



Competitive Analysis

What makes a good business?

TBC New Member Education 2020

Agenda



- What Makes a Good Business



- Economic Profit



- ROIC vs. Cost of Capital



- How to Protect Economic Profit



- Conclusion

Purpose

Two main questions we want to be able to answer

1. **Business Quality**

- How high-quality is the business?
- Is the business one that we would want to own?

2. **Price** (next week)

- How expensive is the business?
- How much does it cost to own part of the business?

Why do we care about business quality?

When we invest in a company's equity, we are buying partial ownership in that company. As a result, we care deeply about the quality of the business.



“An investor should ordinarily hold a small piece of an outstanding business with the same tenacity that an owner would exhibit if he owned all of that business.”

- *Warren Buffett*

“Many individuals as well as institutional investors either ignore or deliberately disregard underlying business value, instead regarding stocks solely as pieces of paper to be traded back and forth.”

- *Seth Klarman, Margin of Safety*



But first, a simple (but important!) question

What is a company's purpose?

Answer: To Make an **Economic Profit**

		<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Profit from Investing \$1	12%	\$1.00	\$1.12	\$1.25	\$1.40	\$1.57	\$1.76
Costs of Borrowing \$1	7%	\$1.00	\$1.07	\$1.14	\$1.23	\$1.31	\$1.40
Economic Profit		\$0.00	\$0.05	\$0.11	\$0.17	\$0.26	\$0.36

Economic Profit = Revenue – Explicit Costs – Opportunity Costs



Return on Capital
This is what accounting profit tries to measure (from last week)



Cost of Capital
The foregone profits due to tying up capital in a business (new)

Breaking Down Economic Profits

Revenue

Price x Volume

- > A business can increase revenue by either increasing prices or increasing volume
- > Not all businesses can do one without inducing an offsetting effect in the other

Explicit Costs

Costs of Inputs
Operating Expenses

- > These are the line items on the income statement that we're familiar with from last week

Opportunity Cost

Cost of Debt
Cost of Equity

- > **Cost of Debt-** How much is the company paying to borrow money
- > **Cost of Equity-** What return do equity holders to be willing to tie up their money in the business

Return on Capital

> ROIC and ROE

Return on Capital

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Three Measurements of Return on Capital

1. Return on Assets (ROA)

- The profits the business generates (for equity holders) for each \$1 of assets held/purchased

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

2. Return on Equity (ROE)

- The profits the business generates for each \$1 of equity (stock) either sold to investors or reinvested in the business as retained earnings

$$\text{ROE} = \frac{\text{Net Income}}{\text{Book Value of Equity}}$$

Three Measurements of Return on Capital

3. Return on Invested Capital (ROIC)

- The return generated by capital invested into a company's business

$$\text{ROIC} = \frac{\text{NOPAT}}{\text{Invested Capital}} = \frac{\text{Operating Income} \times (1 - \text{Effective Tax Rate})}{\text{Total Debt} + \text{Total BV of Equity} - \text{Non-Operating Cash/Assets}}$$

NOPAT

Net Operating Profit After Taxes = NOPAT

Income Statement	
Revenue	\$100.0
Cost of Goods Sold	(40.0)
Gross Profit	60.0
SG&A	\$(20.0)
D&A	(10.0)
Operating Income	30.0
Interest Expense	\$(10.0)
Taxes	(10.0)
Net Income	10.0

- > Net = Excludes non-recurring gains/losses
- > Operating Profit = firm's "profit" to be divvied up (excludes interest profit)
- > After Taxes = removes gov't claim on profits

← Firm's profits to be "divvied" up

← **Bond holders claim on profits**

← Government's claim on profits

← **Stockholders claim on profits**

Operating Income - Taxes = Profits Available to all Stakeholders (Debt + Equity)

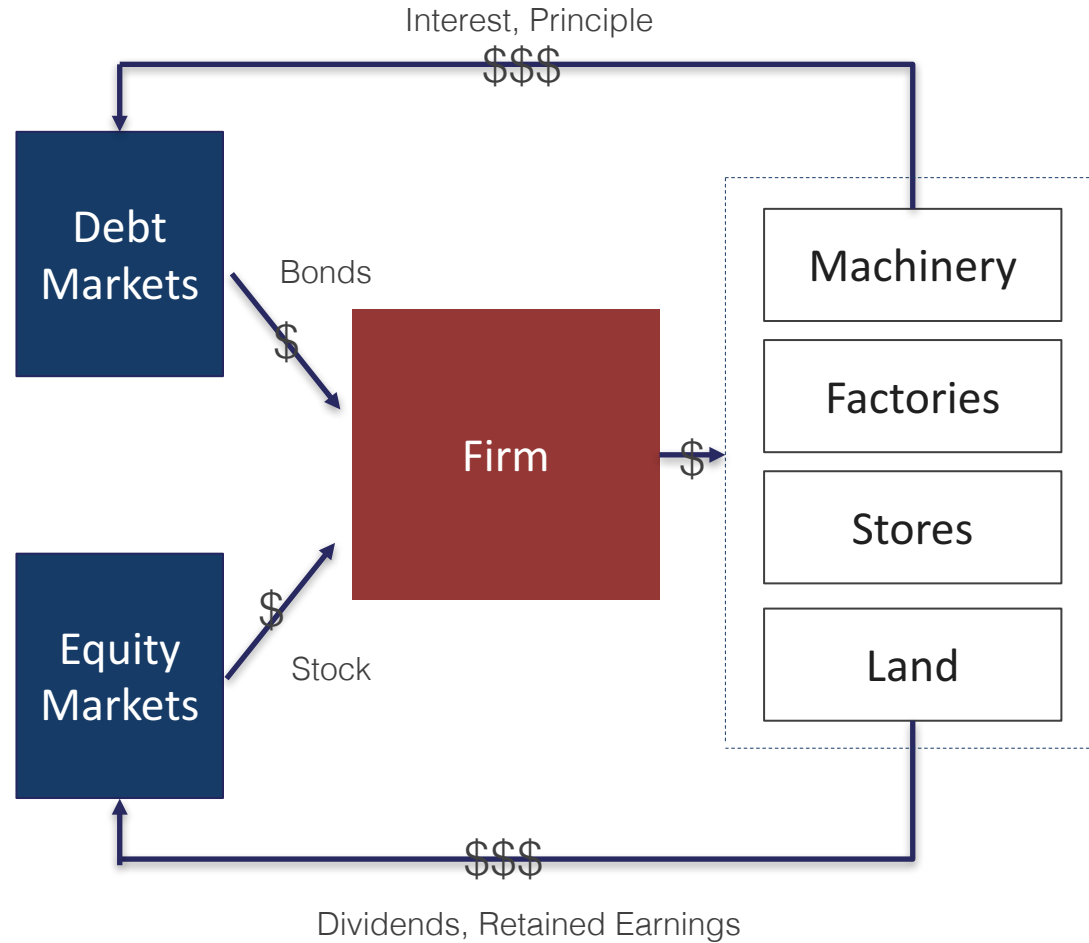
Invested Capital

Invested Capital is the total funds held on behalf of shareholders (equity), lenders (debt), and any other financing sources (preferred stock, minority interest, etc.)

