

**PRINCIPLES OF
SECURITY VALUATION:
TOP-DOWN ANALYSIS**

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FUNDAMENTAL V. TECHNICAL ANALYSIS

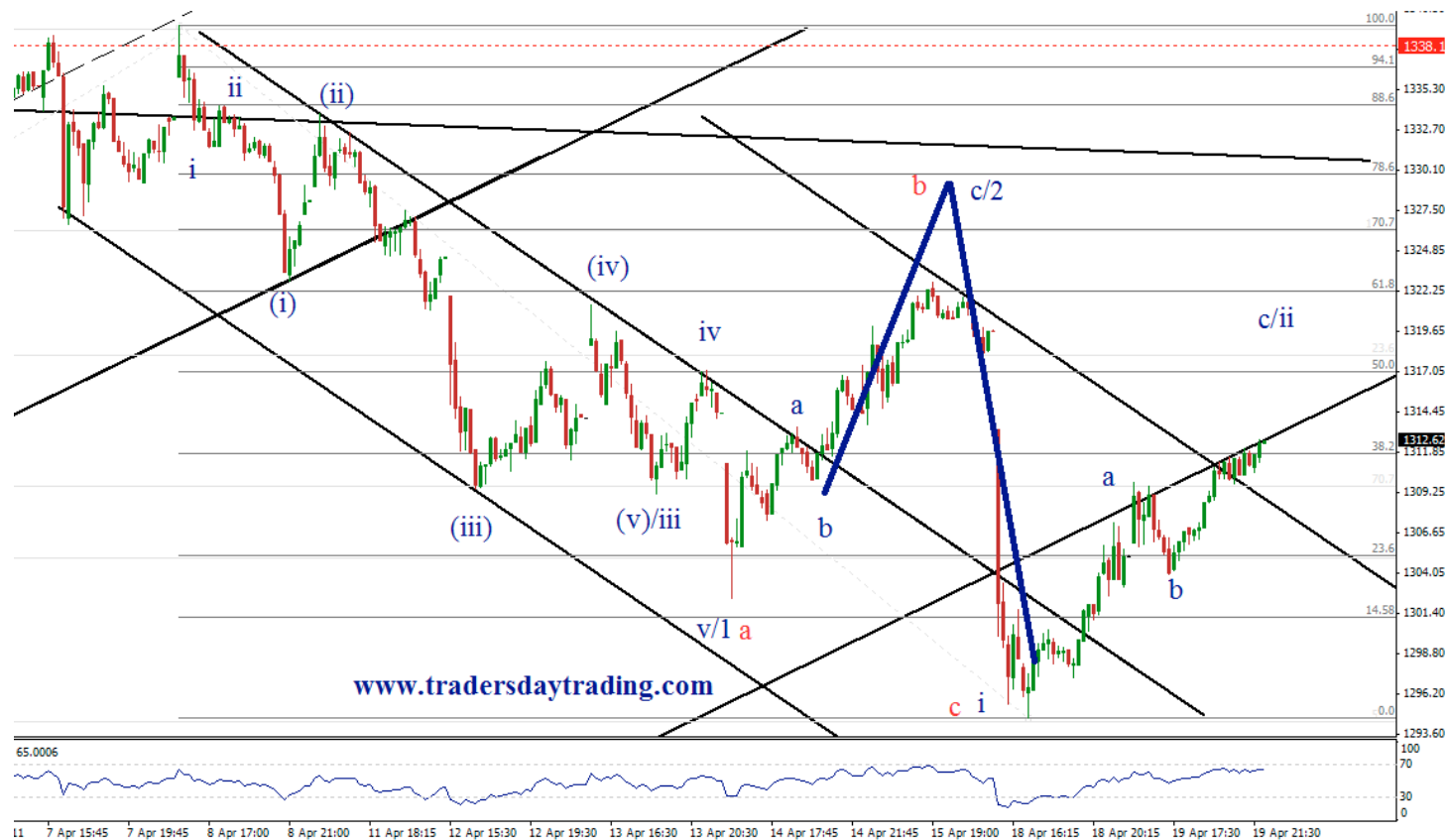
Technical Analysis. The use of market price and volume data to inform *exit and entry points* on a particular security as well as forecasts of future prices.

- Addresses the psychology of investors
- Trend analysis that is extremely useful in the **short-term**

Fundamental Analysis. The use of all market & non-market data to evaluate the current & future profitability of a company in order to assess its fair market value. Critical to **long-term** investors. Analysis of financial statements, industries, and economies.

