IPU's 66th Annual Regulatory Studies Program

FUNDAMENTALS COURSE

August 12-16, 2024 | Live Online Learning

*Essential education in the theory, principles, and practice of economic regulation organized by disciplinary perspectives, core functions, and utility sector applications.*

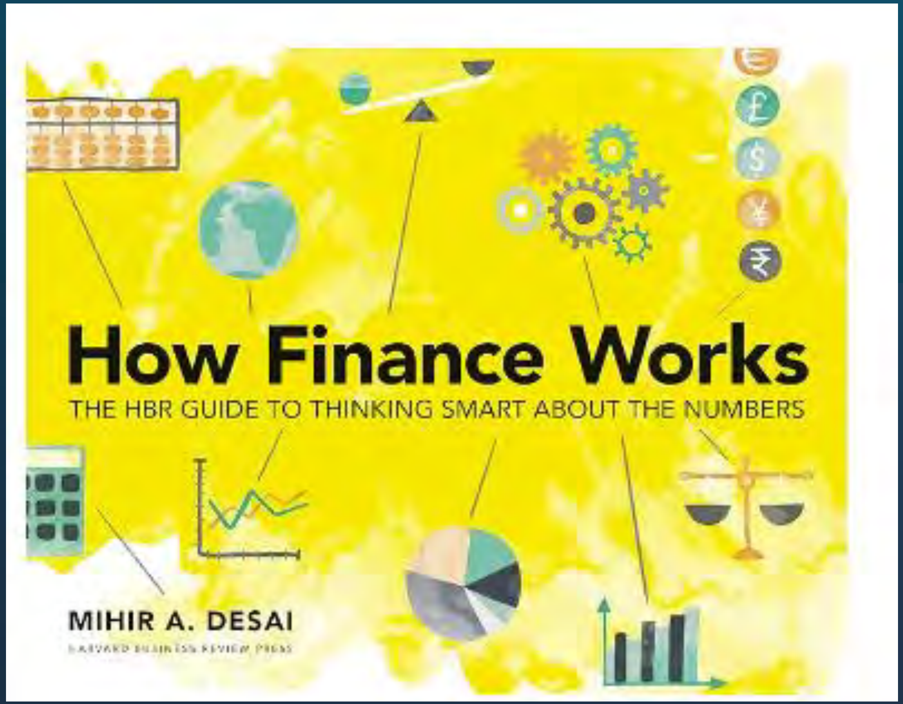
# FINANCE FUNDAMENTALS
## Principles and Policies

Steve Kihm, DBA CFA
Citizens Utility Board of Wisconsin

08/14/2024

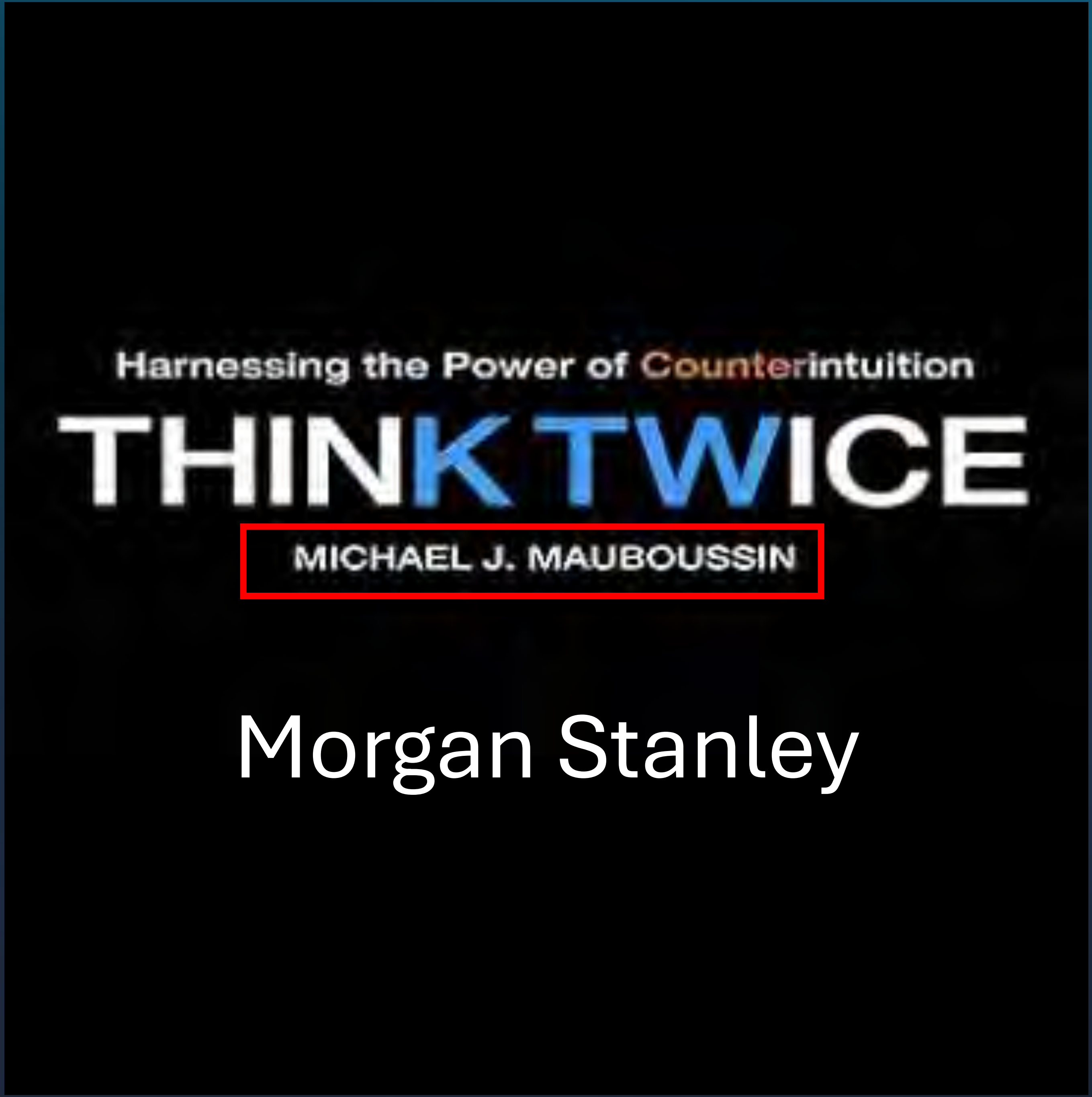
# SECTION 1

## Counterintuition in finance




"The central intuitions of finance are slippery."

Harvard




Morgan Stanley

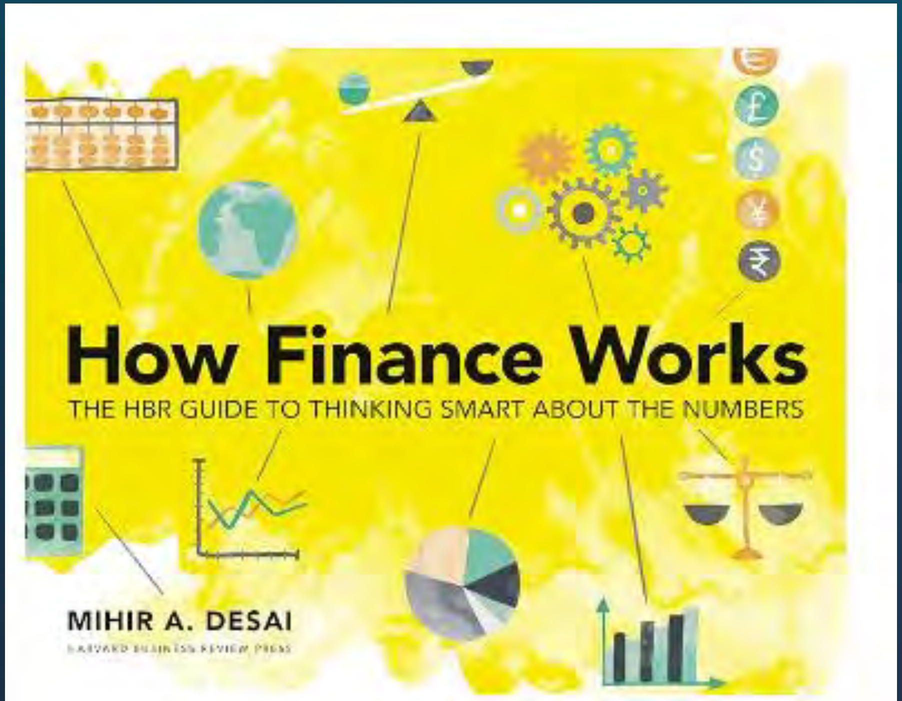
- Investor-focused firms should attempt to maximize their profits
- The terms return on equity (ROE) and cost of equity are synonyms for the same return and can be used interchangeably

True or false?

- Earnings growth is good for investors
- Companies with higher ROEs are more attractive to investors than are those with lower ROEs
- The higher a company's risk the higher the return investors require

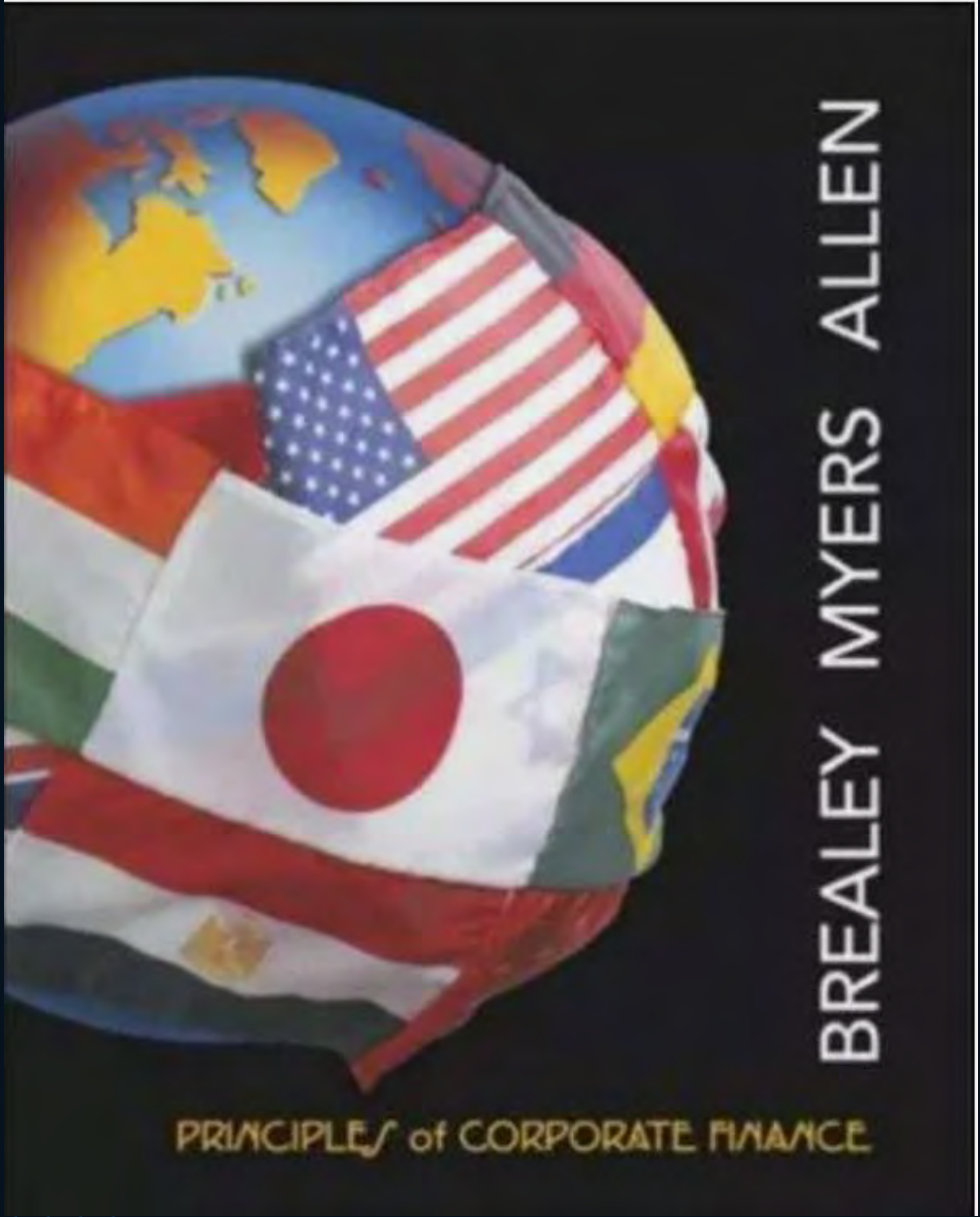
- Investor-focused firms should attempt to maximize their profits
- The terms return on equity (ROE) and cost of equity are synonyms for the same return and can be used interchangeably
- Earnings growth is good for investors
- Companies with higher ROEs are more attractive to investors than are those with lower ROEs
- The higher a company’s risk the higher the return investors require

As general propositions, all are false



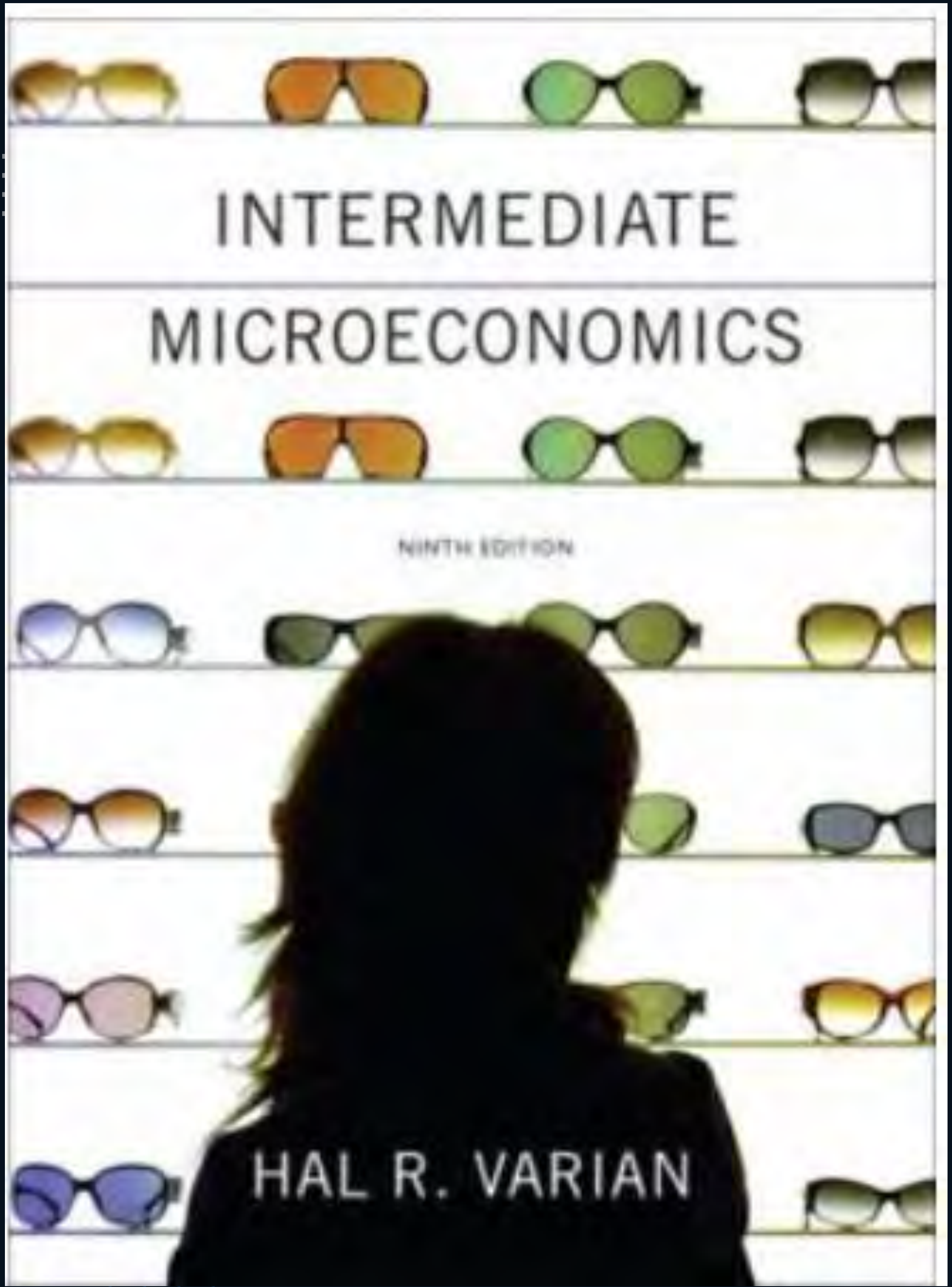

"The central intuitions of finance are slippery."