Invested Capital is calculated from the *Balance Sheet* → It is the financial claims on the business

$$\text{Invested Capital} = \text{Total Debt} + \text{Shareholder's Equity} - \text{Non-Operating Cash/Assets}$$

[Represented on the B/S as Debt]



[Represented on the B/S as Shareholders' Equity]

Common ROIC Questions

Question: Why do we use NOPAT instead of net income?

- > NOPAT represents after-tax profits available to all shareholders, so it makes to pair it with a denominator that represents capital provided by all shareholders

Question: Why do we subtract non-operating assets from invested capital?

- > We want to use ROIC to understand a company's operations
- > If we didn't do this it would penalize companies for holding non-operating assets
 - E.g. Apple

Why ROIC?

Return on Assets (ROA)

- > The profits the business generates (for equity holders) for every \$1 of assets purchased

Return on Equity (ROE)

- > The profits the business generates for each \$1 of equity (stock) either sold to investors or reinvested in the business as retained earnings

Return on Invested Capital (ROIC)

- > The profits the business generates for every \$1 invested in the business's operations (stock *and* debt)

Why ROIC?

- ROIC removes the effect of leverage (debt)
 - Thus, when there is no leverage; ROIC = ROE
 - Allows investors to compare companies with different levels of debt
- ROIC allows investors to understand the “true” returns of the entire business
- ROA/ROE can also be distorted by one-time events (like gains on asset sales) because they use *net income* in the numerator

ROIC removes effect of leverage

	Company A	Company B	Company C
Revenue	100	100	100
Costs	80	80	80
Profits	20	20	20
Assets	200	200	200
Debt	0	25	50
Equity	100	75	50
<i>Invested Capital</i>	100	100	100
ROA	10%	10%	10%
ROIC	20%	20%	20%
ROE	20%	27%	40%

How to Think About a Company's Operations

We can break down a company's returns into 1) margins and 2) turnover (plus, in the case of ROE, leverage)

1. Return on Invested Capital (ROIC)

$$\text{ROIC} = \underbrace{\frac{\text{NOPAT}}{\text{Revenue}}}_{\text{NOPAT Margin}} \times \underbrace{\frac{\text{Revenue}}{\text{Invested Capital}}}_{\text{Invested Capital Turnover}}$$

2. Return on Equity (ROE)

$$\text{ROE} = \underbrace{\frac{\text{Net Income}}{\text{Revenue}}}_{\text{Profit Margin}} \times \underbrace{\frac{\text{Revenue}}{\text{Total Assets}}}_{\text{Asset Turnover}} \times \underbrace{\frac{\text{Total Assets}}{\text{BV of Equity}}}_{\text{Leverage}}$$

How to Improve Returns on Capital?

$$\text{ROIC} = \frac{\text{NOPAT}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Invested Capital}}$$

Margin x Turnover

- > Businesses tend towards two types of models (although any combination that produces an economic profit is feasible)
- > You can increase returns on capital by
 - Increasing margins
 - Increasing turnover

Low Margin High Turnover



- > E.g. Low-cost retailers

High Margin Low Turnover



- > E.g. Luxury good sellers

Cost of Capital

> Time Value of Money

Breaking Down Economic Profits

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Explicit Costs

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Time Value of Money

Would you rather receive \$100 today, \$108 a year from today, or \$125 two years from today? Assume a risk-free lending rate at 10%.

t = 0	t = 1	t = 2
\$100	\$110	\$121
\$98.18	\$108	\$118.80
\$103.31	\$113.64	\$125.00

Cost of Capital – Intuition

Basis of Capitalism

- > Money today is worth more than money tomorrow
- > There is value to owning capital because you can use it for activities that will produce more capital in the future

Relationship between Return and Risk

- > Individuals are generally risk-averse
- > To be compensated for investing in a business activity/asset with greater risk, investors must expect a correspondingly greater return
- > E.g. Equity is riskier than debt, so equity investors in a business should (on average) receive higher returns than lenders to that business

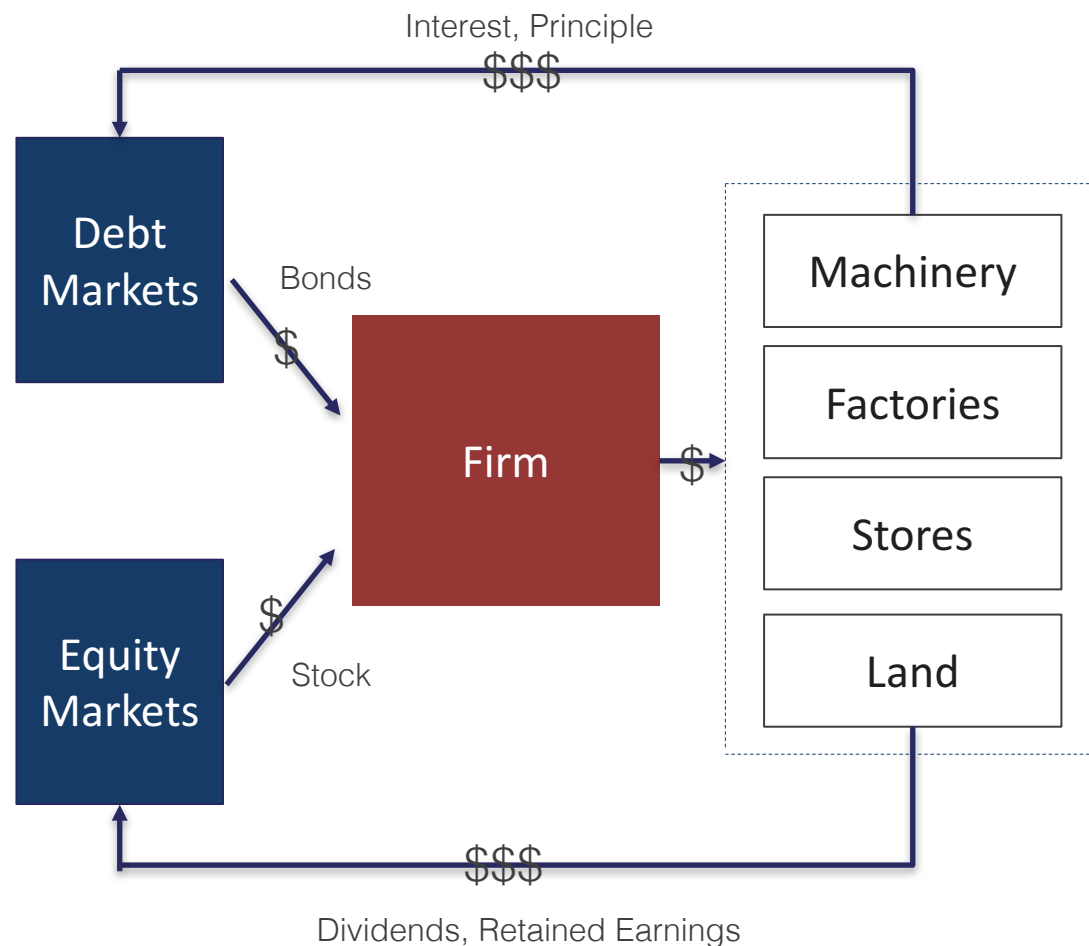
Cost of Capital: In Practice

Debt & Equity markets supply capital to firms, in return they expect the firm to provide an adequate return on this capital

Stocks & Bonds have different risk profiles:

