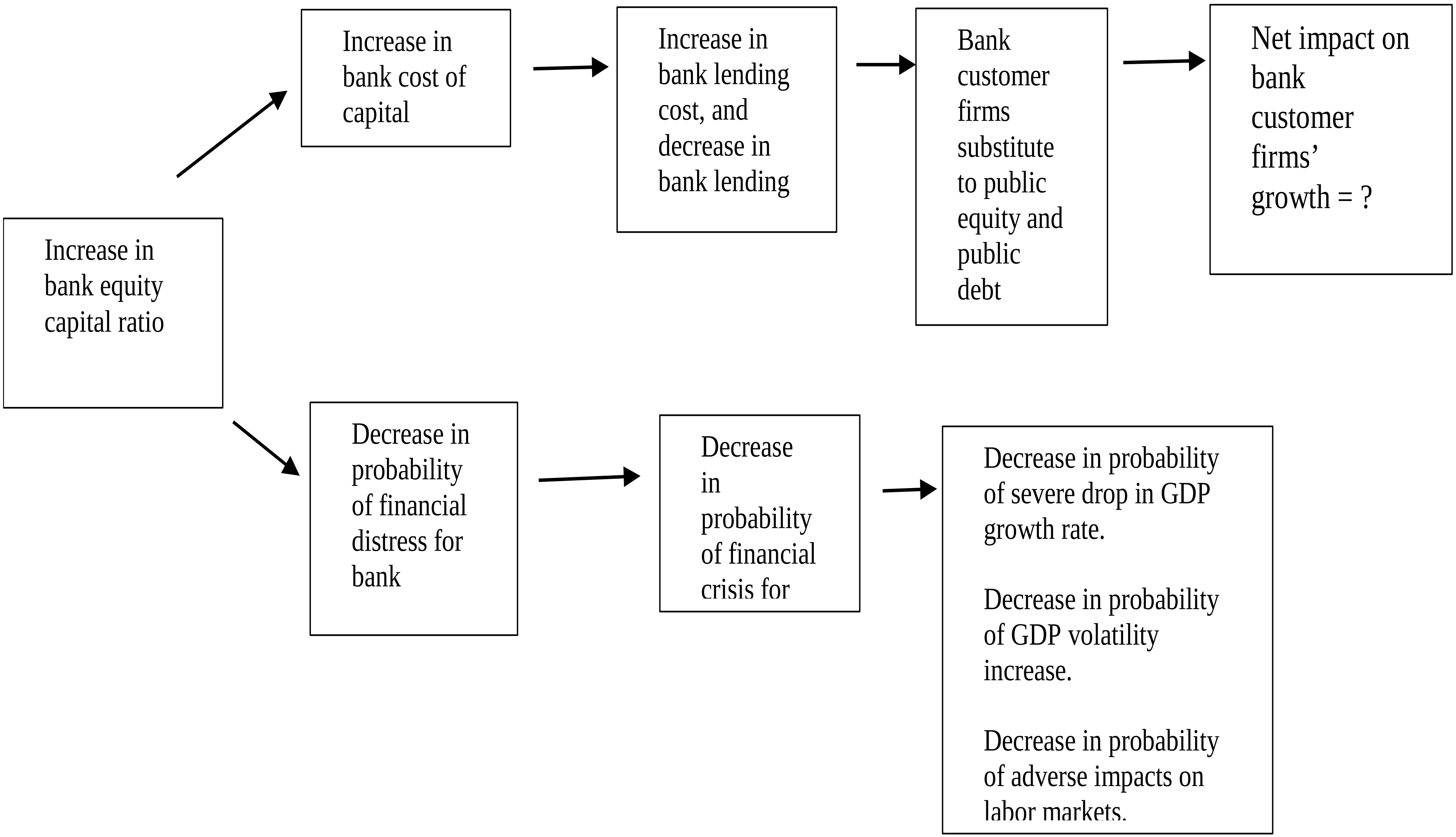
Large Bank Equity Capital in October 2008	Basel III International Recommendation (June 25, 2011)	Federal Reserve Bank Governor Daniel Tarullo (***WSJ***, June 16, 2011)	Bhagat and Bolton (July 2010)	Admati, Demarzo, Hellwig and Pfleiderer (September 2010)	U.S. Corporate Sector
3% to 5%	**8% to 9.5%** by 2019	**14%**	**20%**	**20% to 30%**	**53%**

Fallacy of the argument
"Increased equity requirements will decrease funds available for banks to lend."
Confuses bank financial inputs (equity and debt capital), with bank product (loans).

Capital structure of an auto/truck manufacturing company
36% equity, 64 % debt
Product mix: 50% sedans, 20% SUVs, 30% trucks
Vehicles produced: 200,000 /month

New capital structure of the auto/truck manufacturing company
50% equity, 50 % debt
New product mix: ??
Vehicles produced: ??