Harvard

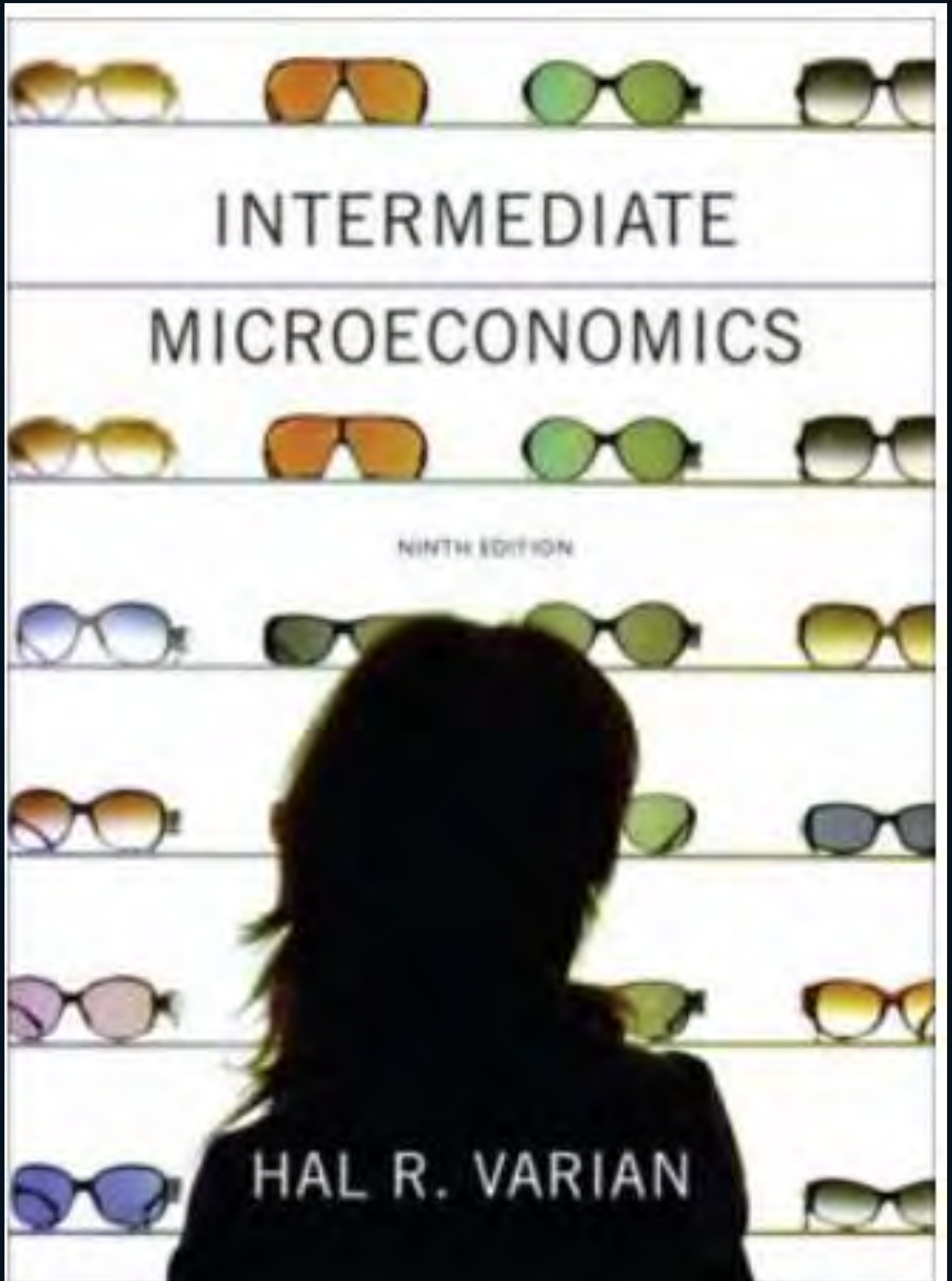



"Profit maximization makes no sense as a corporate objective."

Corporate finance what




"The economic definition of profit requires that we value all inputs and outputs at their **opportunity cost**. Profits as determined by accountants do not necessarily accurately measure **economic profits**."




Maximize the market value of the firm, as reflected in the company’s stock price.

# SECTION 2

# Creating market value

“Investors should focus first and foremost on economic returns.”

Eric Uhlfelder, November 16, 2021. “Michael Mauboussin is Unshaken,” RIAIntel.

## Accounting return

return on equity (ROE)

## Economic return

[return on equity (ROE) − cost of equity]

# Economic return

[return on equity (ROE) – cost of equity]

what the company earns on its books

what investors can earn on other company's stocks

opportunity cost

“Growth amplifies economic returns.”

Eric Uhlfelder, November 16, 2021. “Michael Mauboussin is Unshaken,” RIAIntel.

Earnings growth is good for a firm’s investors only if the company earns a ROE that exceeds its cost of equity (when economic returns are positive.)

"If a firm earns its cost of capital, you're essentially on an economic treadmill."

Eric Uhlfelder, November 16, 2021. "Michael Mauboussin is Unshaken," RIAIntel.

"Whether it's growing fast or slow, you're not creating value."

Eric Uhlfelder, November 16, 2021. "Michael Mauboussin is Unshaken," RIAIntel.

“If returns are below the cost of capital, increasing growth destroys more value.”

Eric Uhlfelder, November 16, 2021. “Michael Mauboussin is Unshaken,” RIAIntel.

“Bottom line, consider economic returns first, growth second.”

Eric Uhlfelder, November 16, 2021. “Michael Mauboussin is Unshaken,” RIAIntel.

ROE > cost of equity
growth adds value

ROE = cost of equity
growth does not change value

ROE < cost of equity
growth destroys value

stock price > book value (P/B > 1.00)

ROE > cost of equity

growth adds value

stock price = book value (P/B = 1.00)

ROE = cost of equity

growth does not change value

stock price = book value (P/B < 1.00)

ROE < cost of equity

growth destroys value

# Earnings per share (profit) growth destroyed utility investor value for almost 20 years



Routledge Taylor & Francis Group

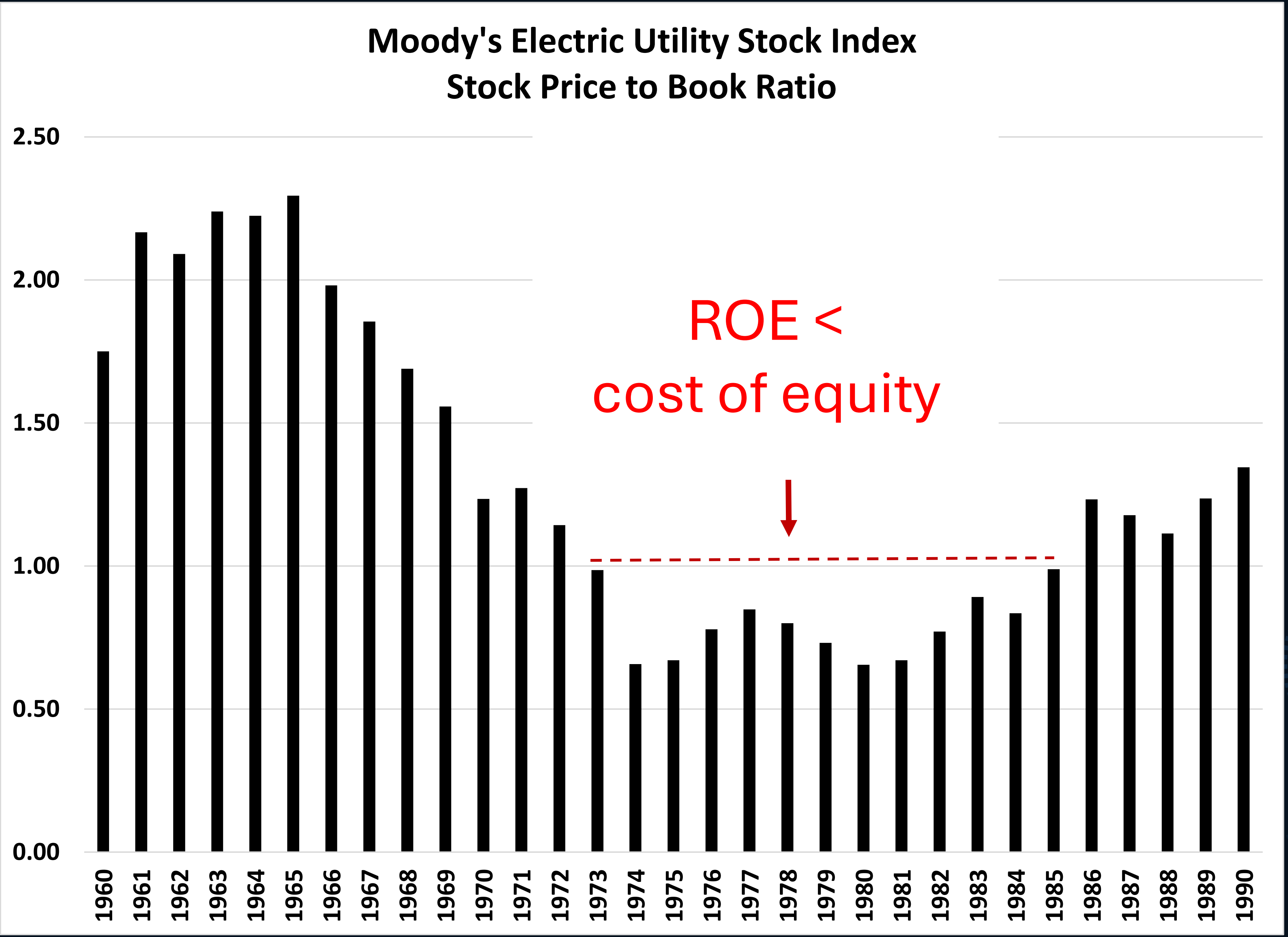
Financial Analysts Journal


**fastest** EPS growth → **lowest** investor stock returns


ISSN: 0015-198X (Print) 1938-3312 (Online) Journal homepage: https://www.tandfonline.com/loi/ufaj20


## Designing Factor Models for Different Types of Stock: What's Good for the Goose Ain't Always Good for the Gander


Robert C. Jones


Moody's Electric Utility Stock Index
Stock Price to Book Ratio
2.50
2.00
1.50
1.00
0.50
0.00
ROE <
cost of equity
1960
1961
1962
1963
1964
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1989
1990

# SECTION 3

# Stock valuation

# Valuing a stock

$$Price = Book\ Value + \frac{(ROE - cost\ of equity) \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

residual income model

# Valuing a stock

$$Price = Book\ Value + \frac{\boxed{(ROE - cost\ of\ equity)} \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

We see the economic return explicitly in the valuation model

# Valuing a stock

$$Price = Book\ Value + \frac{(ROE - cost\ of equity) \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

Profits = ROE x Book Value

# Valuing a stock

$$Price = Book\ Value + \frac{(ROE - cost\ of equity) \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

Investor opportunity cost = cost of equity x Book Value

# SECTION 4

# Rates of return

# Witness Testimony

"I use the terms "ROE" and "cost of equity" interchangeably throughout my Direct Testimony."

Corporate finance what

# The return on equity (ROE) and the cost of equity...

Alternative Rate or Return Concepts and Their Implications for Utility Regulation

Author(s): Ezra Solomon

Source: *The Bell Journal of Economics and Management Science*, Spring, 1970, Vol. 1, No. 1 (Spring, 1970), pp. 65-81

Published by: RAND Corporation

Stable URL: https://www.jstor.org/stable/3003023

"… are not different estimates of the *same* thing but are estimates of *different* things."

Alternative Rate or Return Concepts and Their Implications for Utility Regulation

Author(s): Ezra Solomon

Source: *The Bell Journal of Economics and Management Science*, Spring, 1970, Vol. 1, No. 1 (Spring, 1970), pp. 65-81

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# Witness Testimony

"I use the terms "ROE" and "cost of equity" interchangeably throughout my Direct Testimony."

Corporate finance what

## Not up for debate; this is wrong

# Valuing a stock

$$Price = Book\ Value + \frac{(ROE - cost\ of equity) \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

Utility earns 10.0% on its book value

Investors expect to earn 10.0% on utility stocks

The numeric value of the ROE equals the numeric value of the cost of equity only when market value (stock price) and book value are exactly equal.

FERC Docket Nos. EL14-12-003 and EL15-45-000, 11/21/2019, p 103.

$$Price = Book\ Value + \frac{(ROE - cost\ of equity) \times Book\ Value}{cost\ of\ equity - sustainable\ growth}$$

$$Price = Book\ Value + \frac{(0.100 - 0.100) \times Book\ Value}{0.100 - sustainable\ growth}$$

$$Price = Book\ Value + \frac{(0) \times Book\ Value}{0.100 - sustainable\ growth}$$

$$Price = Book\ Value + 0$$

$$Price = Book\ Value$$

# Witness Testimony

"I use the terms "ROE" and "cost of equity" interchangeably throughout my Direct Testimony."

Corporate finance what

If true, then there are never economic returns and firms can never create value for their investors.

This is not supported by market evidence (P/B > 1.00).

# Economic return

[return on equity (ROE) − cost of equity]

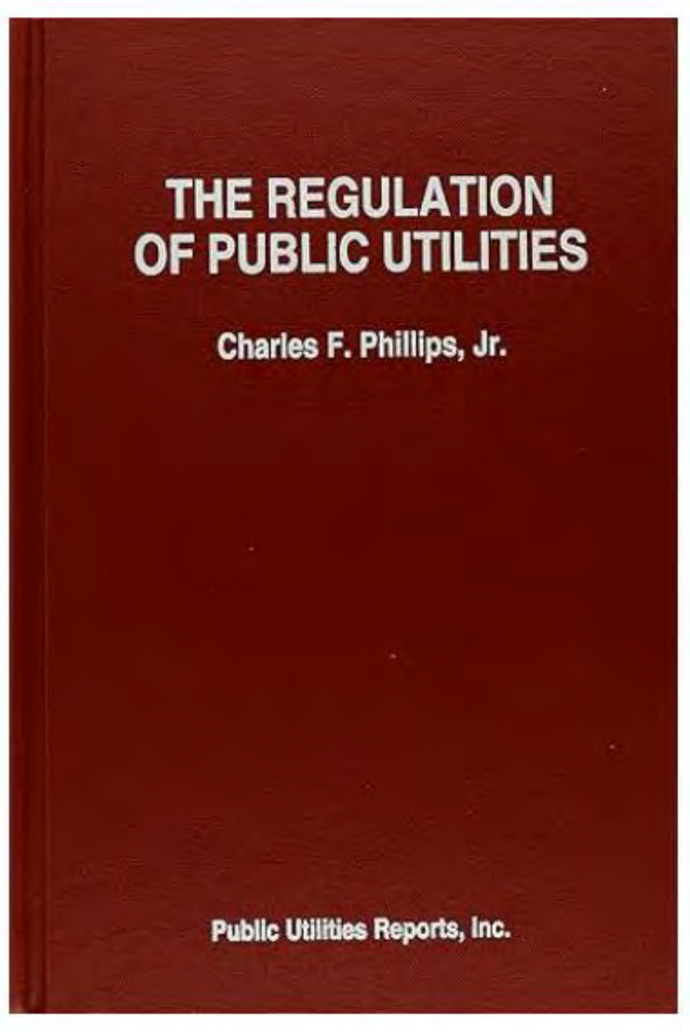
what the company
earns on its books

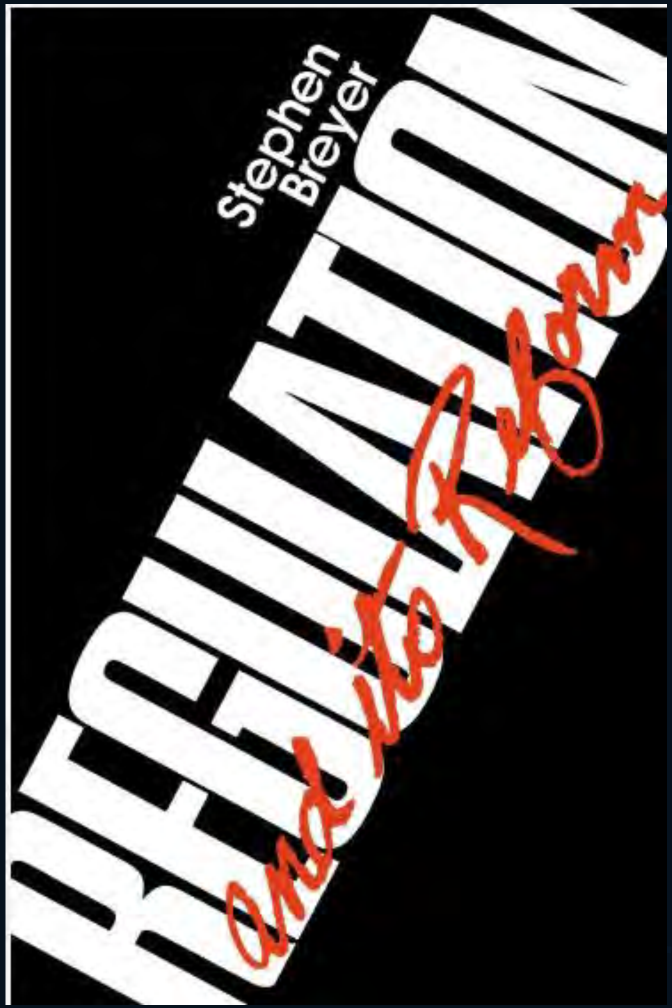
what investors can earn
on other company's stocks