- > Cost of debt \neq Cost of equity

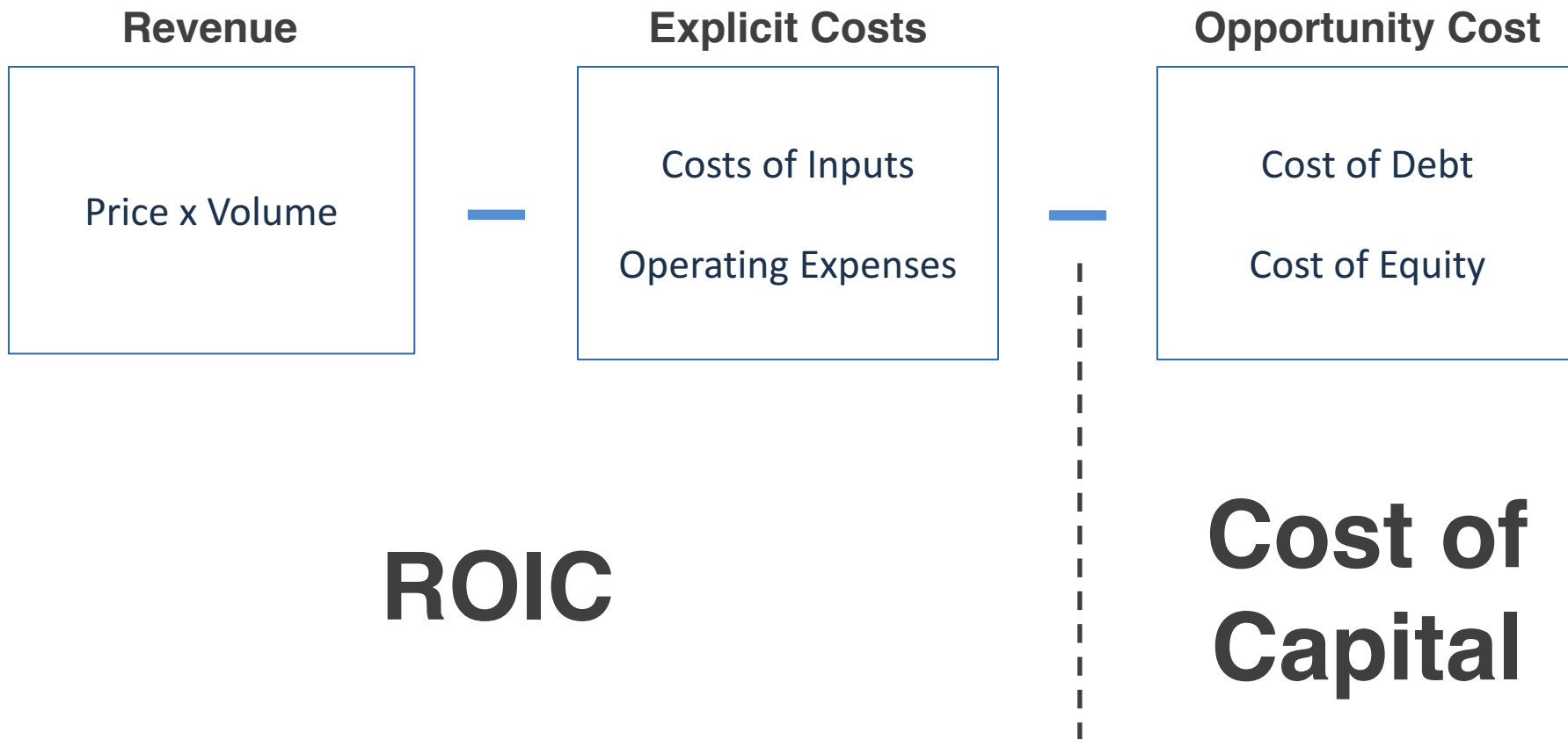
Next Week: How do we calculate cost of equity and cost of debt?



Typically 7-15% expected rate of return on equity

ROIC vs. Cost of Capital

Return on Capital



$$\text{Economic Profits} = \text{ROIC} - \text{Cost of Capital}$$

Intuition

A company's primary objective is to earn returns on capital greater than its cost of capital

Inputs- Financial Statements

Income Statement	
Revenue	\$100.0
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Taxes	(10.0)
Net Income	10.0

Balance Sheet	
<u>Assets</u>	
Cash	10
Receivables	10
Inventory	30
PP&E	150
Total Assets	200
<u>Liabilities & S/E</u>	
Payables	20
Short-term debt	10
Long-term debt	70
Total Liabilities	100
Shareholders' Equity	100

ROIC vs. WACC	
Operating Income	\$35.0
Net- Adjustments	5.0
Net Op. Income (NOI)	40.0
Less Adjusted Taxes @ 35%	(14.0)
NOPAT	\$26.0
Total Debt	80.0
Shareholders' Equity	100.0
Invested Capital	\$180.0
ROIC	14%
Cost of Debt	6%
Cost of Equity	12%
Debt/Invested Capital	44%
Equity/Invested Capital	56%
Weighted Avg. Cost of Capital	9%
Economic Profit Spread	5%

Power of Compounding

High returns on invested capital are nice, but reinvestment opportunities are just as important

Intrinsic Value Compounding Rate = ROIC x Reinvestment Rate

Company A

- > 20% Return on Invested Capital
- > **Can reinvest 100% back into the business**
- > **Intrinsic value compounds by 20% annually** (20% ROIC times 100% reinvestment equals 20% growth rate)

Company B

- > 20% Return on Invested Capital
- > **Reinvests half of earnings**
- > **Intrinsic value compounds by 10% annually** (20% ROIC times the 50% reinvestment rate equals a 10% growth rate)

Both companies will show up in screeners as having a 20% ROIC, but the one that can reinvest at high rates clearly makes for a superior investment

Reinvestment Rate

$$\text{Sustainable Growth} = \text{ROIIC} * \text{Reinvestment Rate}$$

Walmart ROIC Profile			
<i>\$ in billions</i>	2006	2016	Change
Net Income	\$11.2	\$14.7	\$3.5
Equity	\$53.2	\$80.5	
Debt & Capital Lease Obligations	\$35.0	\$46.7	
Less Goodwill	\$12.2	\$16.7	
Total Capital Invested	\$76.0	\$110.5	\$34.5
Cumulative 10 Year Earnings	\$147.9		
Incremental Capital Invested	\$34.5		
Reinvestment Rate	23.3%		
Return on Incremental Capital Investments	10.1%		
Value Compounding Rate of the Company	2.4%		
10 Year CAGR for WMT Stock	4.0%		

ROIIC: Return on **Incremental** Invested Capital

- > Incremental Earnings / Incremental Total Capital Invested

Reinvestment Rate

- > Amount of Incremental Capital Invested / Total Earnings
- > Measures how much of total earnings is being reinvested in the company

