Investment Theory

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Price vs. Value

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Price and Value

- Price – a result of supply and demand in the market
- Value - present value of future cash flows (remember valuation and DCF)
- A company's stock price can change even when the company's value or valuation has remained the same
- "Price is what you pay, but value is what you get" – Warren Buffet

Why can price ≠ value?

Overvalued (Price > Value)	Undervalued (Price < Value)
• Overhyped, plays into a trend • Unreasonable growth expectations • Market overreacts to good news • Large analyst coverage (typically large companies)	• In an overlooked industry • Market has a short-term rather than a long-term outlook at the business value • Market overreacts to bad news • Little analyst coverage (typically small companies

Margin of Safety

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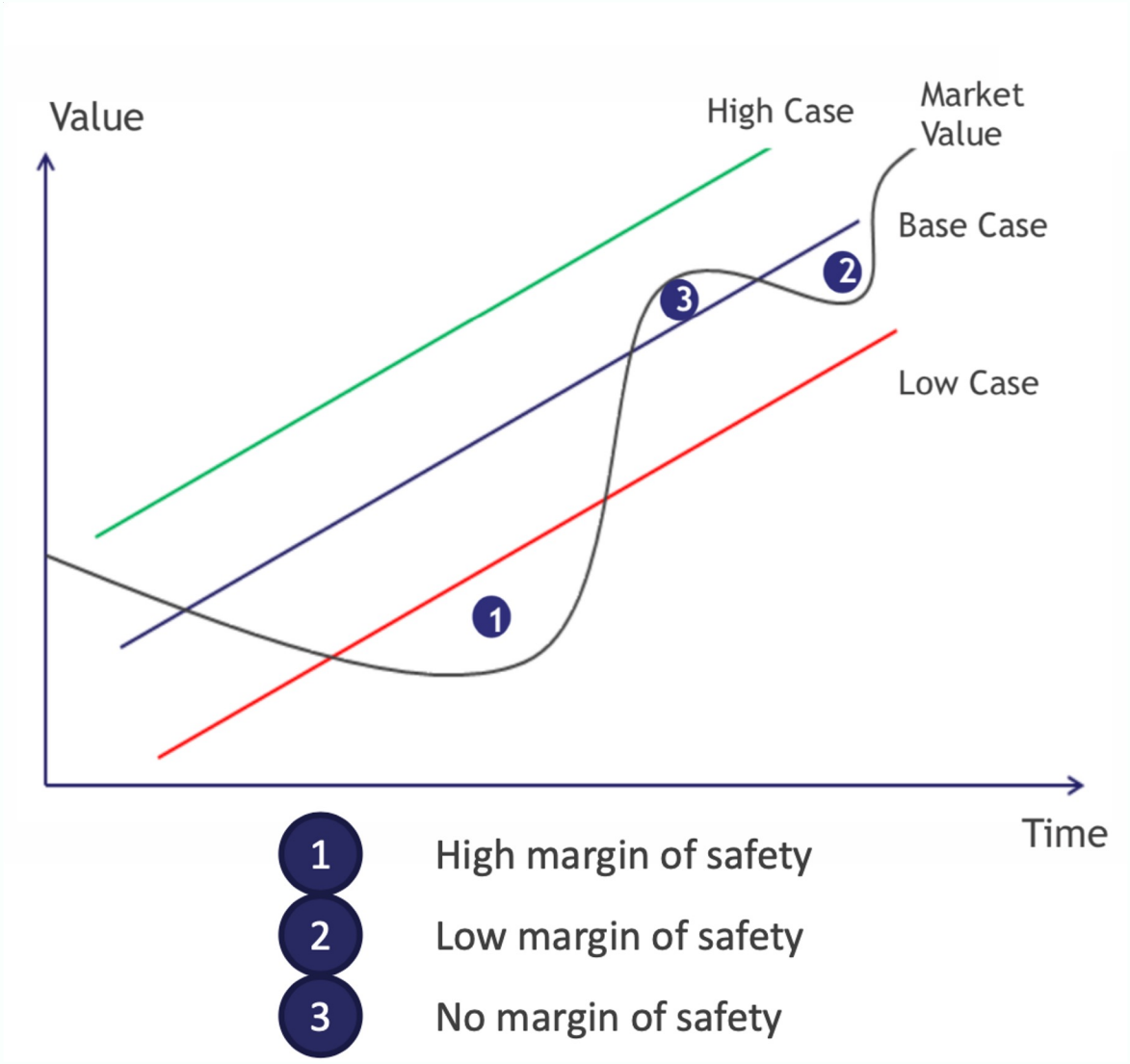
Margin of Safety

- So much attention is paid to the upside that it is easy to lose sight of the risk
- Greater risk does not guarantee greater return; risk can reduce return by causing losses
- A margin of safety is necessary because valuation is an imprecise art, the future is unpredictable, and investors can make mistakes
  - This is why we predict bear, base, and bull cases

Margin of Safety (pictured)



What is Value Investing?