opportunity cost

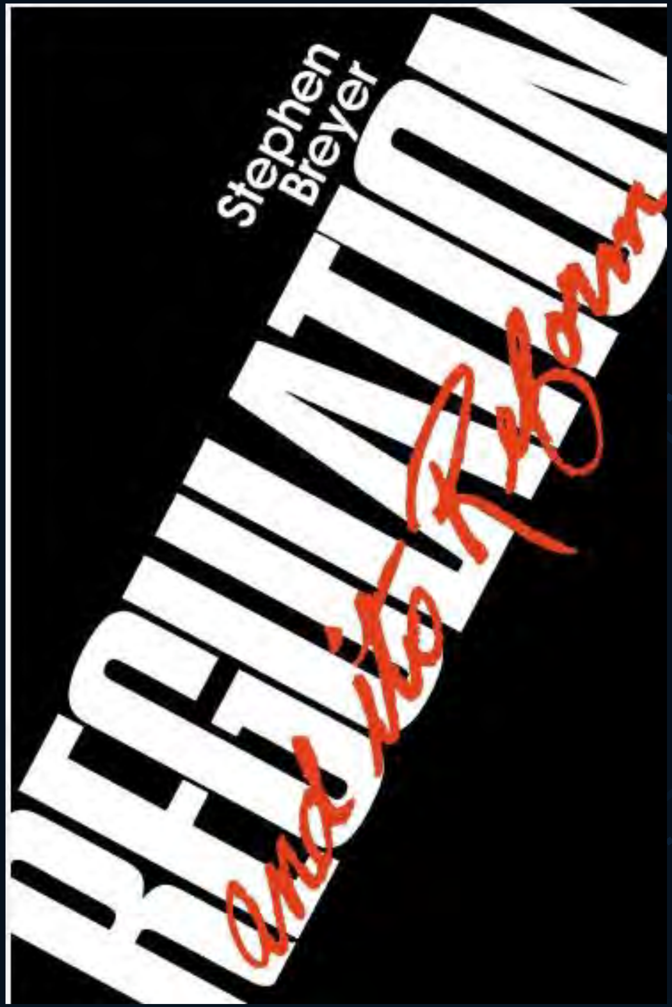
| | | PROJ | Cost of | | | | PROJ | Cost of |
|---|---|---|---|---|---|---|---|---|
| COMPANY | P/B | ROE | Equity | | COMPANY | P/B | ROE | Equity |
| Allete | 1.32 | 8.0% | 8.2% | | Exelon | 1.43 | 10.0% | 7.1% |
| Alliant Energy | 2.12 | 11.5% | 7.9% | | FirstEnergy | 2.25 | 14.5% | 8.4% |
| Ameren | 1.94 | 11.0% | 7.9% | | IDACORP | 1.70 | 9.0% | 7.7% |
| American Electric Power | 1.99 | 10.0% | 7.8% | | MGE Energy | 2.74 | 11.5% | 7.7% |
| Avangrid | 0.70 | 4.5% | 7.9% | | NextEra Energy | 3.21 | 14.0% | 8.0% |
| Avista Corp | 1.24 | 7.5% | 8.0% | | NorthWestern Corp | 1.17 | 8.0% | 8.0% |
| Black Hills Corp | 1.25 | 8.0% | 8.3% | | OGE Energy | 1.73 | 12.5% | 8.4% |
| CenterPoint Energy | 1.92 | 9.0% | 8.2% | | Otter Tail | 3.42 | 12.5% | 7.5% |
| CMS Energy Corp | 2.53 | 12.5% | 7.7% | | Pinnacle West | 1.56 | 8.0% | 7.7% |
| Consolidated Edison | 1.57 | 8.5% | 7.3% | | PNM Resources | 1.57 | 10.0% | 7.8% |
| Dominion Energy | 1.72 | 10.5% | 8.2% | | Portland General | 1.45 | 9.0% | 8.1% |
| DTE Energy | 2.21 | 11.5% | 8.2% | | PPL Corp | 1.56 | 8.5% | 8.2% |
| Duke Energy | 1.70 | 9.0% | 7.5% | | Public Service Entr Group | 2.45 | 11.5% | 7.8% |
| Edison International | 2.18 | 13.5% | 8.8% | | Sempra Energy | 1.79 | 10.5% | 8.3% |
| Entergy | 1.65 | 9.0% | 8.1% | | Southern Company | 2.85 | 13.0% | 7.6% |
| Evergy | 1.35 | 9.0% | 8.2% | | WEC Energy Group | 2.25 | 12.5% | 7.9% |
| Eversource Energy | 1.59 | 11.0% | 8.4% | | Xcel Energy | 1.81 | 11.0% | 7.8% |
| | | | | | | | | |
| **Median P/B = 1.71 Median ROE = 10.0% Median Cost of Equity = 8.1%** | | | | | | | | |

# The cost of equity is the minimum ROE, not the mid-point target for that rate of return



# Justice Stephen Breyer



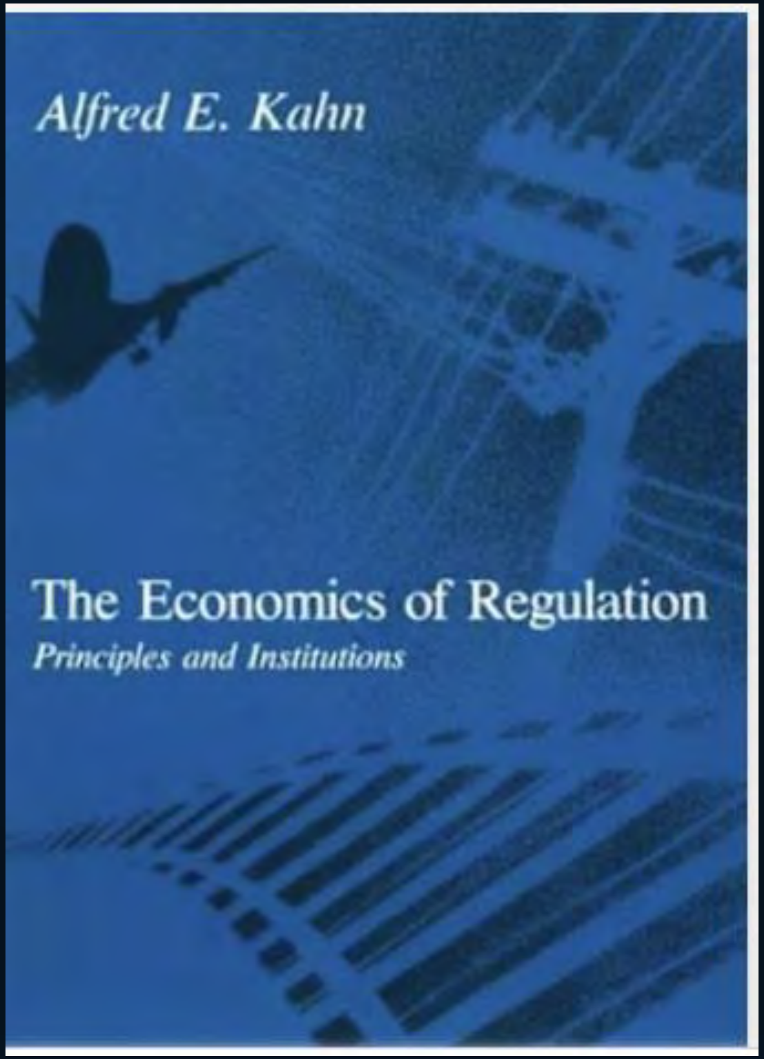

We waste too much time in regulation on the details of finance models.

Corporate finance what

## *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942)

The decision in each case must turn on considerations of justness and fairness which cannot be cast into a legalistic formula. The rate of return to be allowed in any given case calls for a highly expert judgment.

# Estimating the cost of equity...

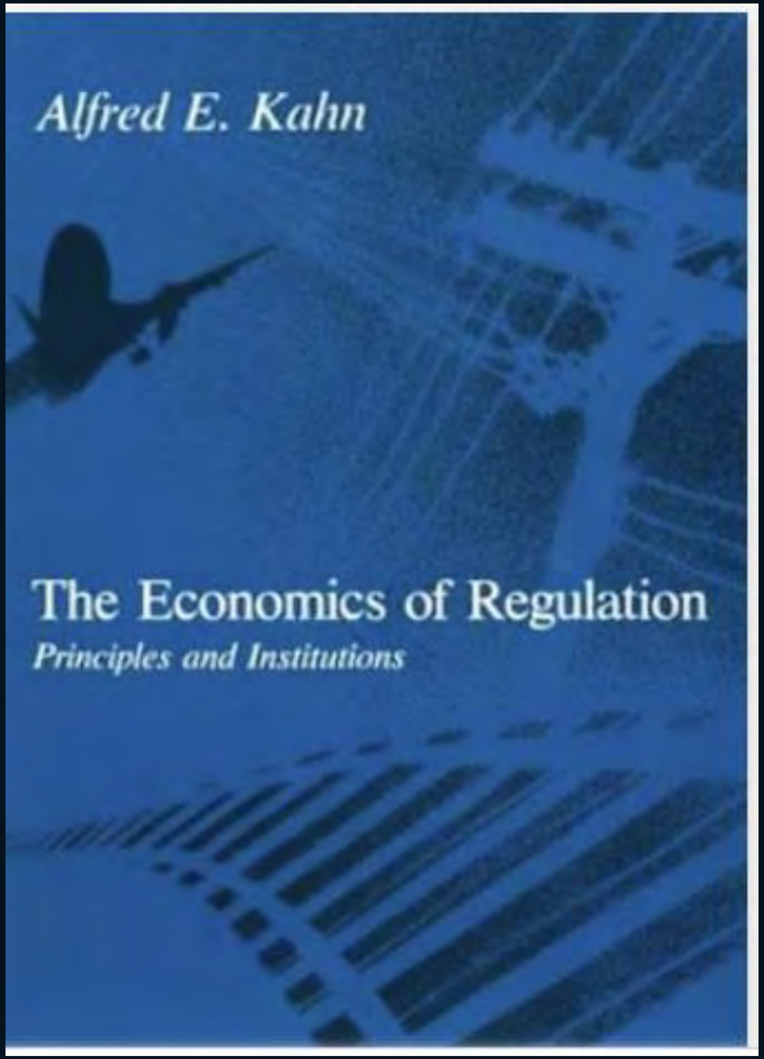



...is equivalent to finding the ROE that drives utility stock prices to book value.

Corporate finance what

If you don't want that result, you can't use cost of equity models to set the ROE.

# Other factors used in setting ROE

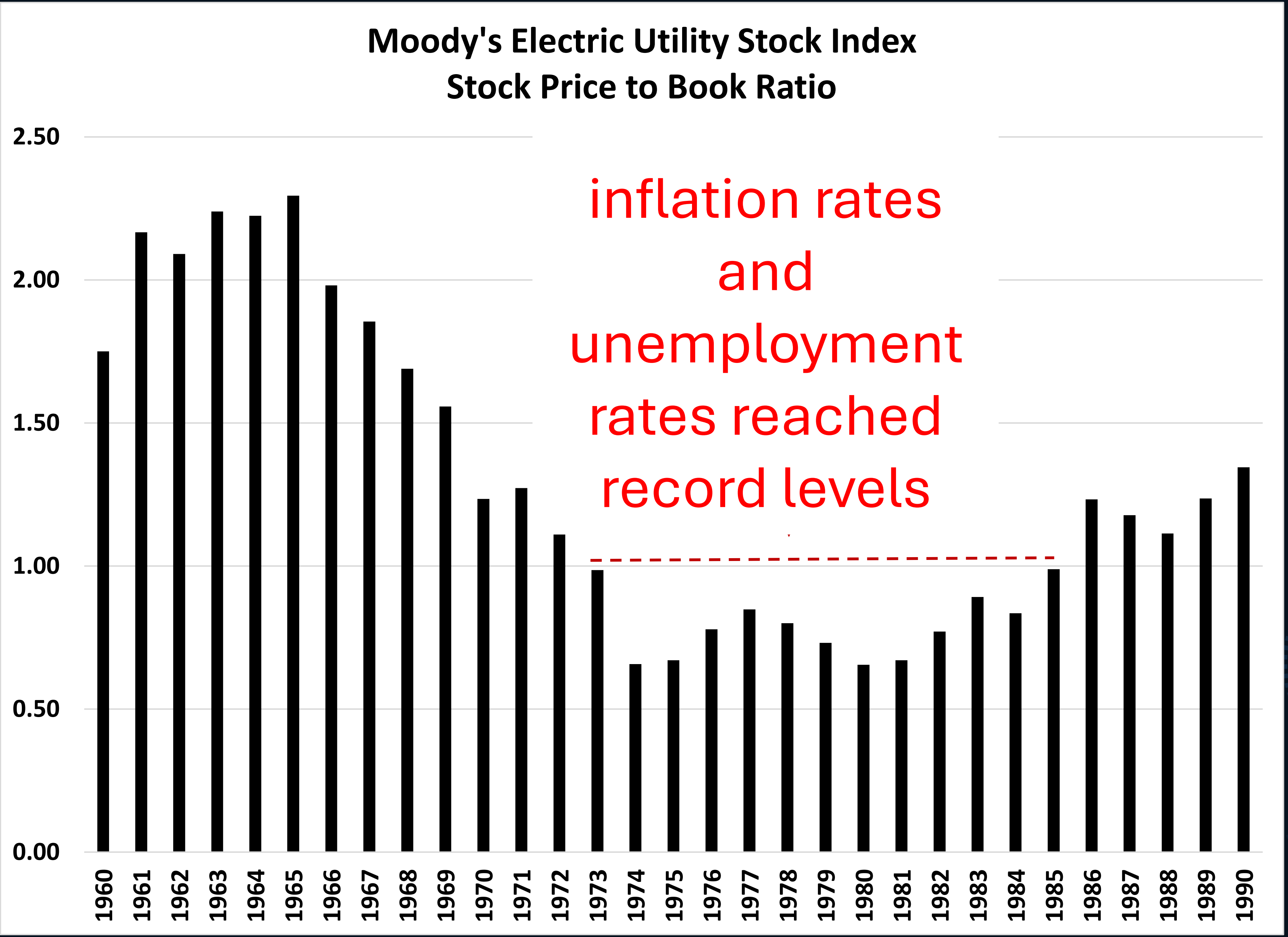



Do competitive forces drive corporate rates of return to the cost of equity in real, and imperfect non-utility markets?

Does the regulator want the utility to have some incentive to invest capital to spur innovation?

# *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942)

The requirements of "just and reasonable" embrace among other factors two phases of the public interest: (1) the investor interest; (2) the consumer interest.