Walmart Example

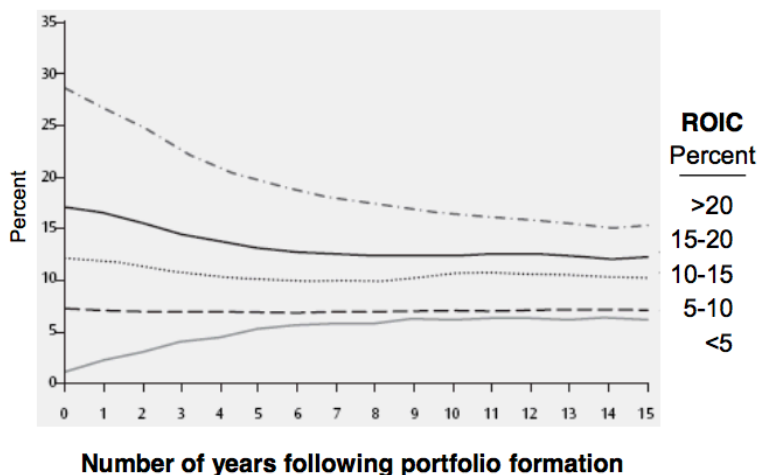
- > Walmart invested \$34.5b of additional debt and equity capital between 2006 and 2016
- > Grew earnings by \$4.5 billion
- > Incremental earnings / Incremental Invested Capital = 10.1% ROIIC

ROIC vs. Earnings Growth

ROIC Decay Analysis

- > ROIC demonstrates a pattern of mean reversion
 - Companies earning high returns tend to gradually fall over the next fifteen years and companies earning low returns tend to rise over time
- > However, there is a continued persistence of superior performance (ROIC does not fully regress to the aggregate median of 9 percent)

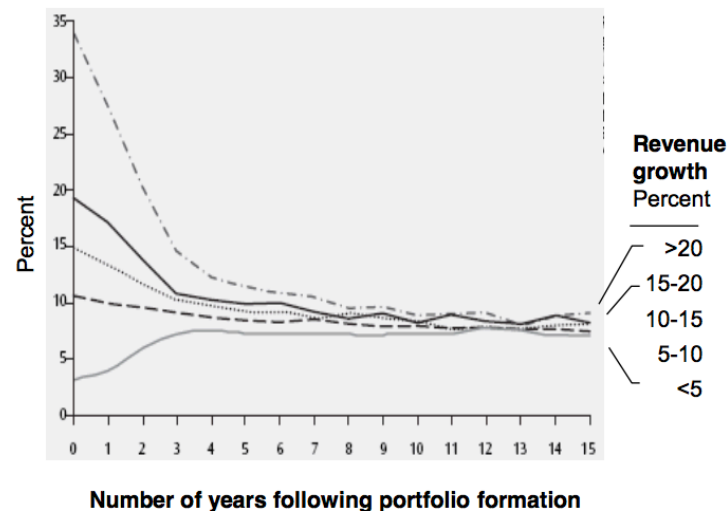
Median ROIC of portfolio*



Growth Decay Analysis

- > **Growth decays very quickly**; for the typical company, high growth is not sustainable
- > By year five, the highest growth portfolio outperforms the lowest- growth portfolio by less than 5%
- > **ROIC is much more persistent than growth** (high ROIC companies often continue to generate high ROIC)

Median growth of portfolio*



Protecting an Economic Profit

The Most Important Question

How does a business persistently earn more than its cost of capital?

(And if a company is earning more than its cost of capital, how do we know whether this will continue?)

Answer: Competitive Advantages



Persistent profits come not from growth, but from **competitive advantages.**

- > A company needs something that prevents others from entering the market and replicating their business (driving economic profits down to 0)
- > A **competitive advantage** prevents this from happening, thereby allowing a business to earn returns above their cost of capital over extended periods of time

Where do Competitive Advantages Come From?

There are three main (generic) sources of competitive advantages

1. Cost Advantages

- Ability to sell a product with a lower cost basis than similar competitors' products
 - Earn higher margins than others by matching prices
 - Earn more revenue than others by charging lower prices

2. Differentiation

- Ability to sell a product at a premium to its cost basis due to unique features that customers are willing to pay for
 - Earn higher margins than others by charging premium prices
 - Earn more revenue than others by matching prices and winning on quality

3. Focus

- Business is particularly well-suited to a particular niche

Moats

> *Translating Competitive Analysis to Moat Analysis*

Economic Moats

An **economic moat** is a competitive advantage that is particularly *sustainable* over a long period of time

Example – Apple:

- > **Economic Moats-** Brand name, difficulty of leaving Apple's ecosystem if you're currently in it
- > **(Transient) Competitive Advantages-** Face ID technology, better touchpads on laptops, exclusive album release on Apple Music

Moats are the key to long-term economic profits

- > Generally **inherent** to the business (although this can change)
- > Moats are most often characterized by **strong barriers to entry**
- > Can be analyzed by studying long-term ROIC vs. Cost of Capital

Most Common Types of Moats

1. Intangible Assets



2. Switching Costs



3. Network Effects



4. Cost Advantages



5. Efficient Scale



Intangible Assets

Assets which allow a company to protect its production process and/or charge premium prices

Examples

- > Brands
 - Not all brands are moats. (e.g. Uber, Ford)
 - E.g. Apple, Porsche, etc.
- > Patents
 - E.g. Pharmaceuticals (Pfizer), Technology (Intel), Qualcomm, etc.
- > Licenses & Government Approvals
 - E.g. Public Utilities, Telecom (Comcast), etc.
- > Trade secrets
 - E.g. Coca Cola recipe
- > Corporate Culture
 - E.g. Bridgewater

Switching Costs

High costs that dissuade customers from switching to a competitor's product, brand, or services

Examples

- > Software
 - Adobe (Photoshop), Microsoft (MS Office)
- > Surgical Supplies
 - Zimmer, Stryker, etc.
- > Manufacturing
 - TSMC, Foxconn, etc.

Network Effects

A network effect is present when the value of a service grows as more people use a network

As more people join a network, the number of possible connections grows exponentially

Examples

- > Sales Platforms
 - Amazon, Apple, Bloomberg
- > Payment
 - MasterCard, Visa, Western Union
- > Social Media
 - Facebook, Twitter, Instagram
- > Stock Exchanges
 - NYSE, NASDAQ

Cost Advantage

Allows firms to maintain lower operating expenses and have the option to undercut competition

Examples

- > Economies of Scale
 - Distribution: UPS, Walmart, Amazon, Southwest Airlines
 - Manufacturing: Intel, GE, BMW
- > Low-Cost Resource Base
 - Real Estate, Transportation, Natural Resources
 - E.g. Saudi Aramco

Efficient Scale

When a company serves a market limited in size, only one or a few competitors can compete effectively

Examples

- > Natural Geographic Monopolies
 - Airports, pipelines, sports teams, utilities
- > Niche Markets
 - Defense companies
- > Rational Oligopolies
 - Canadian banks

What's **NOT** an Economic Moat?

- > Size/Dominant Market Share: High market share does not give a firm a moat (e.g. Compaq, Kodak, GM)
- > Technology: When one smart engineer can invent, another engineer can make even better
- > Hot Products: Can generate high returns on capital for a short period of time, but sustainable returns are what make a moat
- > Process: Can be imitated with time (unless patented)
- > Management:
 - “I try to buy stock in businesses that are so wonderful that an idiot can run them. Because sooner or later, one will.” - Warren Buffett

Competitive advantages can be short. When a competitive advantage is particularly sustainable, we will call it an economic moat.

Porter's 5 Forces

> *One possible framework you can use for competitive analysis*

Understanding Competition

- > Competition is not just about products (ex. Coke vs. Pepsi)
- > Competition is always dynamic, never static
- > Industries (just like their products) evolve too
- > Firms compete with competitors, suppliers, customers, and substitute products in order to maximize their profits



There are many factors that shape competition...