	Sample	Change in bank capital	Increase in bank's cost of capital
Kashyap, Stein and Hanson (2010)	90 large U.S. banks	10% increase in equity capital	25 to 45 basis points increase
Kisin and Manela (2015)	18 U.S. bank holding companies	10% increase in equity capital	3 basis points increase
Junge and Kugler (2013)	Swiss banks	Halving the leverage	14 basis points increase
Slovnik and Coumede (2011)	OECD banks	10% increase in equity capital	150 to 160 basis points increase
King (2010)	OECD banks	10% increase in equity capital	150 to 160 basis points increase
Basel (2010)	13 OECD banks	10% increase in equity capital	130 basis points increase
Miles et al (2013)	6 large U.K. banks	Doubling equity capital	10 to 40 basis points increase


Increase in bank equity capital ratio
Increase in bank cost of capital
Increase in bank lending cost, and decrease in bank lending
Bank customer firms substitute to public equity and public debt
Net impact on bank customer firms' growth = ?
Decrease in probability of financial distress for bank
Decrease in probability of financial crisis for
Decrease in probability of severe drop in GDP growth rate.
Decrease in probability of GDP volatility increase.
Decrease in probability of adverse impacts on labor markets.

Fallacy of the argument
“Increased equity requirements will increase banks’ funding costs.”
Increase, if, at all, is trivial compared to the cost they impose on the U.S. economy and labor force.

<u>Impact of a 10% increase in bank equity capital</u>

Kisin and Manela (2014): 3 basis points (.03%) increase in the bank’s cost of capital
Kashyap, Stein and Hanson (2010): 25-45 basis points increase in the bank’s cost of capital.

<u>Cost of the 2008 financial crisis on the U.S. economy and labor force?</u>

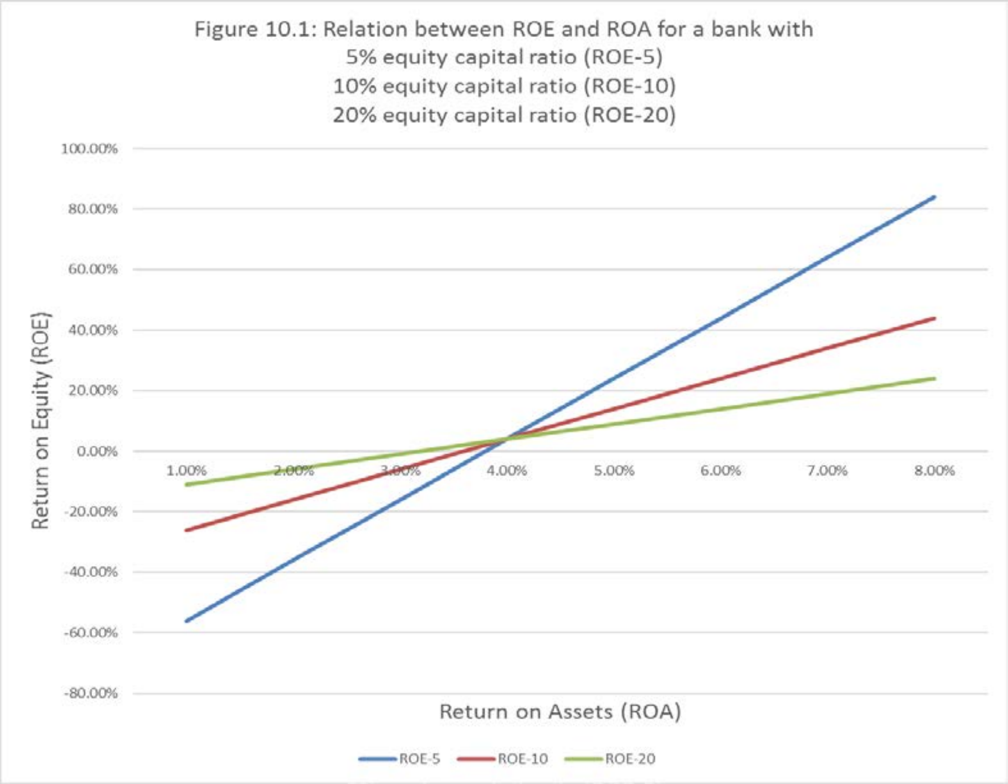
Hall (2014): As of end of 2013

- $2.2 trillion
- 4.4 million lost jobs

Fallacy of the argument

"The return on equity (ROE) decreases as a bank is financed with more equity capital."

Not true when bank ROA on the low-side; shareholders care about ROA, not ROE.



Is bank manager compensation overly weighted on bank ROE?

Fallacy of the argument

"More banking activities would move to the shadow banking system if banks have to adhere to high equity capital ratio requirements."

Bank managers compensated under the Restricted Equity incentive compensation proposal (stock and options have to be held 1 to 3 years after their last day in office) have no incentive to organize shadow banks.

Most of the shadow banks were off-balance sheet vehicles of the traditional big banks.
Bank managers whose incentive compensation had a significant ROE component would prefer the high leverage of the off-balance sheet vehicles.

- Bank managers compensated under the Restricted Equity incentive compensation proposal (stock and options have to be held 1 to 3 years after their last day in office) have no incentive to focus on short-term ROE.
- Simple and transparent bank capital structure requires off-balance sheet vehicles to be brought back on-balance sheet, and be subject to the 20% equity capital requirement.

Problem with The Regulated Hybrid (Contingent Capital) Proposal

What/Who triggers the conversion of the hybrid security to equity?

What is the problem with *plain* EQUITY?