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What is Value Investing?

- Undervalued opportunities are stocks that are currently trading below their intrinsic value
  - Ask yourself: What is the market missing with this company? Why is this company worth more than the market suggests?
- Invest when the stock is selling low, with the expectation that the price will converge to its true intrinsic value, which will yield returns (a.k.a. “buy low, sell high”)
  - Risk-adjusted returns

Value Investing Rationale

- Value investors believe that the market is mispricing the stock in some way (overreaction to good/bad news, trends, etc), resulting in stock price movements that do not reflect a company's long-term fundamentals and growth prospects
- The overreaction offers an opportunity to profit by buying stocks at discounted prices – on sale
- Value investors use financial analysis, don't follow the herd, and are long-term investors of quality companies

Famous Value Investors

- Warren Buffet: billionaire and CEO of Berkshire Hathaway
- Benjamin Graham: Buffett's professor and mentor
- Seth Klarman: billionaire hedge-fund manager (Baupost Group)
- Charlie Munger: Vice Chairman of Berkshire Hathaway

Reflexivity

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What is reflexivity?

- This is contrary to the idea of ”traditional value,” where fundamentals only affect price but not vice versa
  - Warren Buffet is a believer of traditional value as opposed to reflexivity
- According to reflexivity, fundamental affect price, but price also affects fundamentals

How can price affect fundamentals?

- In the financial markets, rising prices often attract buyers
- As a result, sometimes higher demand leads to higher prices which leads to even more demand
- This prevents an equilibrium from forming and eventually creates a bubble

Expected Return

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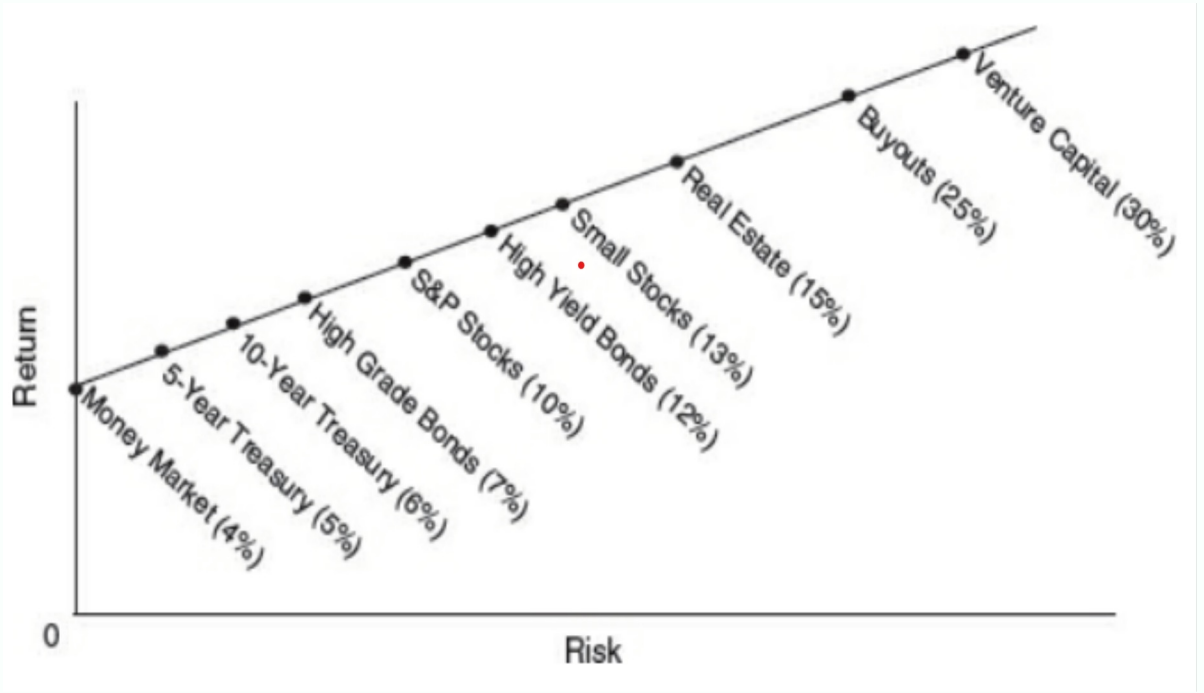
Risk and Return