Supply Factors

- Competition
- Fragmentation/Consolidation
- Intensity of Rivalry
- Competitors' Motivations
- Availability of Supplies
- Bargaining Power
- Labor Factors
- Distributor Channels/Capacity
- Industry Capacity
- Product Duration
- Government Regulations
- Substitute Products
- Entry Barriers
- Exit Barriers
- Ability to Increase Capacity
- Competitor Geography
- Technology/Innovation

Demand Factors

- Customers' Fragmentation/Consolidation
- Elasticity of Demand
- Customers' Motivations
- Customer Geography
- Substitutes Available
- Product Applications
- Demand Trends
- Demand Growth Rate
- Complementary Products
- Distribution Outlets/Capacity
- Product Duration
- Shot-Term vs. Long-Term Factors
- Macro-Economic Factors
- Backward Integration
- Government Regulation
- Technology/Innovation

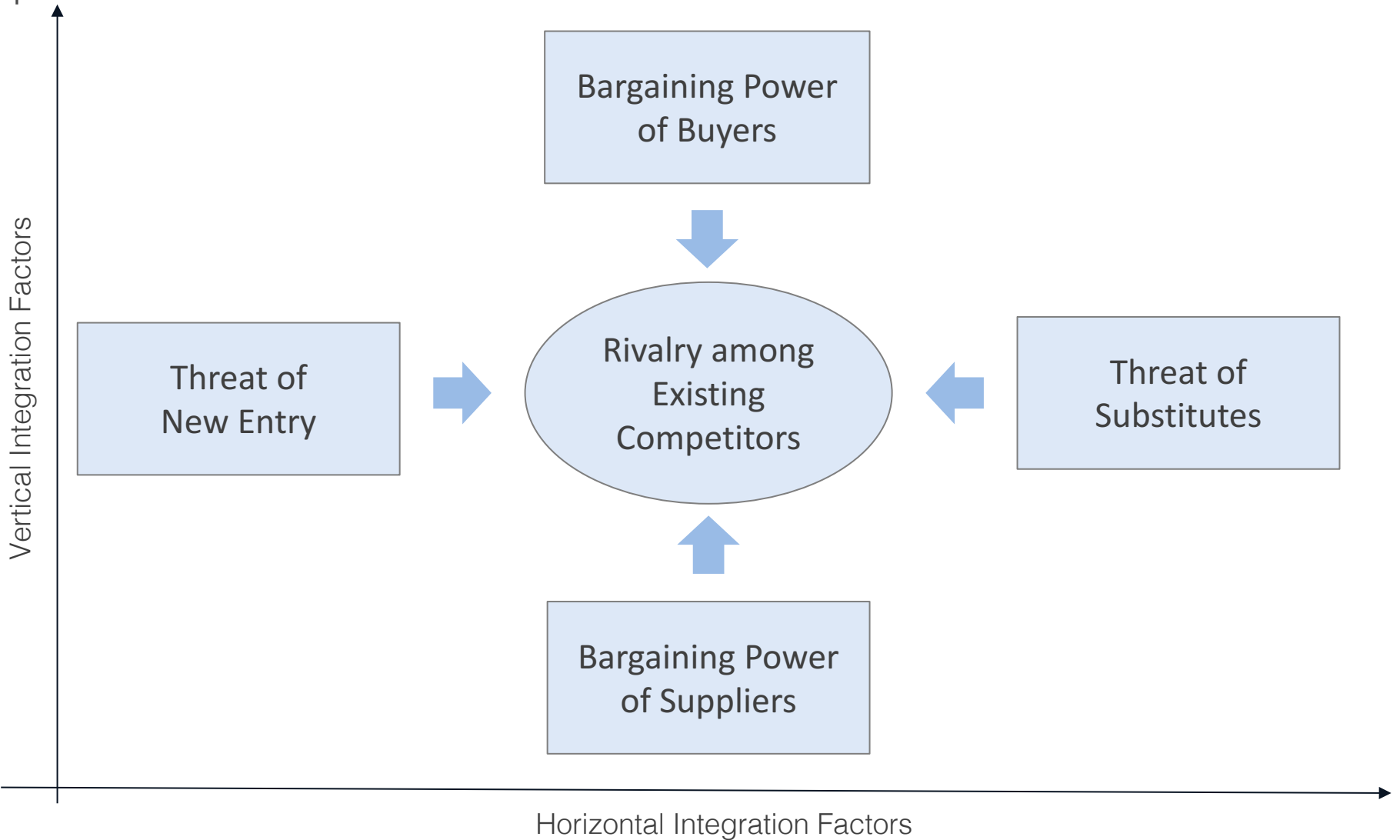
Solution: Porter's 5 Forces

Porter's 5 forces is a framework used to assess the attractiveness of a business on the basis of competition (and the potential for future competition) within its industry

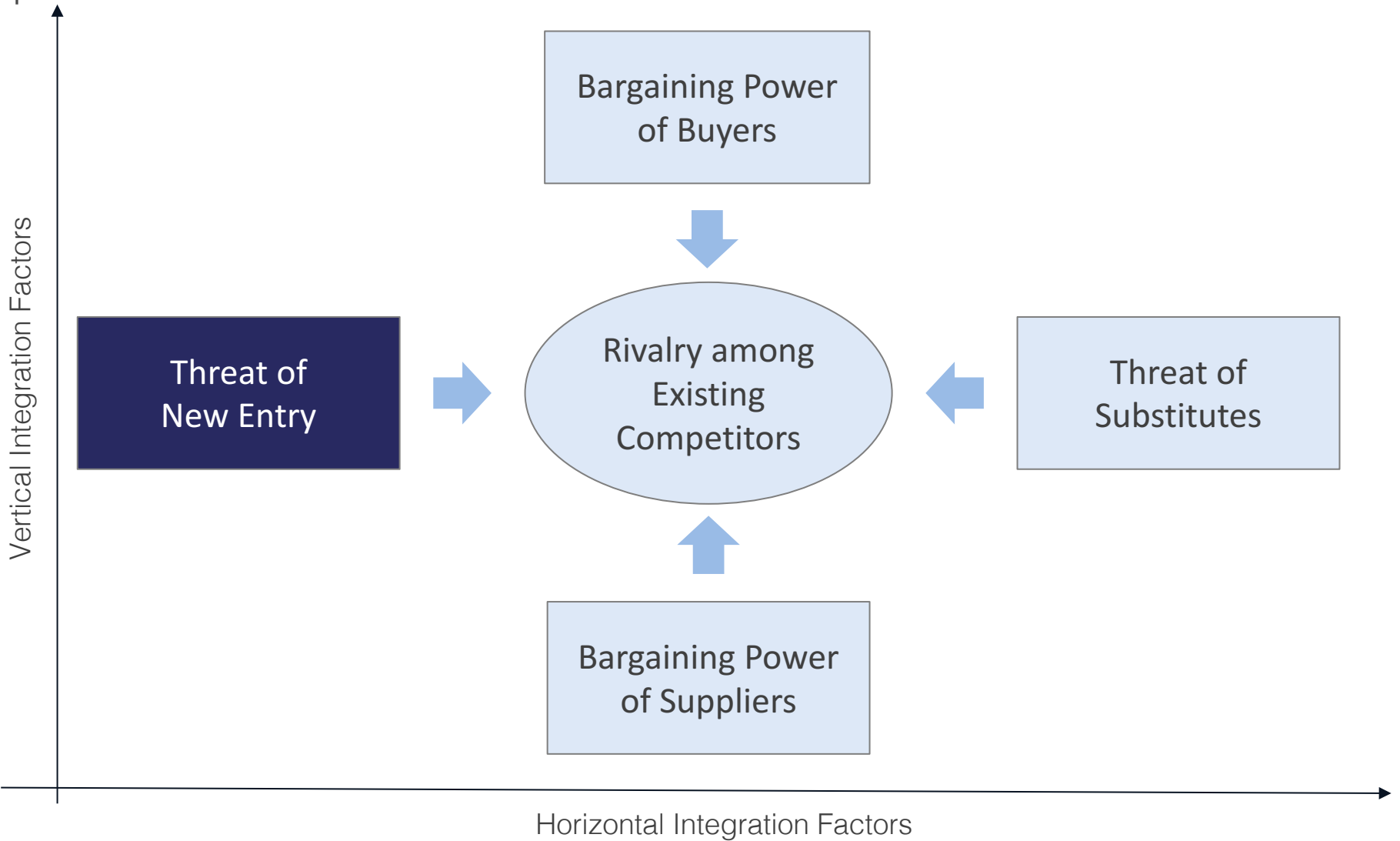
Porter's 5 forces can be used to...