Moody's Electric Utility Stock Index
Stock Price to Book Ratio
2.50
2.00
1.50
1.00
0.50
0.00
1960
1961
1962
1963
1964
1965
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1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
inflation rates
and
unemployment
rates reached
record levels

# SECTION 4

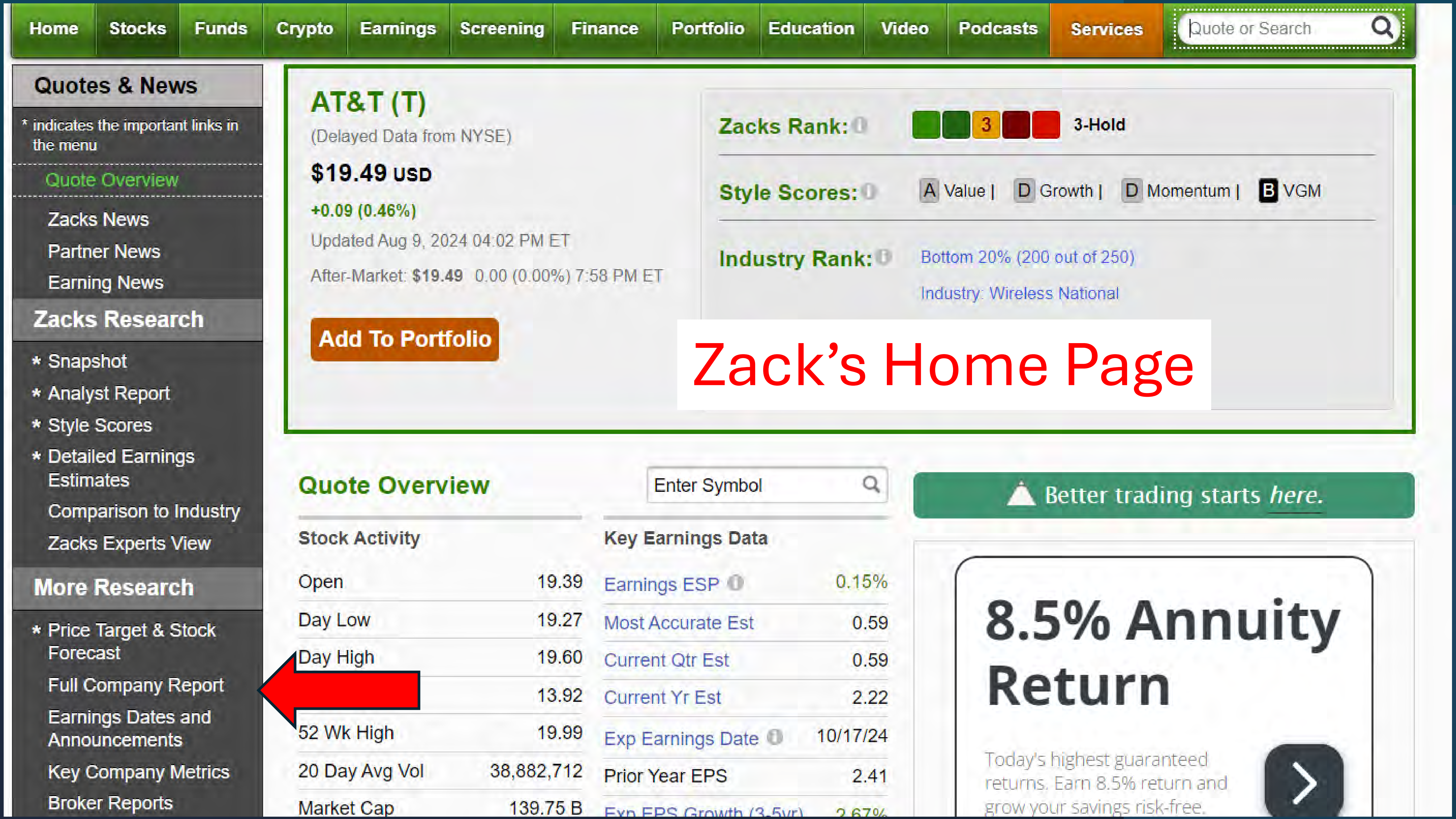
# Application

Zacks Investment Research

https://www.zacks.com

Zacks Investment Research: Stock Research, Analysis ...

**Zacks** is the leading **investment research** firm focusing on stock **research**, **analysis** and recommendations. Gain free stock **research** access to stock picks, ...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Podcasts
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Quote or Search
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* indicates the important links in the menu
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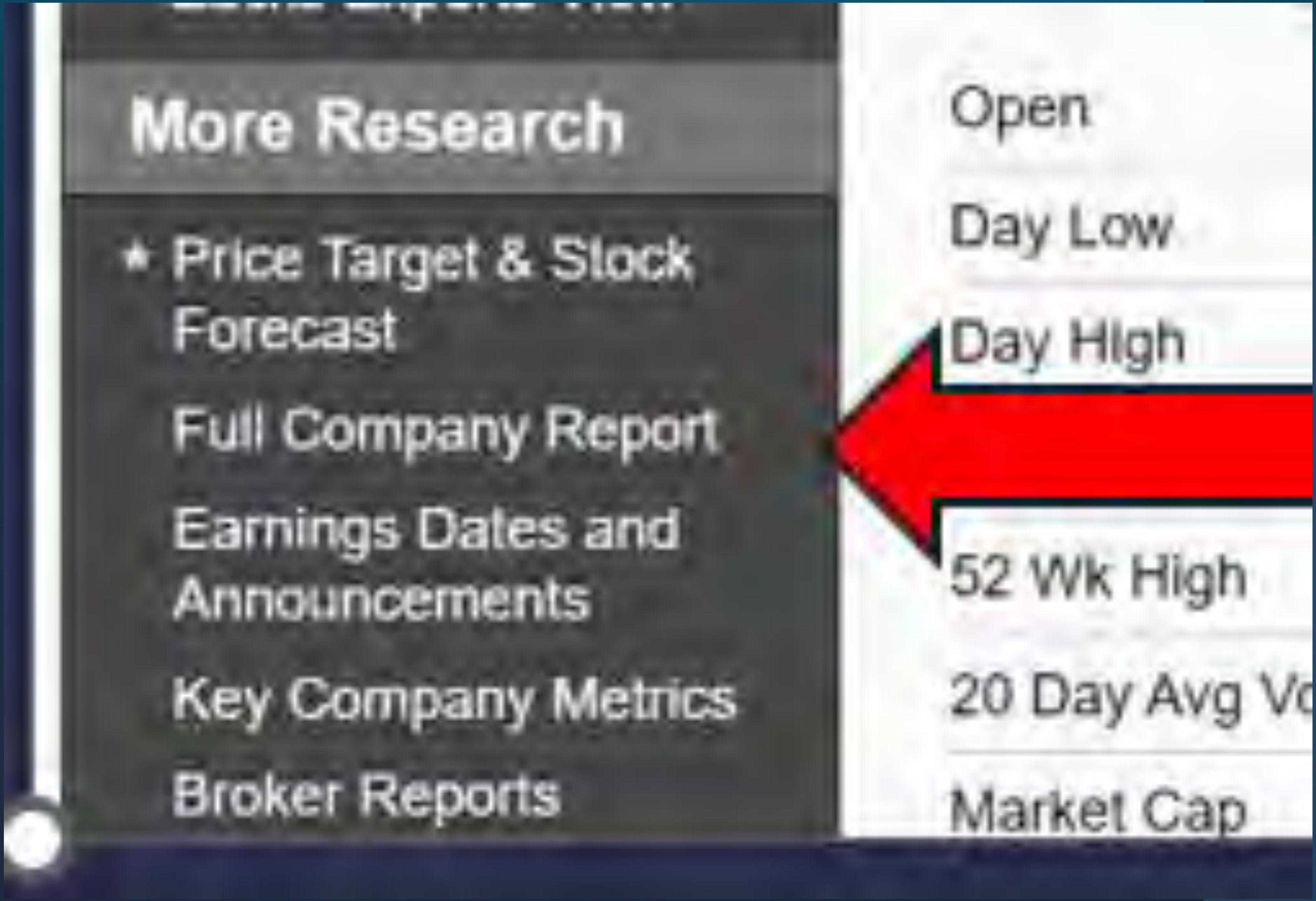
Zacks News
Partner News
Earning News
Zacks Research
* Snapshot
* Analyst Report
* Style Scores
* Detailed Earnings Estimates
Comparison to Industry
Zacks Experts View
More Research
* Price Target & Stock Forecast
Full Company Report
Earnings Dates and Announcements
Key Company Metrics
Broker Reports
AT&T (T)
(Delayed Data from NYSE)
$19.49 USD
+0.09 (0.46%)
Updated Aug 9, 2024 04:02 PM ET
After-Market: $19.49 0.00 (0.00%) 7:58 PM ET
Add To Portfolio
Zacks Rank:
3
3-Hold
Style Scores:
A Value | D Growth | D Momentum | B VGM
Industry Rank:
Bottom 20% (200 out of 250)
Industry: Wireless National
Zack’s Home Page
Quote Overview
Enter Symbol
Stock Activity
Open 19.39
Day Low 19.27
Day High 19.60
13.92
52 Wk High 19.99
20 Day Avg Vol 38,882,712
Market Cap 139.75 B
Key Earnings Data
Earnings ESP 0.15%
Most Accurate Est 0.59
Current Qtr Est 0.59
Current Yr Est 2.22
Exp Earnings Date 10/17/24
Prior Year EPS 2.41
Better trading starts here.
8.5% Annuity Return
Today's highest guaranteed returns. Earn 8.5% return and grow your savings risk-free.


More Research
* Price Target & Stock Forecast
Full Company Report
Earnings Dates and Announcements
Key Company Metrics
Broker Reports
Open
Day Low
Day High
52 Wk High
Market Cap

## Apple (AAPL)

(Delayed Data from NSDQ)

**$213.31 USD**

+3.49 (1.66%)

Updated Aug 08, 2024 04:00 PM ET

After-Market: **$213.81** +0 50 (0.23%) 7:58 PM ET

| Price Ratios | |
|---|---|
| Price/Book | 47.82 |
| Price/Cash Flow | 30.07 |
| Price / Sales | 8.27 |

| ROE | |
|---|---|
| 6/30/24 | 147.15 |
| 3/31/24 | 148.33 |
| 12/31/23 | 156.04 |

| ROA | |
|---|---|
| 6/30/24 | 29.66 |
| 3/31/24 | 29.13 |
| 12/31/23 | 29.39 |

Apple

| Current Ratio | |
|---|---|
| 6/30/24 | 0.95 |
| 3/31/24 | 1.04 |
| 12/31/23 | 1.07 |

| Quick Ratio | |
|---|---|
| 6/30/24 | 0.91 |
| 3/31/24 | 0.99 |
| 12/31/23 | 1.02 |

| Operating Margin | |
|---|---|
| 6/30/24 | 26.44 |
| 3/31/24 | 26.31 |
| 12/31/23 | 26.16 |

| Net Margin | |
|---|---|
| 6/30/24 | 26.44 |
| 3/31/24 | 26.31 |
| 12/31/23 | 26.16 |

| Pre-Tax Margin | |
|---|---|
| 6/30/24 | 31.35 |
| 3/31/24 | 30.95 |
| 12/31/23 | 30.71 |

| Book Value | |
|---|---|
| 6/30/24 | 4.39 |
| 3/31/24 | 4.84 |
| 12/31/23 | 4.80 |

| ROE | Apple |
|---|---|
| 6/30/24 | 147.15 |
| 3/31/24 | 148.33 |
| 12/31/23 | 156.04 |

ROE = 147.15%

[corporate return]

## Price And Volume Information

Apple

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 213.31 |
| 52 Week High | 237.23 |
| 52 Week Low | 164.08 |
| Beta | 1.24 |
| 20 Day Moving Average | 58,515,496.00 |
| Target Price Consensus | 240.19 |

The risk of a stock, not the ROE it earns, determines the cost of equity.

## Price And Volume Information

Ford Motor

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 10.13 |
| 52 Week High | 14.85 |
| 52 Week Low | 9.49 |
| Beta | 1.62 |
| 20 Day Moving Average | 85,102,960.00 |
| Target Price Consensus | 13.77 |

## Price And Volume Information

Carnival Cruise Lines

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 14.49 |
| 52 Week High | 19.74 |
| 52 Week Low | 10.84 |
| Beta | 2.68 |
| 20 Day Moving Average | 28,485,536.00 |
| Target Price Consensus | 22.68 |

## Price And Volume Information

3M

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 125.13 |
| 52 Week High | 128.65 |
| 52 Week Low | 71.73 |
| Beta | 0.95 |
| 20 Day Moving Average | 5,824,693.00 |
| Target Price Consensus | 131.14 |

## Price And Volume Information

Procter & Gamble

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 170.87 |
| 52 Week High | 171.72 |
| 52 Week Low | 141.45 |
| Beta | 0.41 |
| 20 Day Moving Average | 7,864,465.00 |
| Target Price Consensus | 174.88 |

## Price And Volume Information

Duke Energy

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 112.43 |
| 52 Week High | 116.67 |
| 52 Week Low | 83.06 |
| Beta | 0.45 |
| 20 Day Moving Average | 3,313,144.50 |
| Target Price Consensus | 111.47 |

## Price And Volume Information

CSX Railroad

| | |
|---|---|
| Zacks Rank | |
| Yesterday's Close | 34.25 |
| 52 Week High | 40.12 |
| 52 Week Low | 29.03 |
| Beta | 1.20 |
| 20 Day Moving Average | 11,829,943.00 |
| Target Price Consensus | 38.78 |

| ROE | CSX Railroad |
|---|---|
| 6/30/24 | 29.11 |
| 3/31/24 | 29.58 |
| 12/31/23 | 30.52 |

Beta =1.25
ROE = 147%
P/B = 49

| Price Ratios | Apple |
|---|---|
| Price/Book | 49.29 |
| Price/Cash Flow | 30.99 |
| Price / Sales | 8.53 |

Beta =1.20
ROE = 29%
P/B = 5

| Price Ratios | CSX Railroad |
|---|---|
| Price/Book | 5.27 |
| Price/Cash Flow | 12.61 |
| Price / Sales | 4.54 |

# CAPITAL ASSET PRICING MODEL

$$\text{company cost of equity (expected investor return)} =$$

$$\text{Treasury Note yield} + \beta \times (\text{expected return S\&P 500} - \text{Treasury Note yield})$$

Board of Governors of the Federal Reserve System

*The Federal Reserve, the central bank of the United States, provides the nation with a safe, flexible, and stable monetary and financial system.*

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Home > Data

## Selected Interest Rates (Daily) - H.15

**Current Release** About Announcements Technical Q&As

# yield on 10-year Treasury Note = 4.0%

# Expected return on S&P 500

| | |
|---|---|
| company witness | 12.2% |
| consumer advocate | 9.0% |

$$\text{company cost of equity (expected investor return)} =$$

$$4.0\% + 1.24 \times (12.2\% - 4.0\%) = \mathbf{14.2\%}$$

Apple

$$\text{company cost of equity (expected investor return)} =$$

$$4.0\% + 1.24 \times (9.0\% - 4.0\%) = \mathbf{10.2\%}$$

Apple

| ROE | |
|---|---|
| 6/30/24 | 147.15 |
| 3/31/24 | 148.33 |
| 12/31/23 | 156.04 |

ROE = 147.15%

cost of equity = 10.2% to 14.2%

| ROE | Apple |
|---|---|
| 6/30/24 | 147.15 |
| 3/31/24 | 148.33 |
| 12/31/23 | 156.04 |

what Apple earns = 147.15%

what those who buy Apple stock expect to earn= 10.2% to 14.2%

Apple

| Price Ratios | |
|---|---|
| Price/Book | 47.82 |
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| Book Value | Apple |
|---|---|
| 6/30/24 | 4.39 |
| 3/31/24 | 4.84 |
| 12/31/23 | 4.80 |

Book Value = $4.39 per share

Apple

| Book Value | |
|---|---|
| 6/30/24 | 4.39 |
| 3/31/24 | 4.84 |
| 12/31/23 | 4.80 |

Book Value = $4.39 per share

Stock Price = $231.13 per share

Apple, as a corporation, earns 147%; those buying Apple stock expect to earn 10% to 14%.

Why?

**Book Value**

| | |
|---|---|
| 6/30/24 | 4.39 |
| 3/31/24 | 4.84 |
| 12/31/23 | 4.80 |

Book Value = $4.39 per share

Stock Price = $231.13 per share

CSX, as a corporation, earns 29%; those buying CSX stock expect to earn 10% to 14%.

Why?