Return Drivers	Risk Factors
• Yield	• Business Uncertainty
• Earnings Growth	• Price
• Change in Valuation	• Time Horizon
• Macroeconomic changes	• Macroeconomic changes

Risk and Return

- Rational people are (generally) risk averse
- Investors should demand higher rates of return in exchange for taking on more risk
- Therefore, if markets are efficient, the only way to increase your expected return is to take on more risk



Dealing with Risk

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Taking on Risk is Tricky

- Often too many people can be overheard saying, "Riskier investments provide higher returns. If you want to make more money, the answer is to take more risk."
- But riskier investments absolutely cannot be counted on to deliver higher returns. Why not? It's simple: if riskier investments reliably produced higher returns, they wouldn't be riskier!
- The correct formulation is that in order to attract capital, riskier investments have to offer the prospect of higher returns, or higher promised returns, or higher expected returns

Uncertainty

- Uncertainty can be defined as the range of possible outcomes which could occur.
- Uncertainty is an endogenous property
  - This means that it depends on the properties of the security in which we're investing and the macroeconomic environment
  - Can't be controlled by investors
- Three main types of uncertainty:
  - Macroeconomic – How uncertain am I about the macroeconomic future? How much potential is there for discount rates to rise?
  - Firm-Specific - How uncertain am I about the company's future? How will the company fare in a macroeconomic environment which is poor for equities?
  - "Reflexive" - How will the company have to modify its behavior if things don't go as expected? What would the consequences of these modifications be for the company?

Sources of Risk - Price

- There will always be a range of possible outcomes with any given investment
- We can decrease risk by
  - Minimizing the percentage of those outcomes which will result in capital loss
  - Minimizing the size of the expected capital loss in the event that loss does occur
- Both of these goals can be achieved by buying assets when prices are cheap

Sources of Risk – Time Horizon

Short Time Horizon

If our time horizon is short, we care much more about short-term volatility and are generally taking on more risk as a result

When would we have a short time horizon?

- Buying a low-quality business that we think is too cheap
- Shorting a company
- Using excessive leverage

Long time Horizon

If our time horizon is long, we can largely ignore short-term volatility and are generally taking on less risk as a result

When would we have a long-time horizon?

- Buying high-quality businesses that we expect will be able to compound returns over time – i.e. Apple

Catalysts

- The presence of a catalyst serves to reduce risk.
- If the gap between price and underlying value is likely to be closed quickly, the probability of losing money due to market fluctuations or adverse business developments is reduced.
    - In the absence of a catalyst, however, underlying value could erode present one way of dealing with the risk of having a short time horizon

Examples of Catalysts

- Shareholder Activism
- Liquidation
- New Product Launches
- Macro Changes
- Spinoffs
- Asset/Business Sales
- M&A
- Management Change

Key Takeaways

Value investors care about the risk assumed when purchasing an asset, not the uncertainty associated with the asset.

Risk is likely to be lowest when:

1) The uncertainty associated with the asset is low

2) The price of the asset is cheap

3) The asset can be comfortably held for an extended period of time

- Or, if the asset can't be held for a long period of time, we have a strong catalyst for value realization

Growth vs Value

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Traditional Differences

Value

- Generally mature companies with stable cash flows and/or high asset values
  - Strategy for buying focuses more on finding a significant margin of safety and trying to be more certain of the company's DCF valuation
  - Selling strategy involves selling when you believe price and value have converged
  - More limited upside if you are just trying to earn that difference

Growth

- Tend to be more unproven business models
- Investors look for capital compounders that increase the value of the business year over year
- Value is derived from future years which means WACC has a much bigger influence
  - Since the valuation often relies on unpredictable far-in-the-future cash flows, it is difficult to determine the intrinsic value and be certain of a margin of safety

Current State

Currently it is hard to clearly distinguish between value stocks and growth companies. Some of the most established companies in the world are displaying characteristics that would normally only be associated with growth companies. So, this distinction is getting less and less clear. However, there are some key takeaways to consider:

- The qualitative analysis is the same for growth and value investing
- When investing in high growth companies, investors tend to focus more on deeply understanding the sustainability of competitive advantages because that drives the length of the high growth period
- Just because a company is at a 52-week high or stocks are rallying does not mean there are no value opportunities
- The problem with growth stocks is having conviction in a margin of safety given the unpredictability surrounding intrinsic value

Financial Statement Analysis

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Calculating Return on Capital

$$Return\ on\ Invested\ Capital = \frac{Net\ Operating\ Profit\ After\ Taxes}{Avg.\ Invested\ Capital}$$

Shows the return on total invested capital

$$Return\ on\ Equity = \frac{Net\ Income}{Avg.\ Shareholder's\ Equity}$$

Shows the return per dollar of equity invested in the business

$$Return\ on\ Assets = \frac{Net\ Income}{Ave\ Total\ Assets}$$

Shows return per dollar of assets held in the business

Note: Use average in calculations because balance sheet is at a point in time and income statement is over a period of time

Dupont Analysis of ROA

Profit Margin	Total Asset Turnover
• Measure of productivity • How much revenue is the company converting into profit	• Measure of efficiency • For every dollar of assets invested how many dollars of revenue are being generated

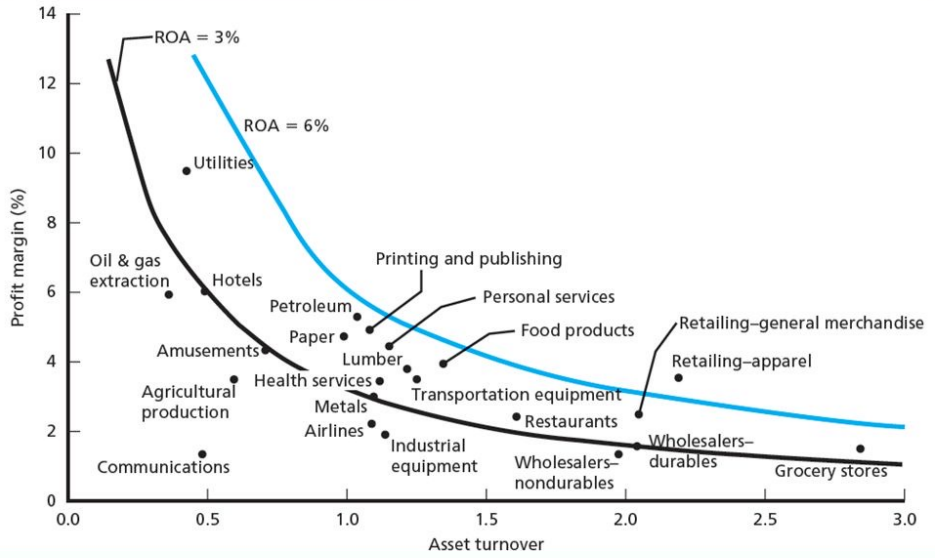
$$\frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Ave Total Assets}}$$

Profit Margin × Asset Turnover

Profit Margin vs Total Asset Turnover

- Profit Margin and Total Asset Turnover are inversely correlated
- High Profit Margin = Low Total Asset Turnover and Vice Versa
- Specific companies can improve their Returns by targeting a higher PM or TAT

Figure 14.2 Median ROA, Profit Margin, and Asset Turnover for 23 Industries



Dupont Analysis – Breaking Down ROIC

ROIC is a variation of ROA that looks at returns on net operating assets

Net Operating Margin	Return on Operating Assets
• Looks at how much profit the operations of a business generates	• Analyzes how much revenue operating assets generate

$$\frac{\text{NOPAT}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Ave Invested Capital}}$$

What goes into creating a stronger ROIC?

$$Return\ On\ Invested\ Capital = \frac{NOPAT}{Revenue} * \frac{Revenue}{Invested\ Capital}$$

Return On Invested Capital

High Margin, Low Turnover

High Turnover, Low Margin

GUCCI

COSTCO WHOLESALE

Companies can boost their ROIC by either improving profit margin or improving inventory turnover. They can rarely do one without sacrificing the other