- > Highlight areas in which industry trends may pose threats or opportunities
- > Analyze a company's competitive advantages and disadvantages
- > Try to understand why a company's historical returns on capital are particularly high (or low)

Five Forces Model



Five Forces Model



Threat of New Entry

Main Idea: High returns attract new firms; entrants will decrease profitability for all firms

Question: How can an incumbent firm have a low threat of entry?

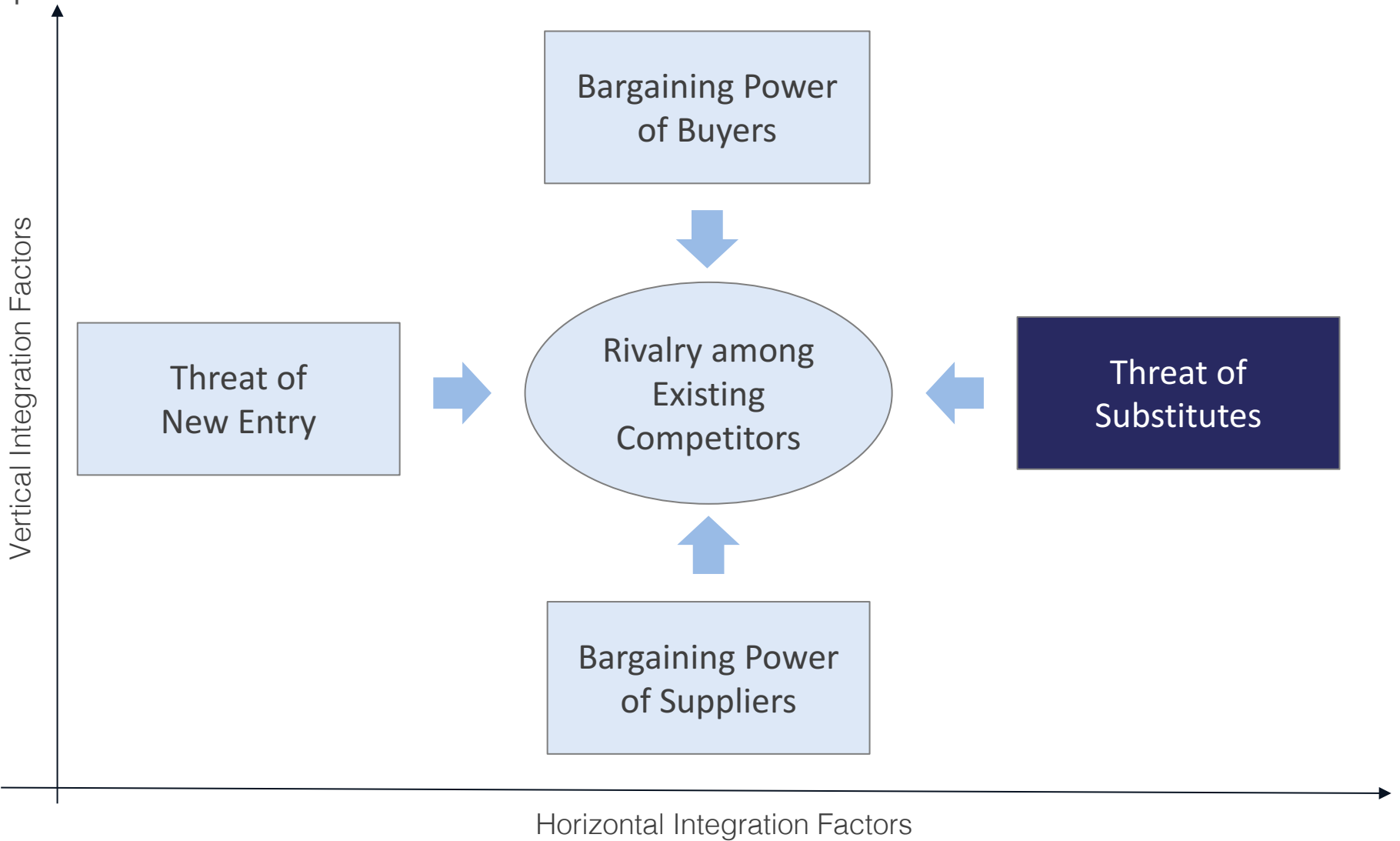
Barriers to Entry

- > Economies of Scale
- > Product Differentiation
- > Customer Loyalty
- > Capital Requirements
- > Switching Costs or Sunk Costs
- > Access to Distribution Channels
- > Regulation/Licenses/Patents
- > Expected Retaliation

Barriers to Entry	
High	
Low*	

*: Entry barriers are dynamic. The expiration of Polaroid's basic patents on instant photography greatly reduced the absolute cost entry barrier for Kodak.