**Table 2**
**Financial Figures for Utility Portfolio**
**High and Low ROE Sub-Portfolios**

| Company | ROE | Cost of Equity | Price to Book |
|---|---|---|---|
| FirstEnergy | 14.5% | 7.8% | 2.25 |
| NextEra Energy | 14.0% | 7.2% | 3.21 |
| Edison International | 13.5% | 8.7% | 2.18 |
| Southern Company | 13.0% | 7.5% | 2.85 |
| CMS Energy Corp | 12.5% | 7.2% | 2.53 |
| OGE Energy | 12.5% | 7.5% | 1.73 |
| Otter Tail | 12.5% | 5.6% | 3.42 |
| | | | |
| **High ROE Group Medians** | **13.0%** | **7.5%** | **2.53** |
| | | | |
| | | | |
| Consolidated Edison | 8.5% | 7.2% | 1.57 |
| PPL Corp | 8.5% | 8.1% | 1.56 |
| Black Hills Corp | 8.0% | 7.8% | 1.25 |
| NorthWestern Corp | 8.0% | 8.0% | 1.17 |
| Pinnacle West | 8.0% | 8.1% | 1.56 |
| Avista Corp | 7.5% | 8.2% | 1.24 |
| Avangrid | 4.5% | 8.1% | 0.70 |
| | | | |
| **Low ROE Group Medians** | **8.0%** | **8.1%** | **1.25** |

| Company | ROE | Cost of Equity | Price to Book |
|---|---|---|---|
| High ROE Group Medians | 13.0% | 7.5% | 2.53 |
| Low ROE Group Medians | 8.0% | 8.1% | 1.25 |

This is what investors expect to earn on stocks of comparable risk

| Company | ROE | Cost of Equity | Price to Book |
|---|---|---|---|
| High ROE Group Medians | 13.0% | 7.5% | 2.53 |
| Low ROE Group Medians | 8.0% | 8.1% | 1.25 |

And the return on the specific stock under review will be driven to this return at equilibrium

Beta =1.25
ROE = 147%
P/B = 49

| Price Ratios | Apple |
| --- | --- |
| Price/Book | 49.29 |
| Price/Cash Flow | 30.99 |
| Price / Sales | 8.53 |

cost of equity
10% to 14%

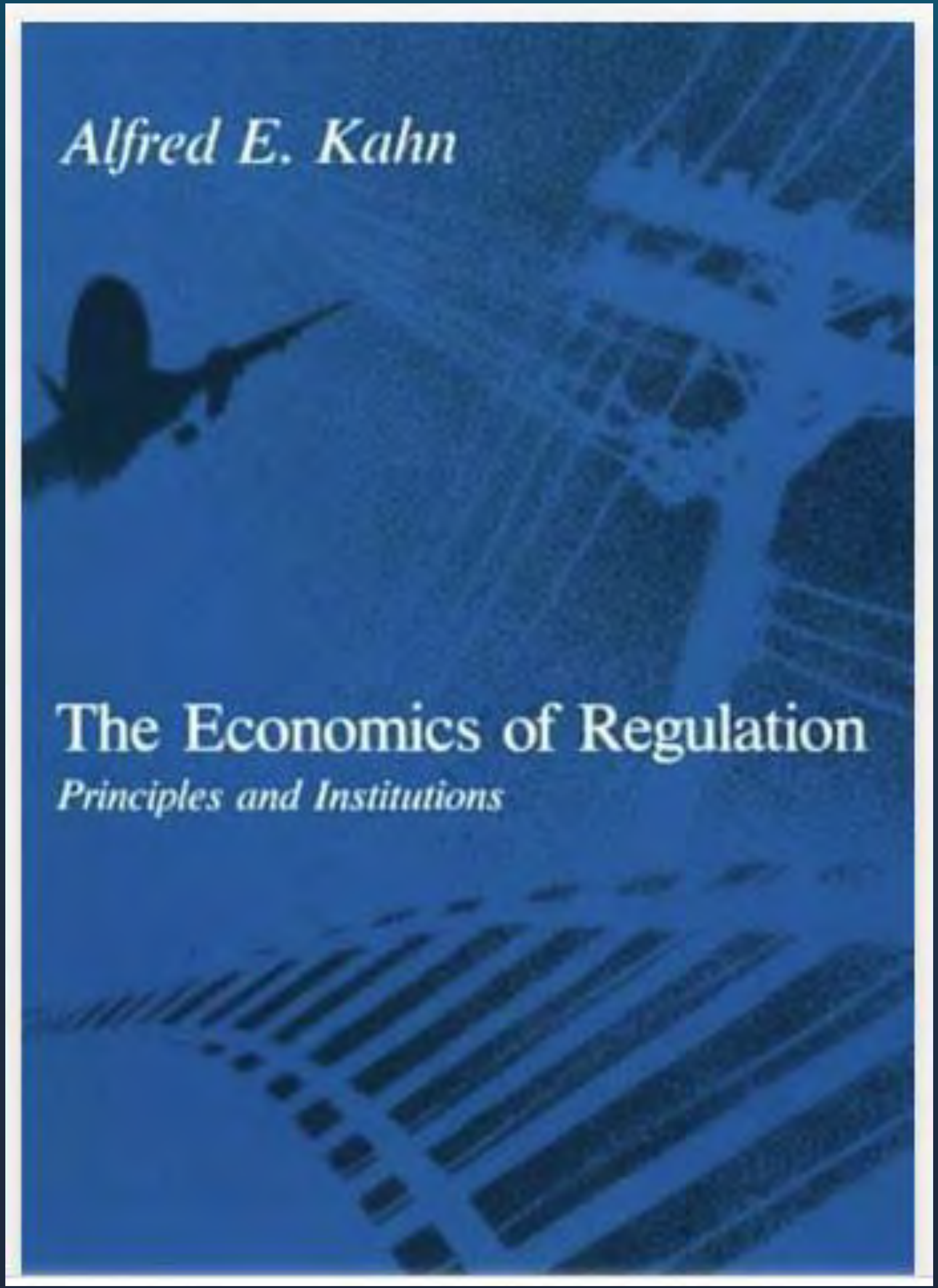
Beta =1.20
ROE = 29%
P/B = 5

| Price Ratios | CSX Railroad |
| --- | --- |
| Price/Book | 5.27 |
| Price/Cash Flow | 12.61 |
| Price / Sales | 4.54 |

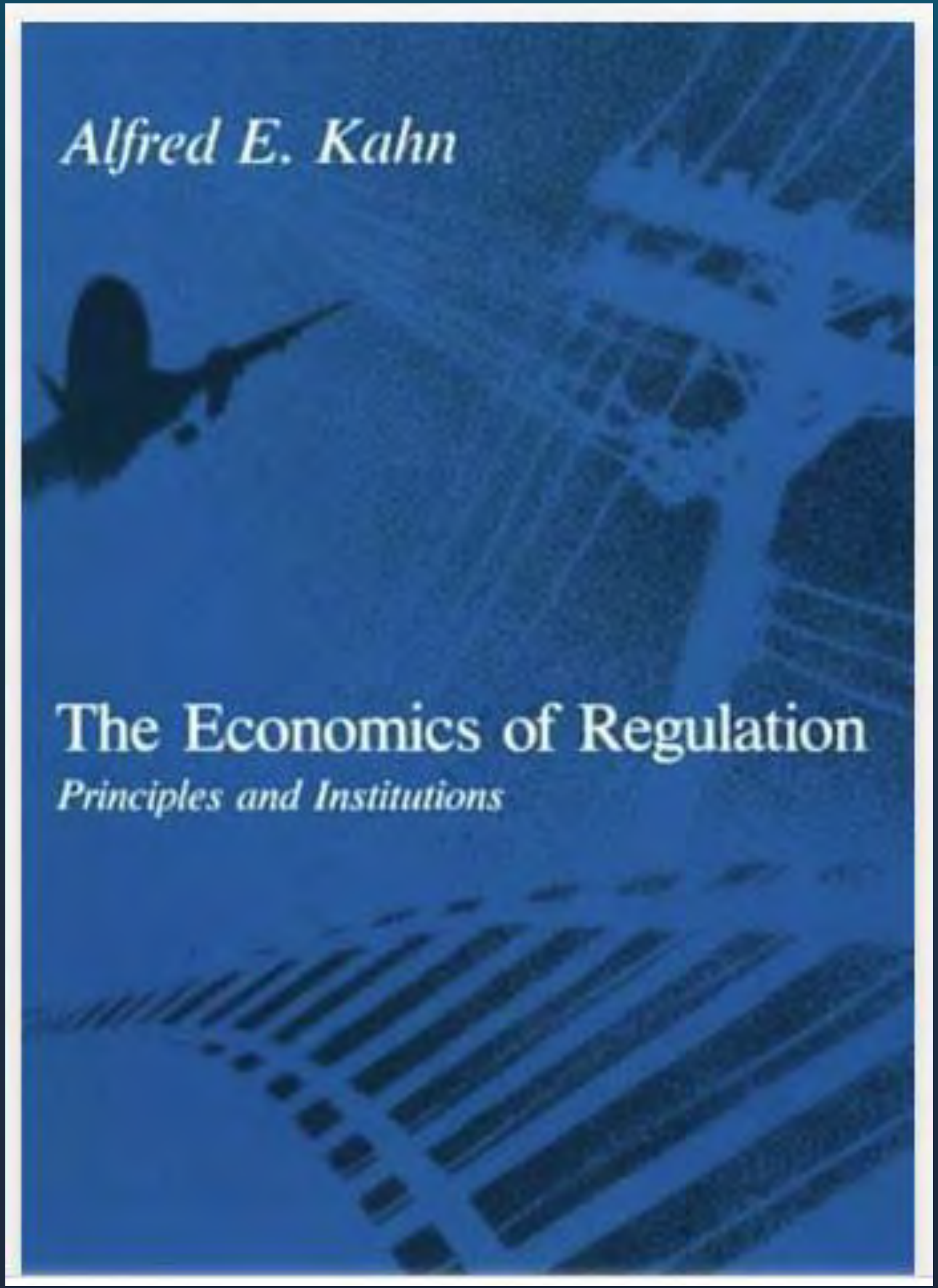
cost of equity
10% to 14%

# SECTION 5

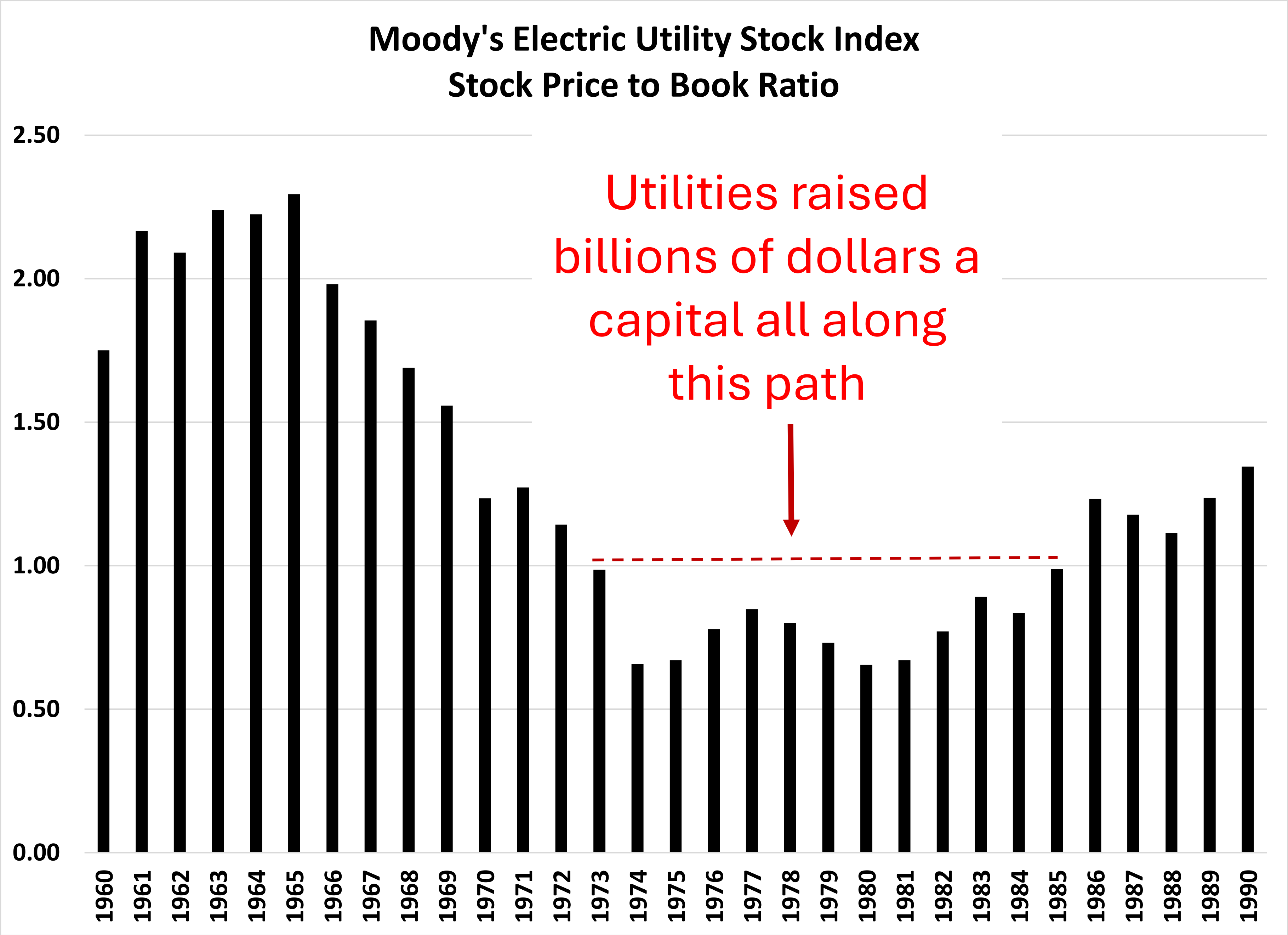
# Capital attraction




The return the utility earns (ROE) has no influence on the return new capital providers expect earn on their investment.




Utilities with high ROEs have no advantage over utilities with low ROEs when raising capital.