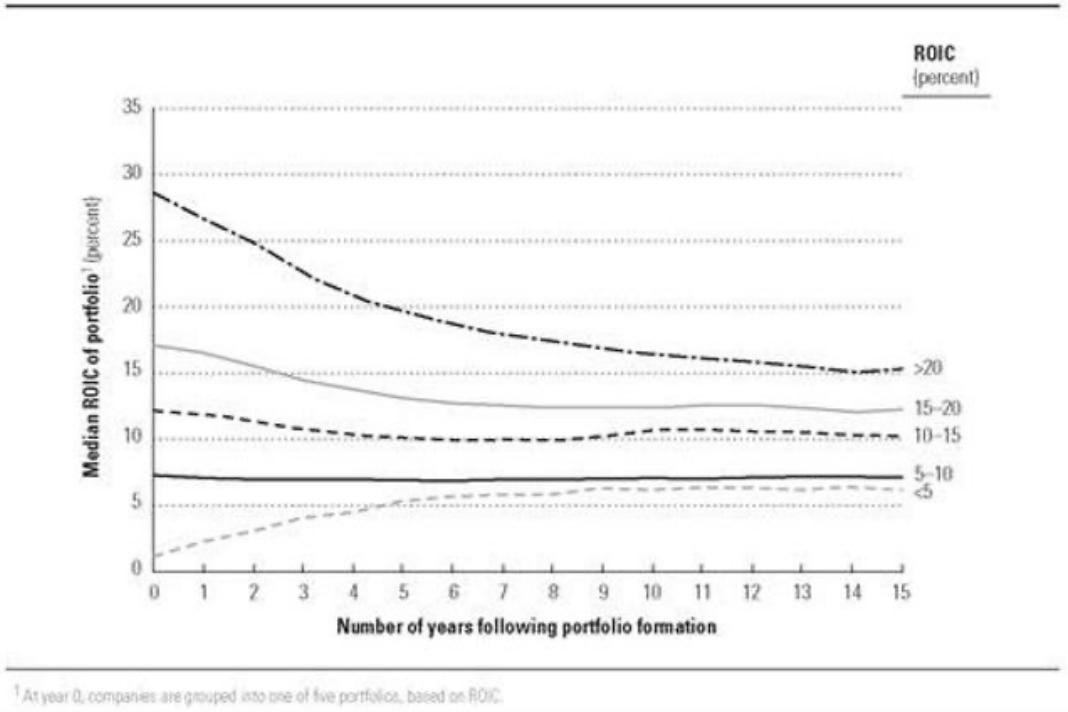
Intrinsic Value Compounding Rate

Intrinsic Value Compounding Rate = ROIC * Reinvestment Rate

- A company can boost its growth by reinvesting into itself
- A high ROIC is nice but can be accelerated by reinvesting into itself and capturing the returns
- Compounding is powerful and can deliver returns in surplus to shareholders

Examining Returns on Capital over time

- Overtime, Return on Invested Capital will revert to the mean ROIC of its' industry
  - If an industry is profitable firms will enter the market and bring returns down (Econ 101)
- Competitive advantages can allow company to maintain above average ROIC in the long run
- Fundamentally, the value of a business is equal a combination of two variables 1) the delta between cost of capital and ROIC and 2) the time duration of that delta

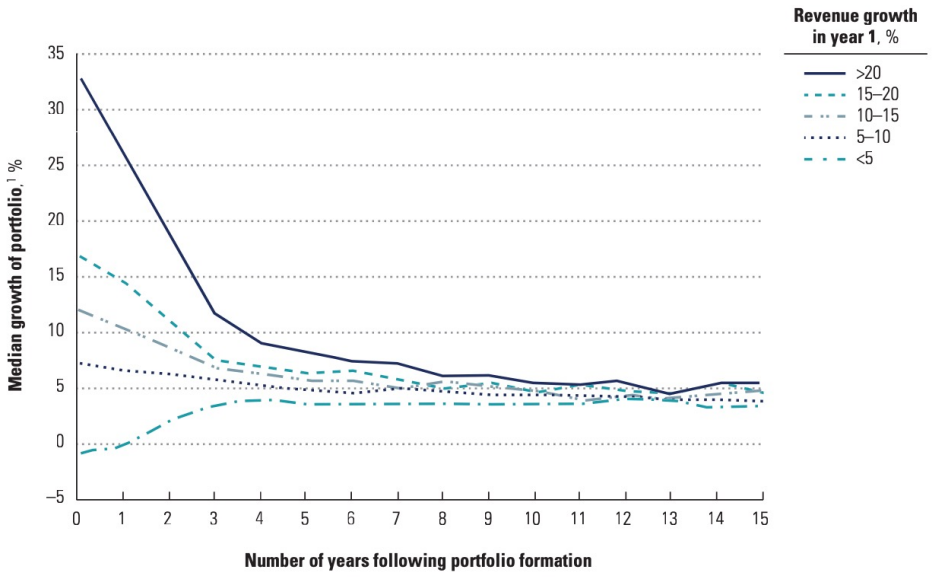


[1] At year 0, companies are grouped into one of five portfolios, based on ROIC.