Five Forces Model



Threat of Substitutes

Main Idea: Products with similar functions limit pricing power

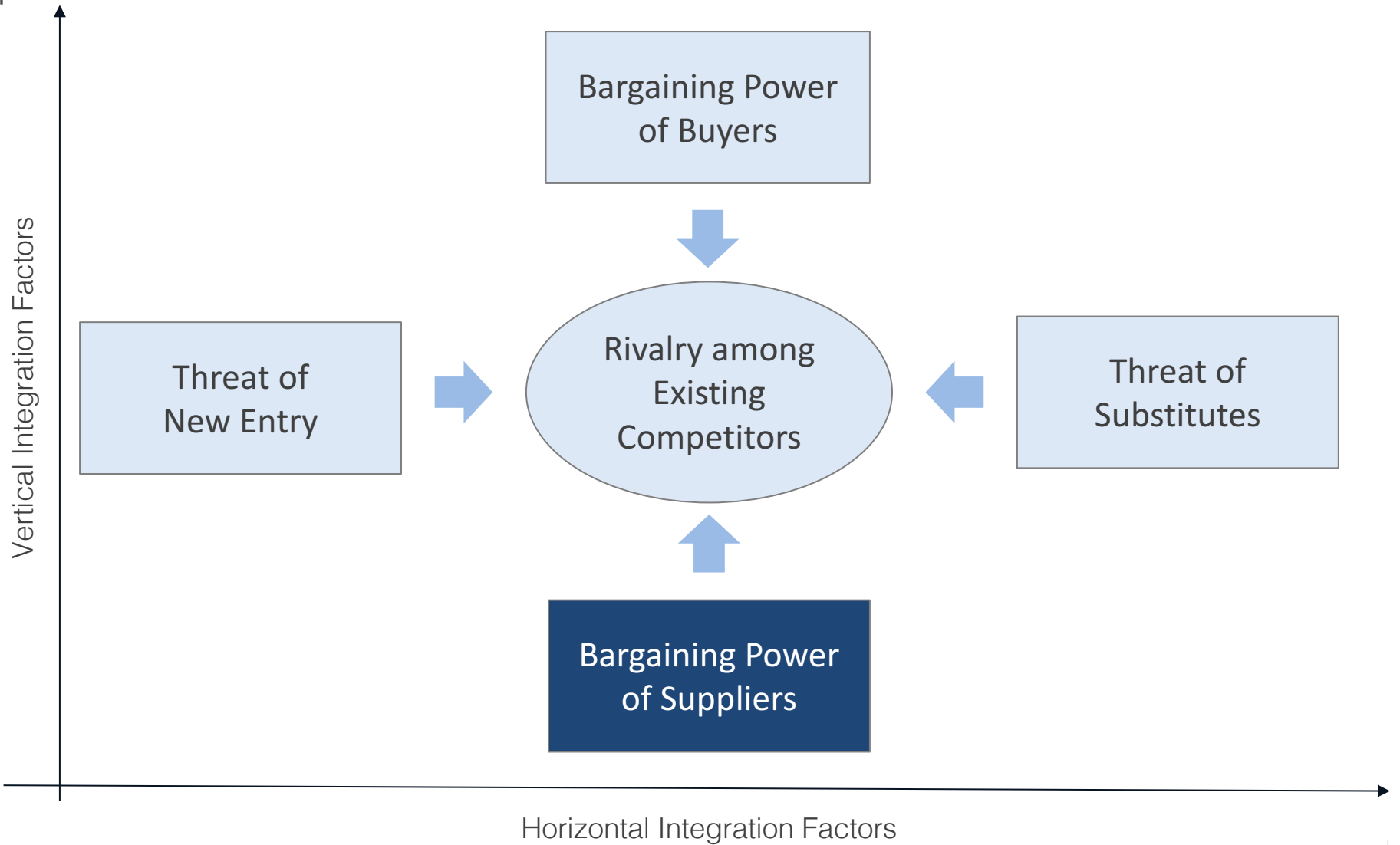
Examples

Keys to Evaluating Substitutes:

- > Buyer switching costs
- > Number of substitute products
- > Substandard product
- > Quality depreciation
- > Buyer propensity to substitute
- > Perceived level of product differentiation
- > Relative price performance of substitute



Five Forces Model



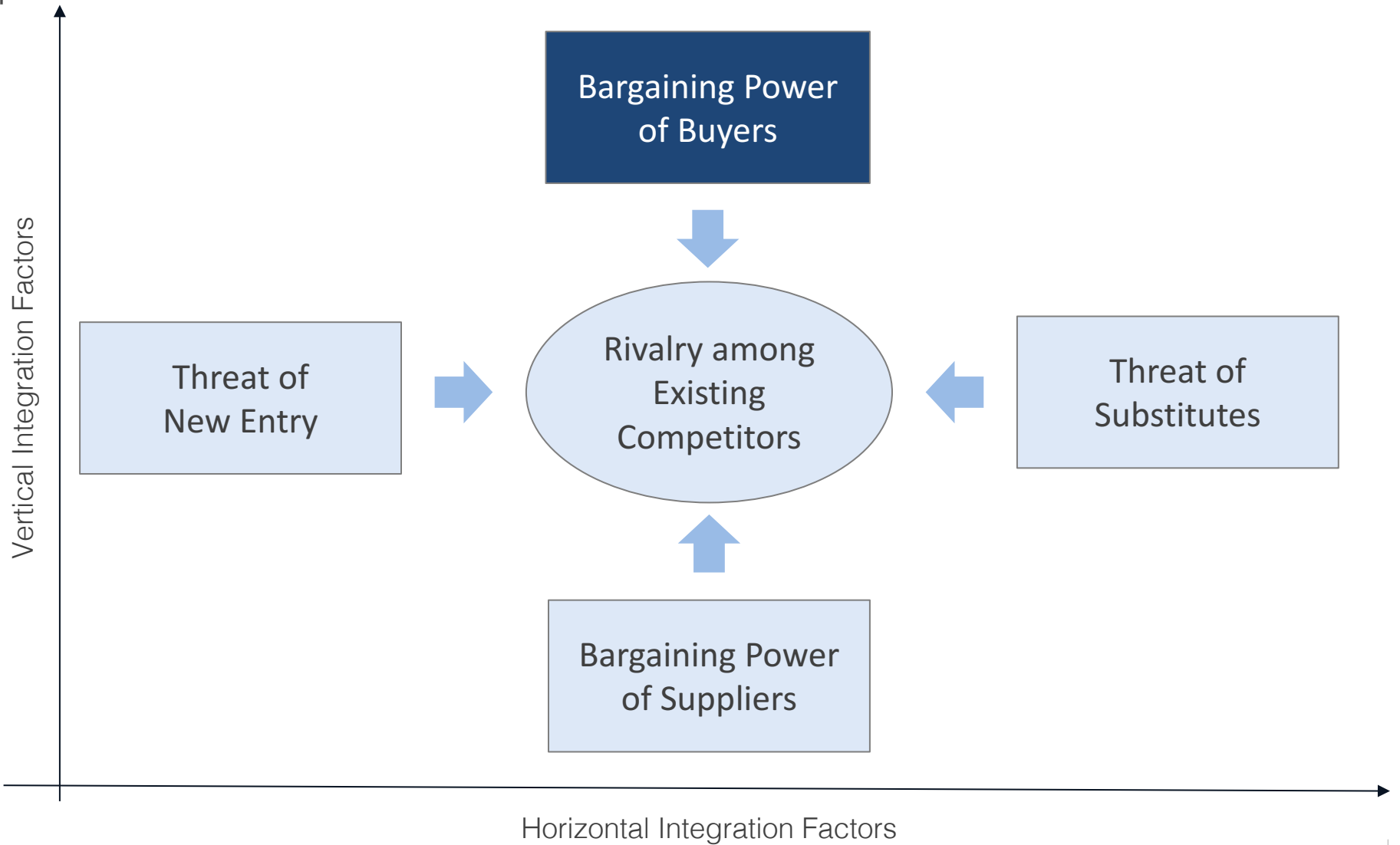
Bargaining Power of Suppliers

Main Idea: Powerful suppliers can squeeze profitability out of an industry.

Question: When are suppliers powerful?

Suppliers are powerful when:	Examples
Few suppliers	Boeing and Airbus control +50% of airplane manufacturing market
High buyer switching costs	Microsoft's relationship with PC manufacturers
Threat of forward integration	Samsung went from being an iPhone supplier to making their own phones
Few substitutes for supplies	Few substitutes for medical drugs
Buyer not important to supplier	If you buy in bulk, you get a better deal
Supplier is important to buyer	Foxxcon manufactures most of Apple's products
Buyers have imperfect information	When it's hard to get competitors' prices
Product is highly differentiate	Surgical equipment, airplane parts, etc..