Moody's Electric Utility Stock Index
Stock Price to Book Ratio
Utilities raised billions of dollars a capital all along this path
2.50
2.00
1.50
1.00
0.50
0.00
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
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1974
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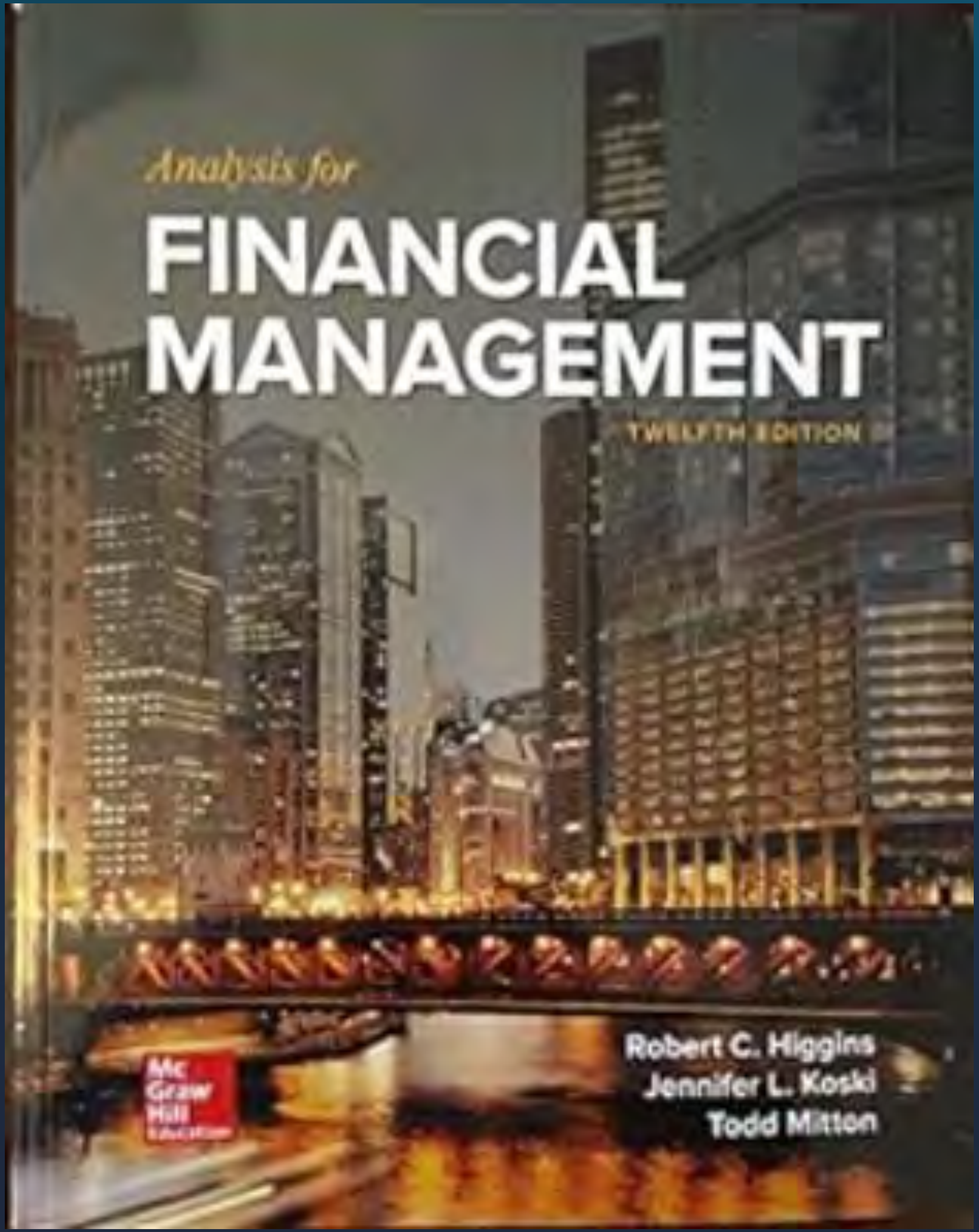
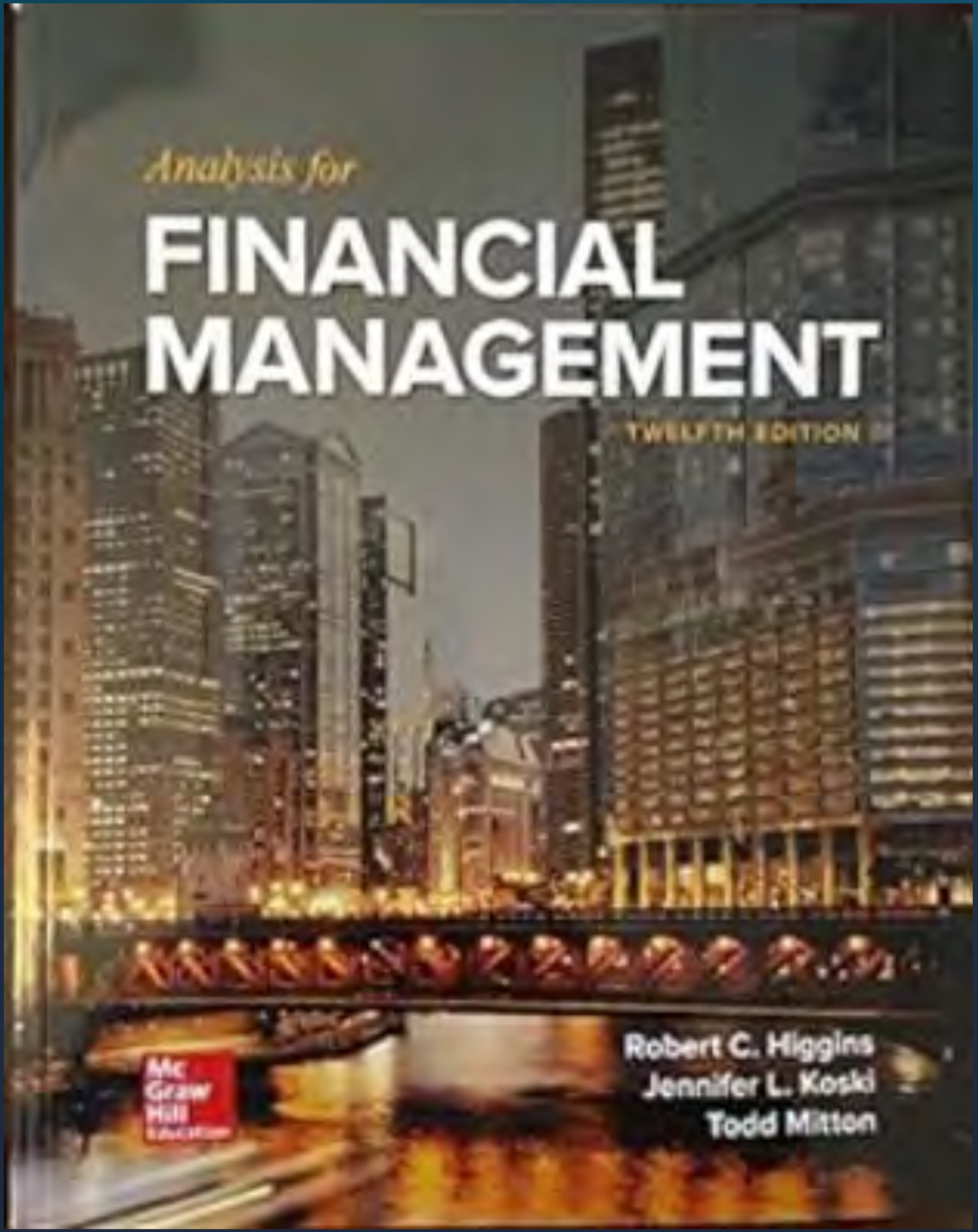
1989
1990




"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."




**Apple**

**147%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**49 times book value**

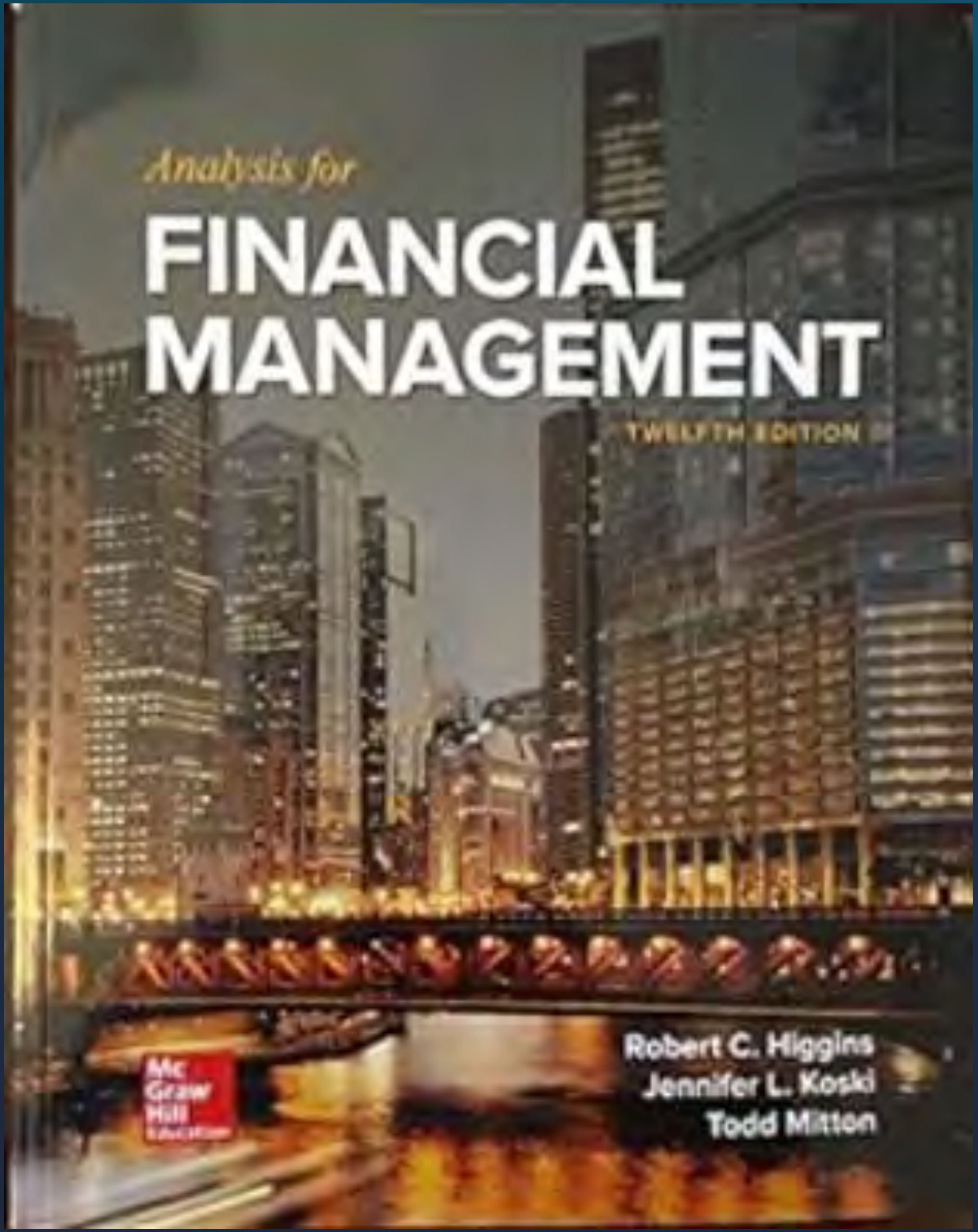

**New investors expect to earn 10% to 12% on the stock**

# Apple

**147%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**49 times book value**




**CSX**

**29%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**5 times book value**


**New investors expect to earn 10% to 12% on the stock**

**CSX**

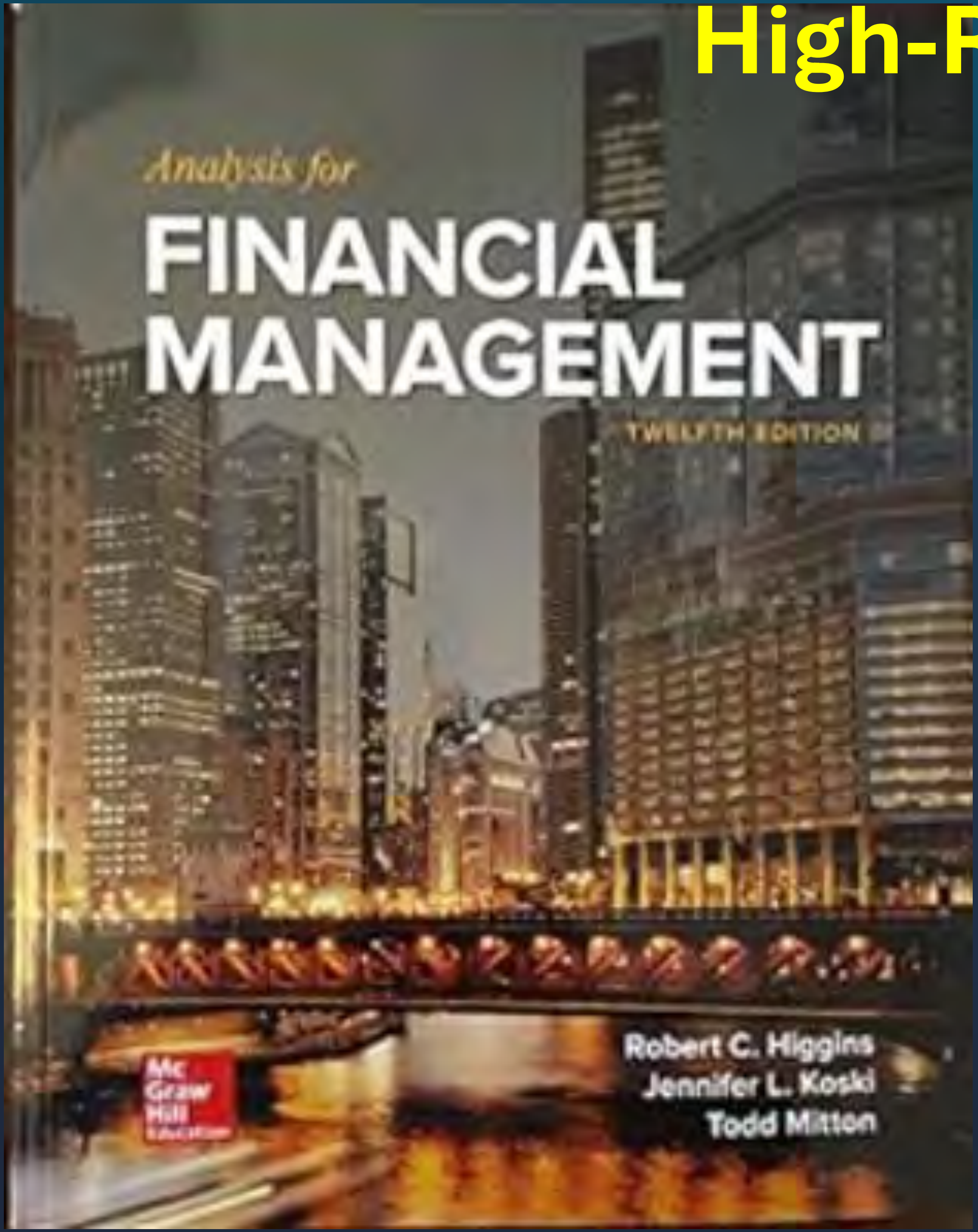
**29%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**5 times book value**

| Company | ROE | Cost of Equity | Price to Book |
|---|---|---|---|
| High ROE Group Medians | 13.0% | 7.5% | 2.53 |
| Low ROE Group Medians | 8.0% | 8.1% | 1.25 |