Examining Growth Over Time

- It is significantly harder to maintain high levels of growth as a company
- It is usually easier to maintain high ROIC than growth

EXHIBIT 7.9 **Revenue Growth Decay Analysis**



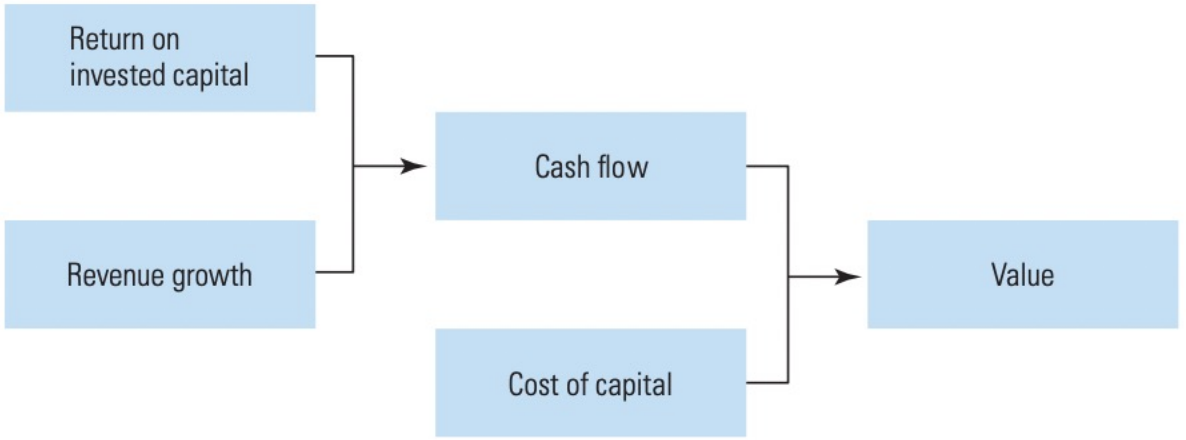
[1] At year 0, companies are grouped into one of five portfolios, based on revenue growth.

Source: Compustat, McKinsey Corporate Performance Analysis Tool.

Drivers of Value

- Growth and ROIC are the main drivers of value
  - Companies face a trade of of keeping high ROIC or keeping high growth
  - Often high growth means lower ROIC

EXHIBIT 2.1 **Growth and ROIC Drive Value**



ROIC vs WACC

- ROIC must be greater than WACC to drive value
  - If you're investing into something that has better alternatives elsewhere, you are destroying value
  - You can increase growth as much as you want, but high growth with ROIC < WACC destroys value

EXHIBIT 2.5 **Translating Growth and ROIC into Value**

Value,[1] $

Growth	7%	9%	13%	25%
3%	800	1,100	1,400	1,600
6%	600	1,100	1,600	2,100
9%	400	1,100	1,900	2,700