Five Forces Model





Bargaining Power of Buyers

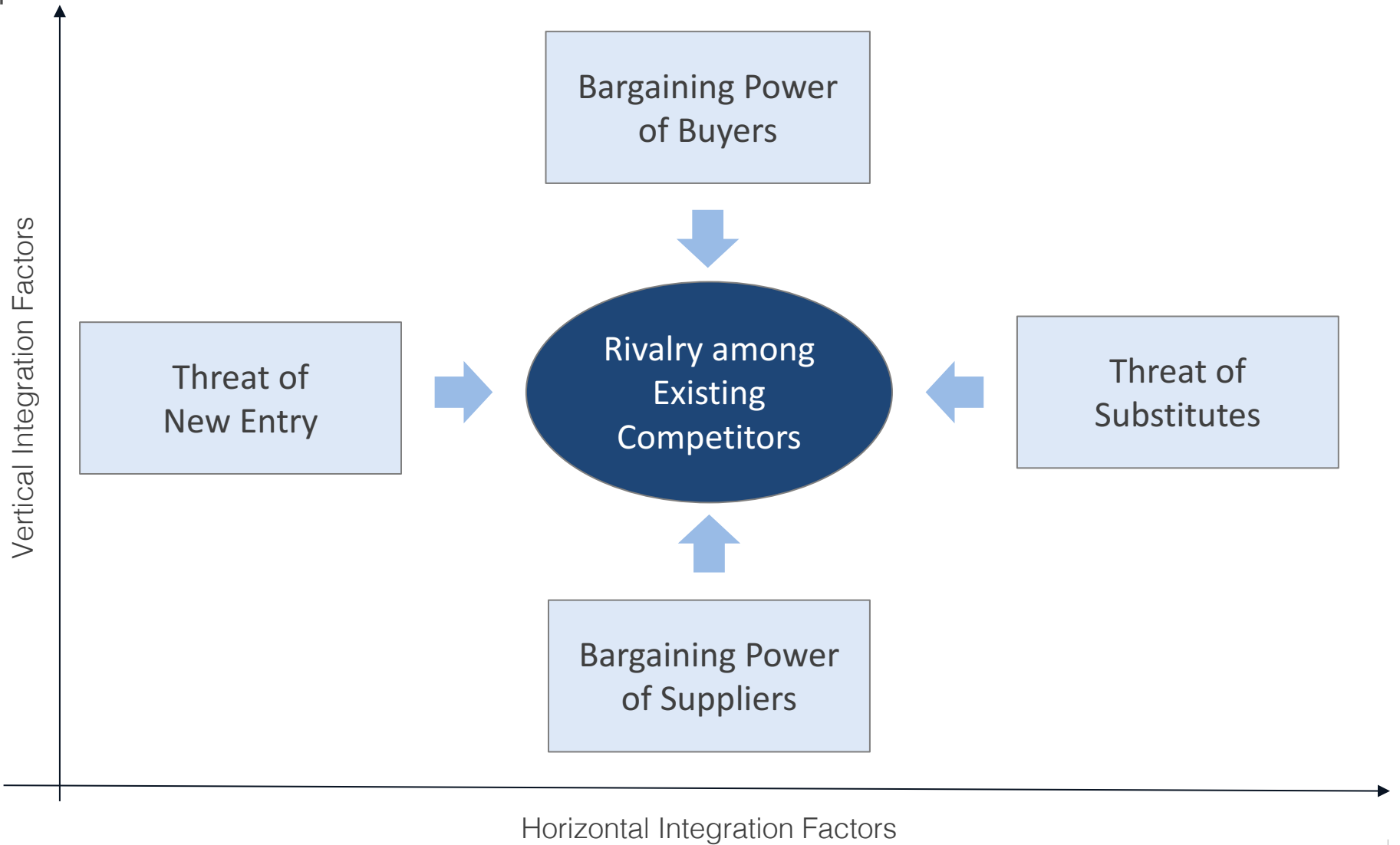
Main Idea: Powerful buyers can squeeze profitability out of an industry

Question: When are buyers powerful?

Buyers are more powerful when:
High concentration of buyers
Product is important to supplier
Few switching costs
Available substitutes
Threat of backward integration
Buyers have full information
Product is undifferentiated
Saturated market of suppliers

Customers' Bargaining Power	
Strong	
Weak	

Five Forces Model





Rivalry among Existing Competitors

Main Idea: High competition reduces profitability.

High competition often due to:

- > Numerous equally balanced competitors
- > Slow industry growth
- > High fixed or storage costs
- > Lack of differentiation
- > Low switching costs
- > Diverse competitors
- > High exit barriers
- > Low entry barriers & profitability
- > Low regulation

Types of Competition	
“Gentlemanly”	
Fierce; based on price wars	



Porter's 5 Forces Case Study: Starbucks

Overview: Starbucks Corporation, an American company founded in 1971 in Seattle, WA, is a premier roaster, marketer, and retailer of specialty coffee around the world.

Rivalry among Existing Competitors High

- > Many competitors like Costa, McDonald's, Caribou Coffee, and Dunkin Donuts and thousands of small local coffee shops and cafes
- > Competitors often compete on price, low level of product differentiation, international growth opportunities

Bargaining Power of Buyers High

- > No switching cost for customers, abundance of choices with full price information available, many customers are price sensitive
- > Counterargument: habits can be surprisingly strong

Bargaining Power of Suppliers Moderate

- > Climates restrict coffee bean supplies to a few regions, but suppliers themselves are fragmented

Porter's 5 Forces Case Study: Starbucks

Threat of Substitutes Low

- > Many substitutes, including tea, juices, soft drinks, and energy drinks, but coffee consumption is relatively inelastic
- > Potential threat of household coffee and bars/pubs for social experience

Threat of New Entry Low

- > Market is highly saturated, and substantial amount of capital is needed to gain national scale

Conclusion:

High competition forces are pushing returns down to moderate levels, but supply is stable due to moderate entry barriers and low threat of substitutes. Demand is stable and growing (due to international opportunities), thus providing potentially attractive avenues for firms.

Common Pitfalls: Porter's 5 Forces

- > Defining the industry too broadly or too narrowly
- > Making lists instead of engaging in rigorous analysis
- > Paying equal attention to all of the forces rather than digging deeply into the most important ones
- > Using static analysis that ignores industry trends
- > Confusing cyclical or transient changes with true structural changes
- > Using the framework to declare an industry attractive or unattractive, rather than using it as a guide for strategic decisions

Takeaways

1. Investing is buying fractional ownership in a business, so we care deeply about the quality of the business that we're buying
2. High-quality businesses are those which are able to earn returns above their cost of capital
3. Competitive analysis gives investors the tools needed to evaluate whether a business will be able to earn returns above cost of capital
4. Economic moats are particularly sustainable competitive advantages—they are the key to earnings ROIC > Cost of Capital over long periods of time
5. Most investors spend the large majority on competitive analysis (and rightfully so!) because it's the most difficult part of investing

Questions?

”A truly great business must have an enduring ‘moat’ that protects excellent returns on invested capital.”

- Warren Buffett (2008)