# High-ROE utilities




**13%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**2.5 times book value**

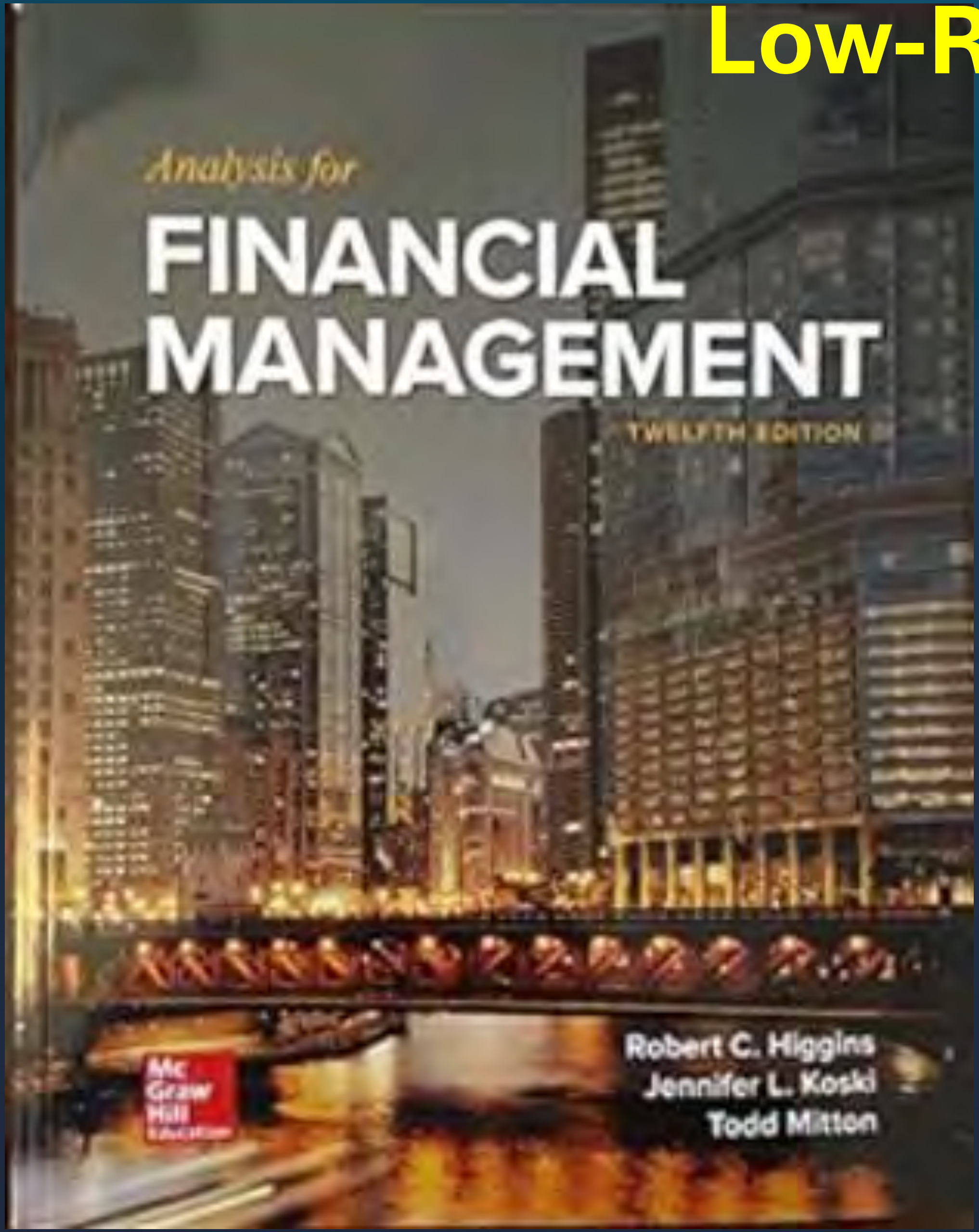
# High-ROE utilities


**New investors expect to earn 8% on the stock**

**13%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**2.5 times book value**




# Low-ROE utilities

**8%**

"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**1.3 times book value**

# Low-ROE utilities

**8%**

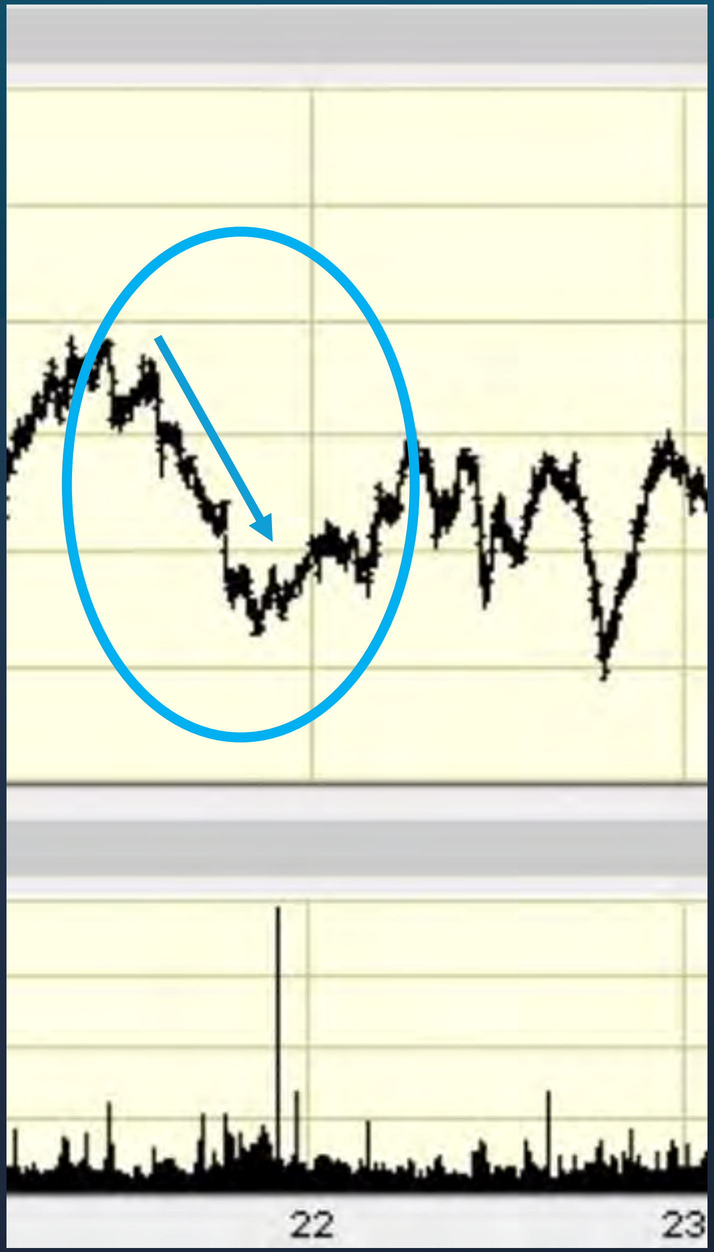

**New investors expect to earn 8% on the stock**

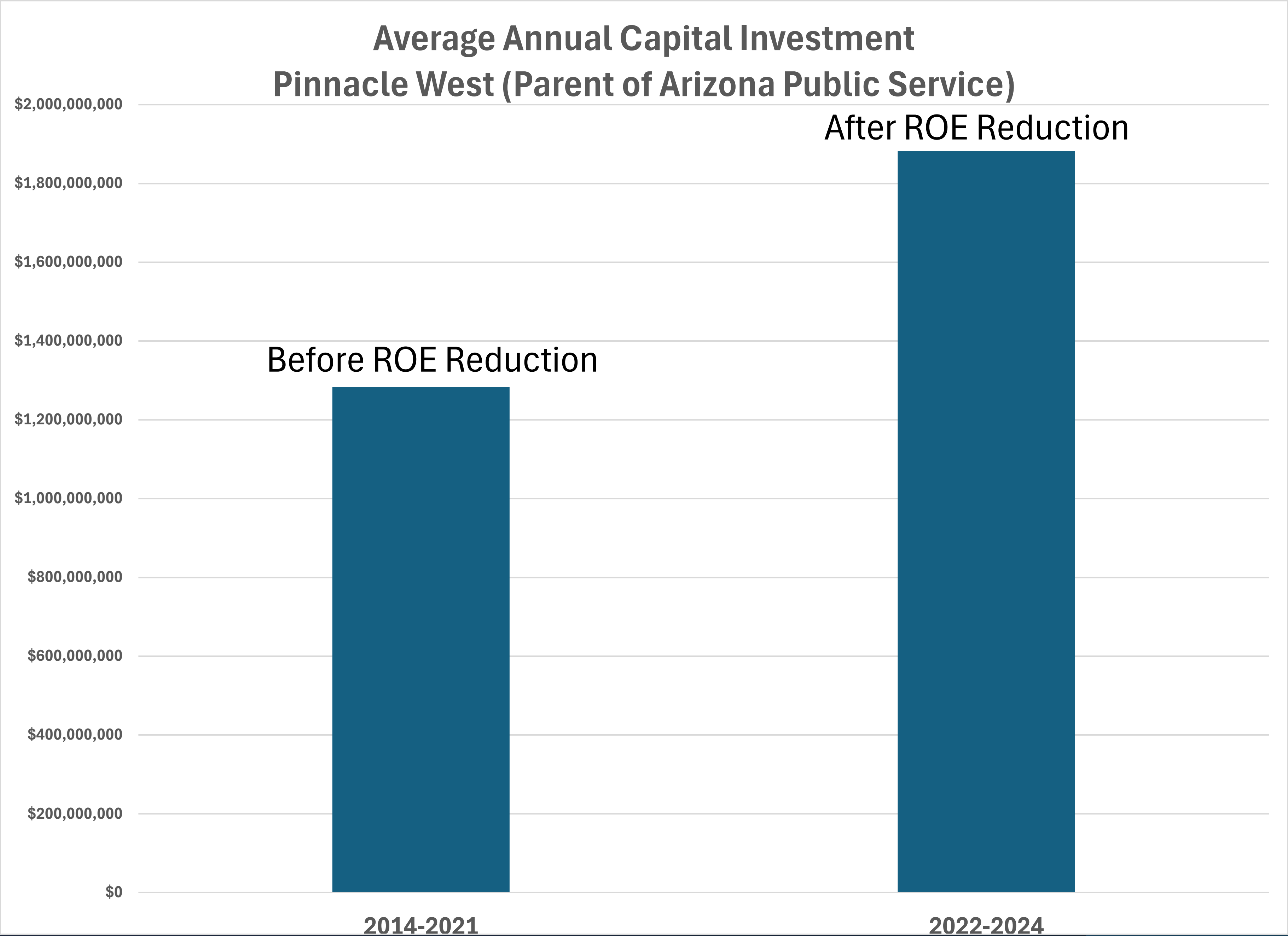
"It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others because once they are known the possibility of high returns to investors will melt away in higher stock prices."

**1.3 times book value**


PNW Daily
8/09/24
Arizona Public Service Corp ROE
lowered from 10.0% to 8.6%
110
100
90
80
70
60
50
Volume
©BigCharts.com
8
6
4
2
0
Millions
20
21
22
23
24

# Initial market reaction

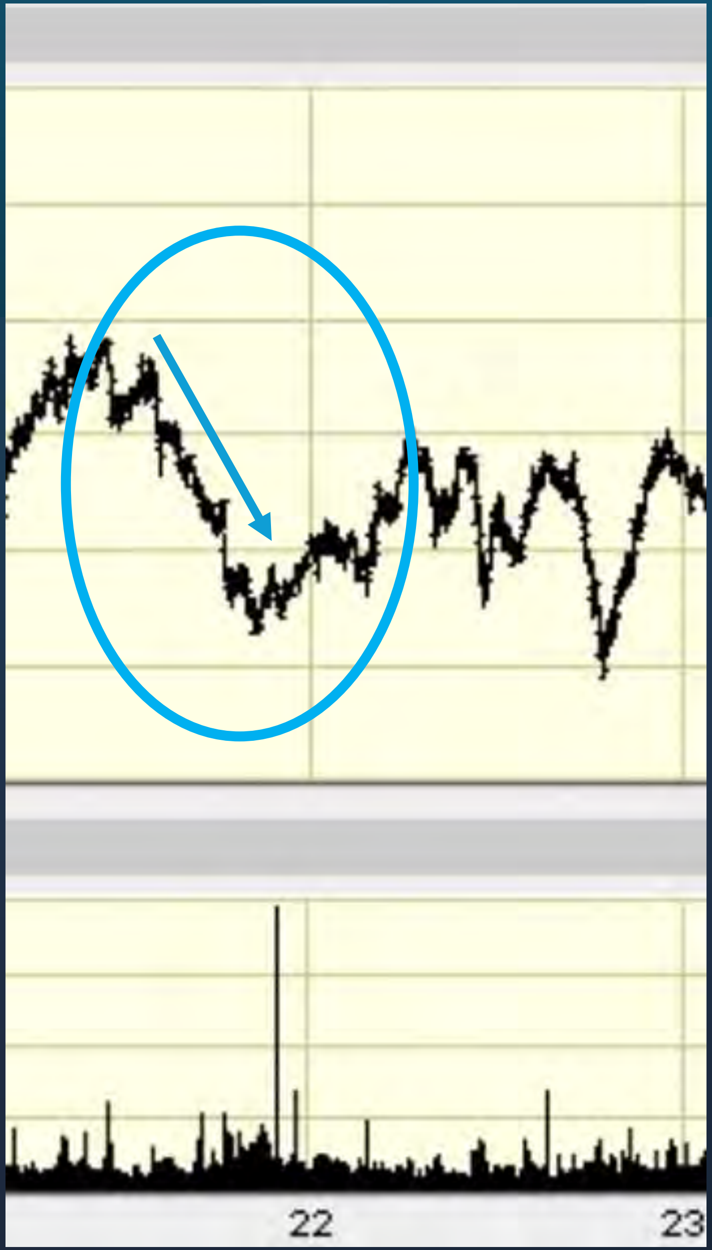



Average Annual Capital Investment
Pinnacle West (Parent of Arizona Public Service)
$2,000,000,000
$1,800,000,000
$1,600,000,000
$1,400,000,000
$1,200,000,000
$1,000,000,000
$800,000,000
$600,000,000
$400,000,000
$200,000,000
$0
Before ROE Reduction
After ROE Reduction
2014-2021
2022-2024

# SECTION 6

## Existing investors vs. new capital providers

The lower ROE hurts the investors who hold the stock at the time of the ROE reduction, not new capital providers



Raising the ROE unexpectedly creates an immediate ***windfall gain*** to ***existing investors***.

The Application of Finance Theory to Public Utility Rate Cases

Author(s): Stewart C. Myers

Source: *The Bell Journal of Economics and Management Science*, Spring, 1972, Vol. 3, No. 1 (Spring, 1972), pp. 58-97

Published by: RAND Corporation

Stable URL: https://www.jstor.org/stable/3003071

Setting the ROE has nothing to do with capital attraction; it has everything to do with fairness the trade-off between existing investor impacts and consumer impacts.

## *FPC v. Hope Nat. Gas Co., 320 U.S. 591 (1944)*

Ratemaking is indeed but one species of price-fixing. The fixing of prices, like other applications of the police power, may reduce the value of the property which is being regulated. ***But the fact that the value is reduced does not mean that the regulation is invalid***.

The existing investors want the highest possible stock price. Consumers want the lowest possible bill.

High ROEs prop up the stock price and increase customer bills

Low ROEs put downward pressure on the stock price and lower customer bills

The existing investors want the highest possible stock price. Consumers want the lowest possible bill.

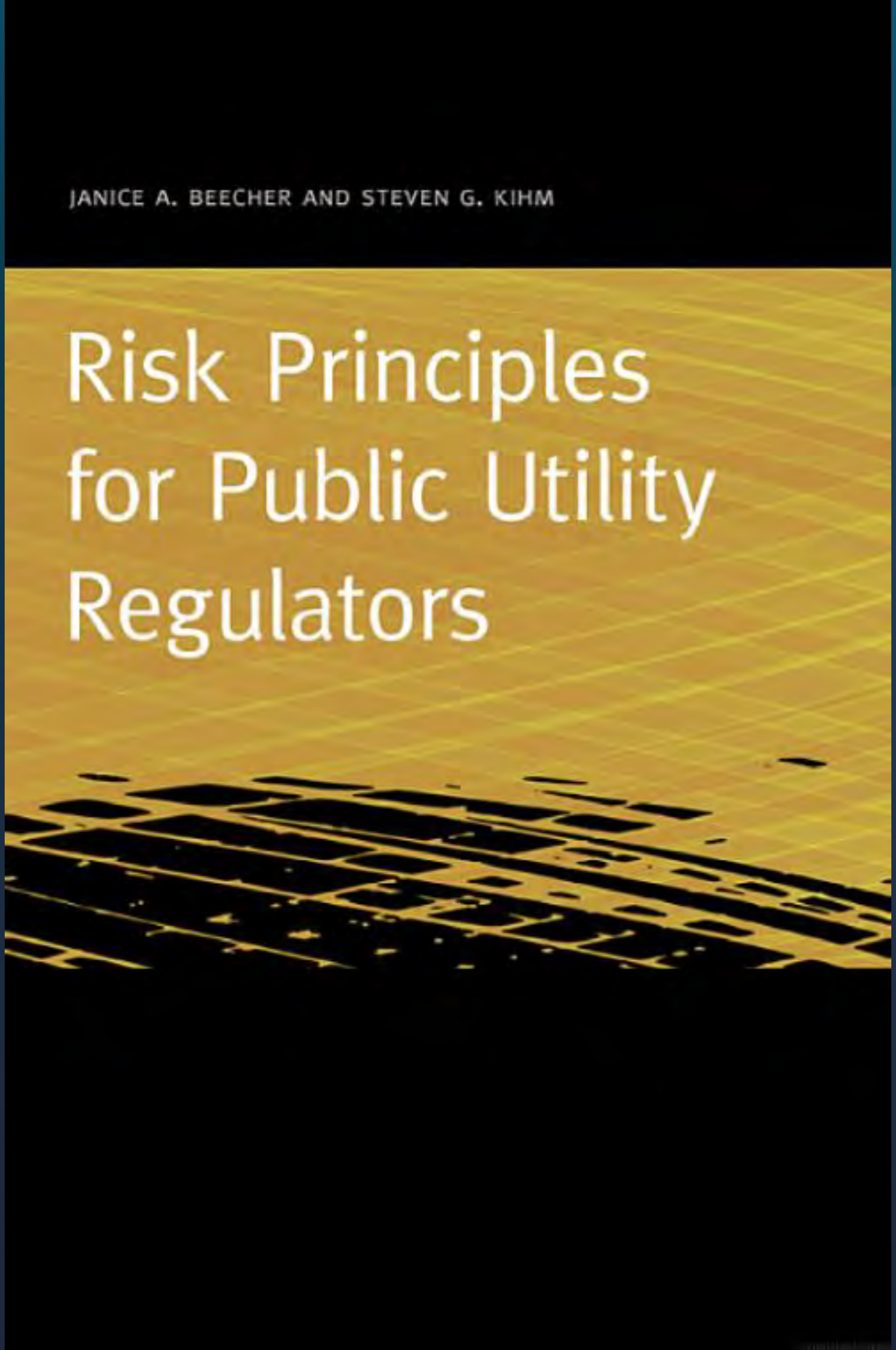
High ROEs prop up the stock price and increase customer bills