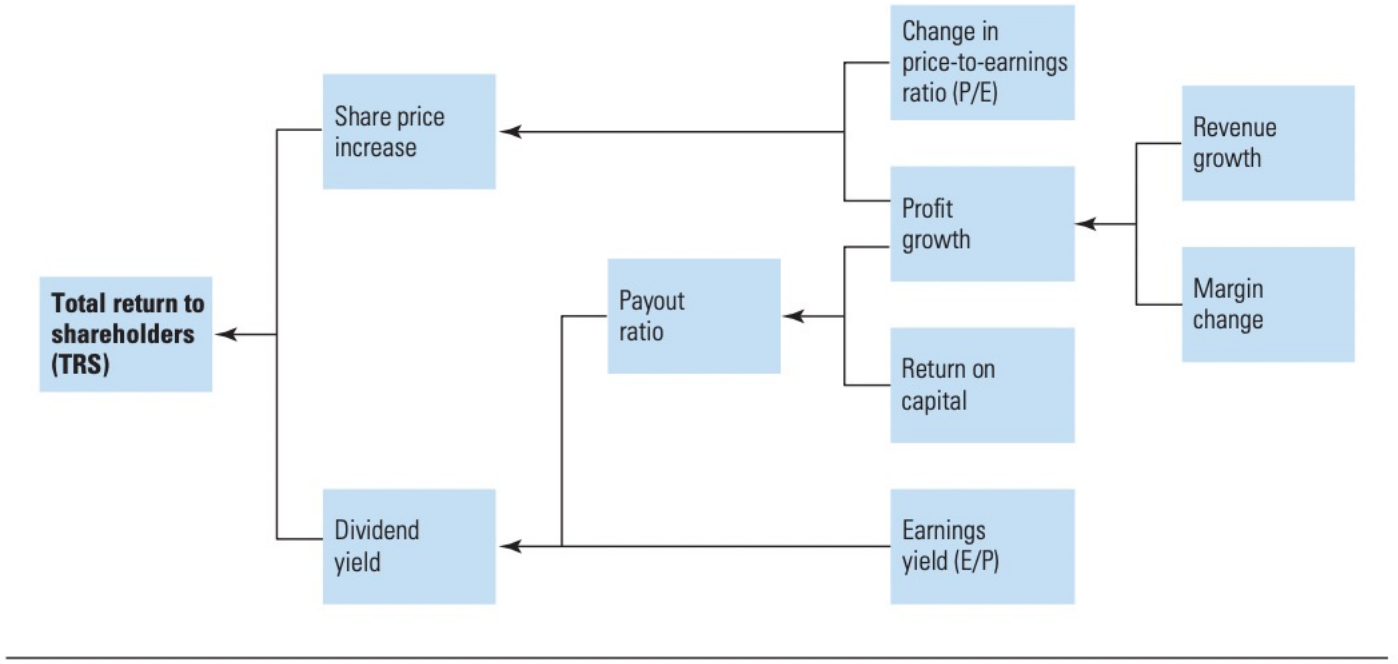
ROIC

[1] Present value of future cash flows, assuming year 1 earnings of $100 and a 9% cost of capital. After 15 years, all scenarios grow at 4.5%.

What Drives Total Shareholder Return?

- Can disaggregate into operational and financial
- Operations
  - Revenue Growth
  - Margin Change
  - Returns on Capital
- Financial
  - Dividend Yield

EXHIBIT 4.3 **Economic Variables That Explain Long-Term TRS**



Advanced Perpetuity Formula

We can further disaggregate the value drivers of a company

$$Value = \frac{NOPAT * \left(1 - \left(\frac{g}{ROIC}\right)\right)}{WACC - G}$$

- Re-Investment Rate = (g/ROIC)
  - Free Cash Flow = NOPAT * (1 – Re-Investment Rate)
  - This is disaggregating free cash flow into growth and returns on capital which we will cover later

Competitive Strategy

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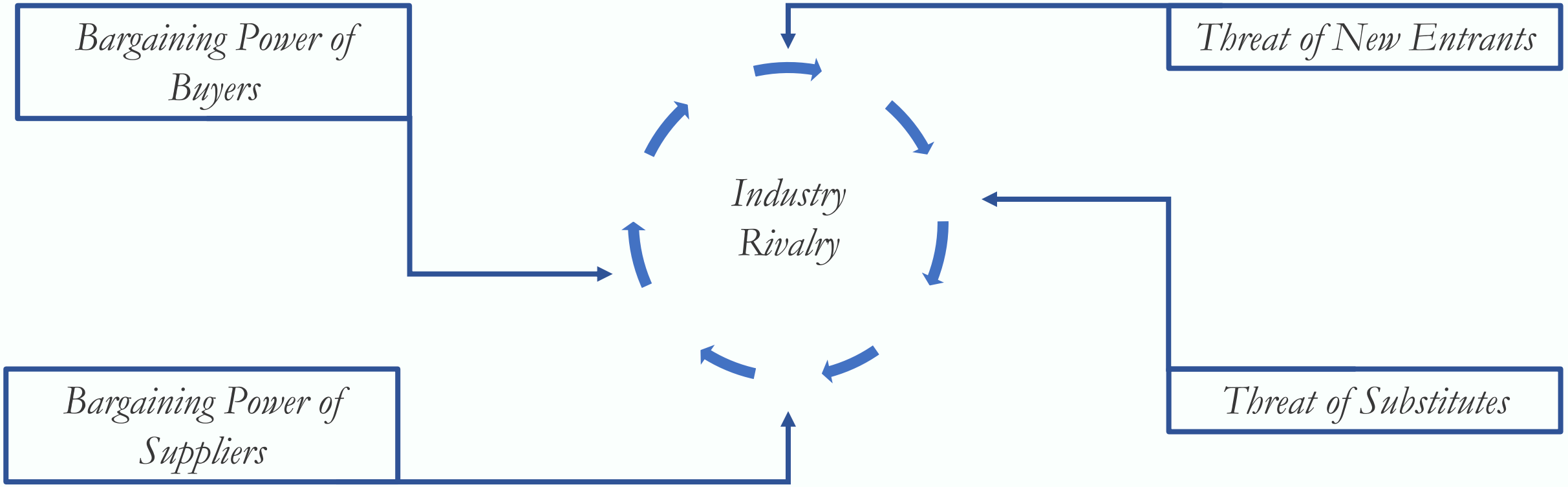
The Goal of All Companies in a Capital Market

- The goal of a company should be to generate value for shareholders. At the simplest level of analysis, there are two components to sustainable value generation.
- First, a company must generate returns on invested capital above its weighted average cost of capital.
- Second, investors must consider the duration that the delta between ROIC and WACC will exist. Introductory economics tells us that returns above cost will attract competition thus driving returns down, so investors must understand what defenses support a longer duration.

Porters 5 Forces: Competitive Fit and Analysis



Industry Rivalry

- Analyzing the Competition of an Industry
- There is a strong link between the number of firms in a market and profitability. The fewer the number of firms the higher the profits (Hou and Robinson (2005)).
- Asset specificity plays an important role in rivalry as well, if a company can adjust their asset base to serve a new market they are more likely to exit the market then compete to the bottom, if the asset is highly specific they will fight tooth and nail to keep their position

Bargaining Power of Buyers

- Analyzing the strength of buyers relative to sellers
- Things to think about
  - Do suppliers outnumber buyers in the industry?
  - Is it easy/cheap for a buyers to switch to another seller?
  - How big are customer orders (can they dictate terms to you)?

Bargaining Powers of Suppliers

- Analyzing how easy it is for your suppliers to raise prices
- Things to think about
  - How many potential suppliers do you have?
  - How expensive would it be for you to switch to another supplier?
  - How unique/specialized is the product they are providing you with?

Threat of New Entrants

- Are there barriers to entry in this market? How easy is it for competitors to join the market?
- Think about
  - Extended network to be competitive?
  - High Capital Requirements?
  - Is the sector tightly regulated?
  - Do new entrants come and go regularly?

Threat of Substitutes

- What products can be used in place of the goods or services you provide?
- Things to think about
  - How unique/differentiated is your product?
  - How close is the substitute (I.e. can customers switch without noticing a major difference)?
  - How inelastic is consumer demand for your product?

Competitive Advantages and Moats

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Economic Moats vs. Competitive Advantages

- Both Moats and Competitive Advantages are qualitative aspects of businesses that help offer them protection against the minimization of their ROIC.
  - Competitive Advantages will fade over time in theory
  - Economic Moats will be longstanding advantages that companies could thrive off

Examples of Economic Moats: Intangible Assets

- Brand Names: Coca Cola, Porsche
- Important to note that brands in and of themselves are not moats. It is better to think about what a brand represents. A brand represents how efficiently a company can provide a good or service. Few consumers continually purchase subpar goods because they see the logo often, rather they associate the brand name with the quality experience of the product. Quality can decline and brand names go with it (see Michael Kors)

Examples of Economic Moats: Switching Costs

- Software: iCloud and Apple, MS Office Suite
- Manufacturing: Supply chains built from relationships

Examples of Economic Moats: Network Effects

- Social Media: Tinder, Hinge, Instagram
- 3rd party sales: eBay, Amazon
- Exchanges: NASDAQ
- Ride Hailing: Uber and Lyft

Examples of Economic Moats: Cost Advantage

- Economies of scale:
  - Walmart, Amazon, TSM
- Low-cost resource base
- Easier access to distribution channels
- Cheaper patented technology

Examples of Economic Moats: Efficient Scale

- Sports: NBA, NFL, NHL
- Niche Markets: Defense Contractors

Questions?

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