Low ROEs put downward pressure on the stock price and lower customer bills

New capital providers are ***indifferent as to the ROE*** because they will expect to make the same return at any ROE

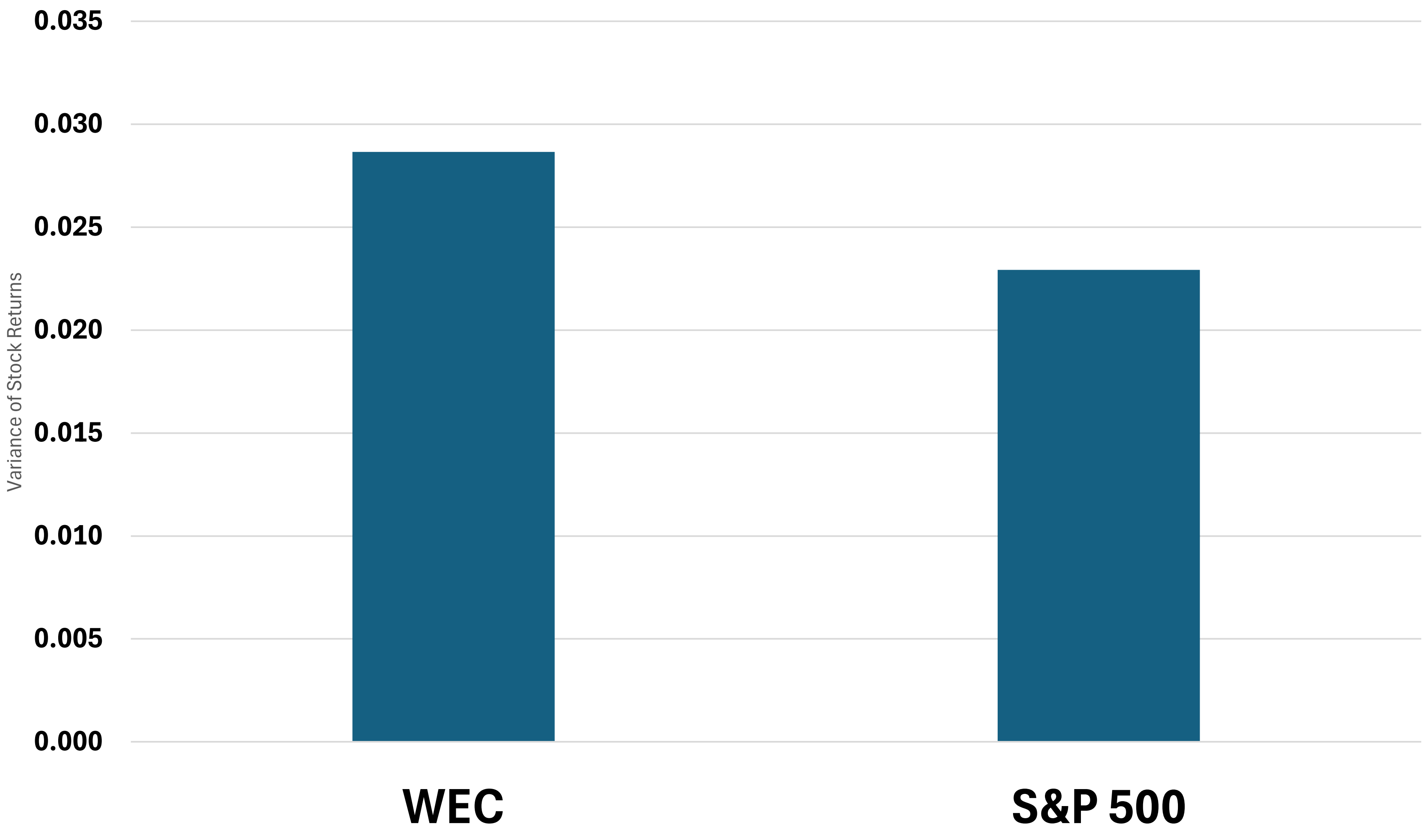
# SECTION 7

# Risk assessment

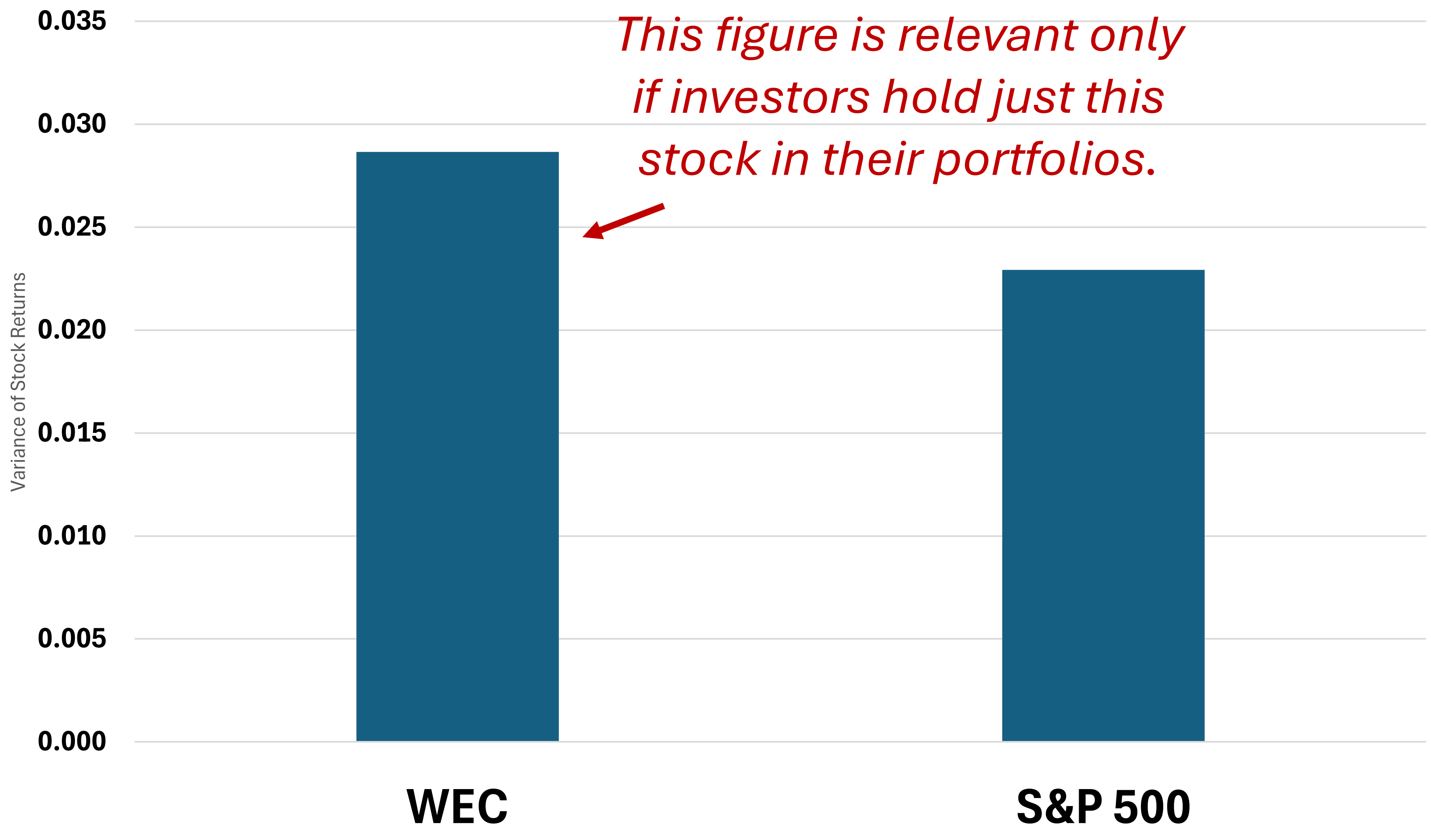


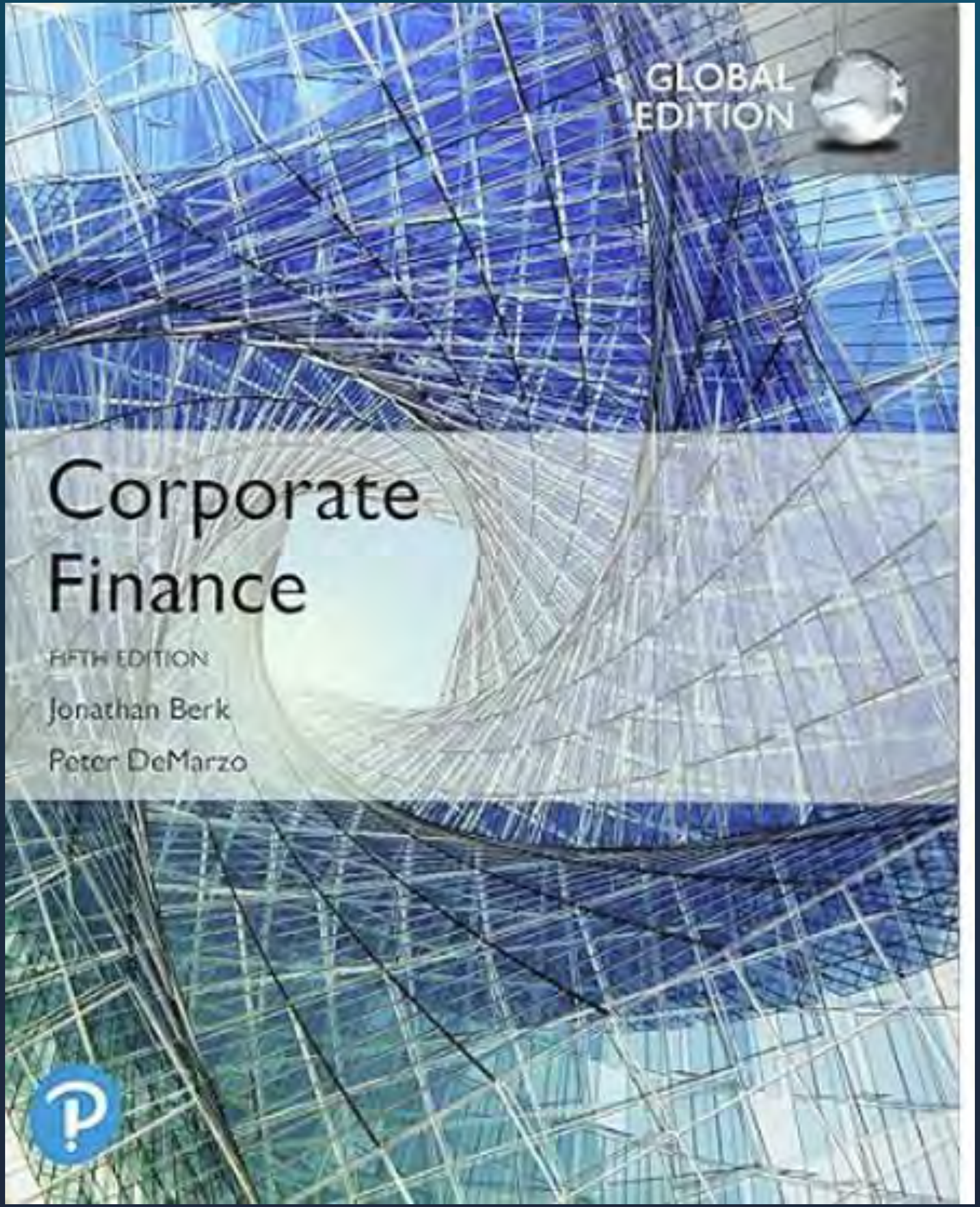

Most risks a utility faces
do not affect their investors

## WEC Energy Group Stock is More Volatile than the S&P 500 Index [this is incorrect risk assessment]



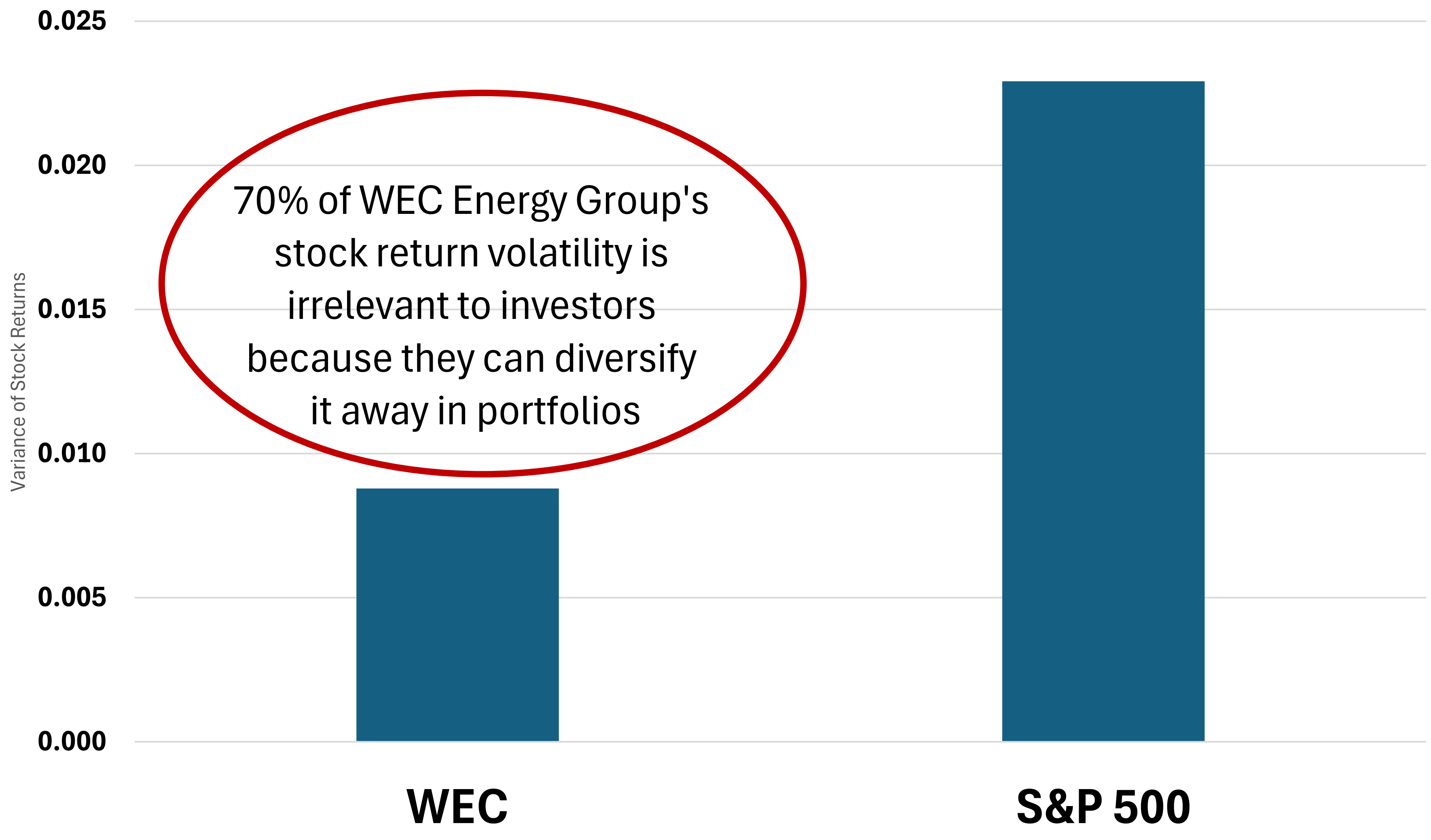
# WEC Energy Group Stock is More Volatile than the S&P 500 Index [this is incorrect risk assessment]






Stock market return volatility is not a good measure of investor risk, because it includes the impact of diversifiable risks

# WEC Energy Group Stock has Noticeably Less Systematic Risk than does the S&P 500 Index [this is proper assessment]



# SECTION 8

## Things you learned today

Investor-focused firms should not attempt to maximize profits.

The ROE and cost of equity are not synonyms. If utility stock prices are not equal to book value, then ROEs are not equal to the cost of equity.

Regulators are not setting ROEs equal to the cost of equity--should they?

Corporate finance what

New capital providers expect to earn the same return on utility stocks at essentially any ROE level—capital attraction not affected by ROE level.

It is existing investors, not new capital providers, that are affected by changes in ROE. Regulators must be concerned about that group.

Most risks a utility faces have no effect on their cost of equity.

SECTION 9

# Questions and contact information

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Citizens Utility Board of Wisconsin

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