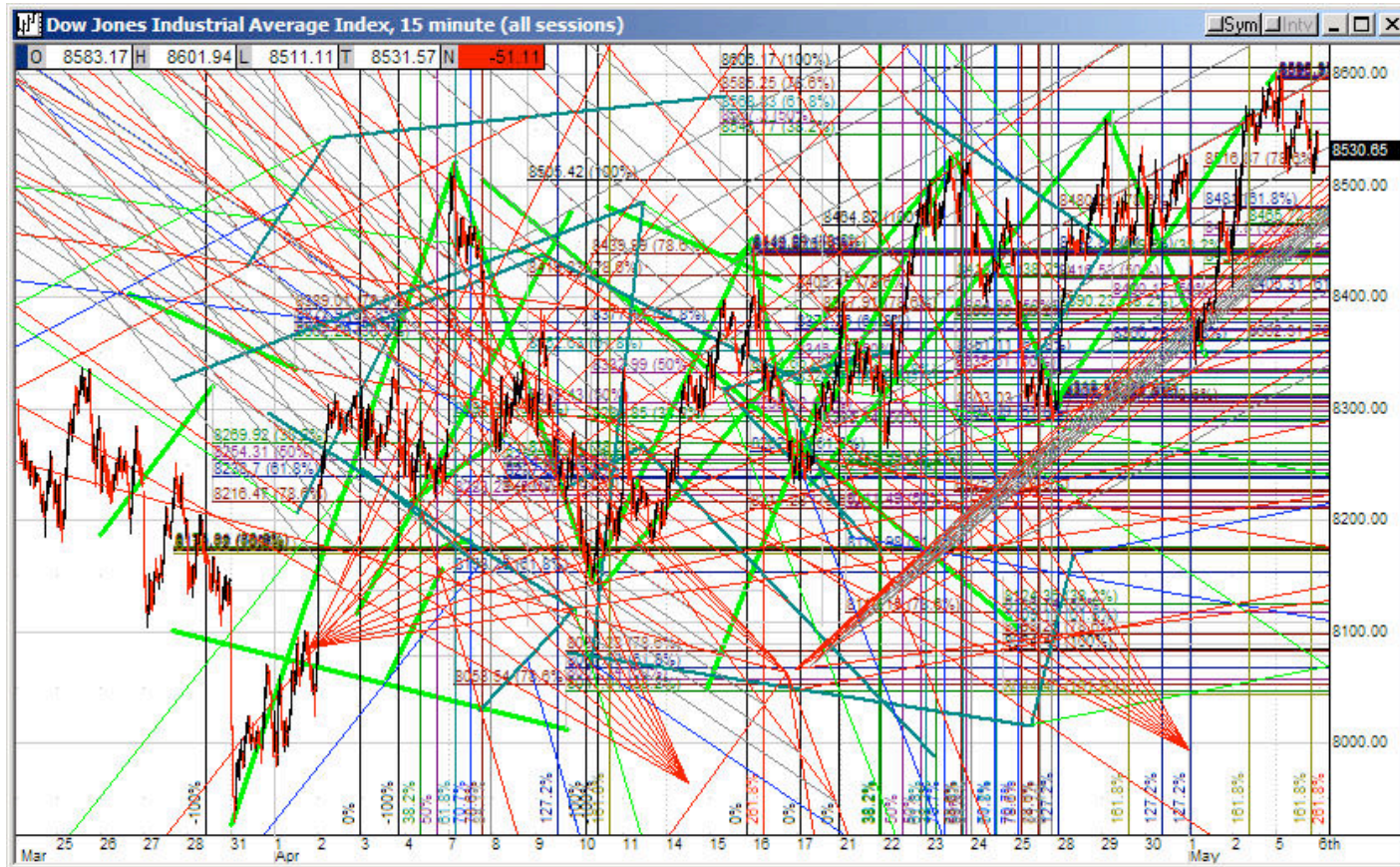
- *Top-Down Analysis.* Starting with macroeconomic factors like GDP growth rates and then proceeding to industry and then to the specific company.
 - Economy => Industry => Company
- *Bottom-Up Analysis.* Starting with the company's financial statements and then moving up to assess its industry and then the overall economy.
 - Company => Industry => Economy

TECHNICAL ANALYSIS WHEN IT'S USEFUL



Technical analysis can show us where the support and resistance levels are for a certain stock. Investors may also be able to discern trading patterns that may assist their buy/sell decision.

TECHNICAL ANALYSIS WHEN IT'S NOT USEFUL

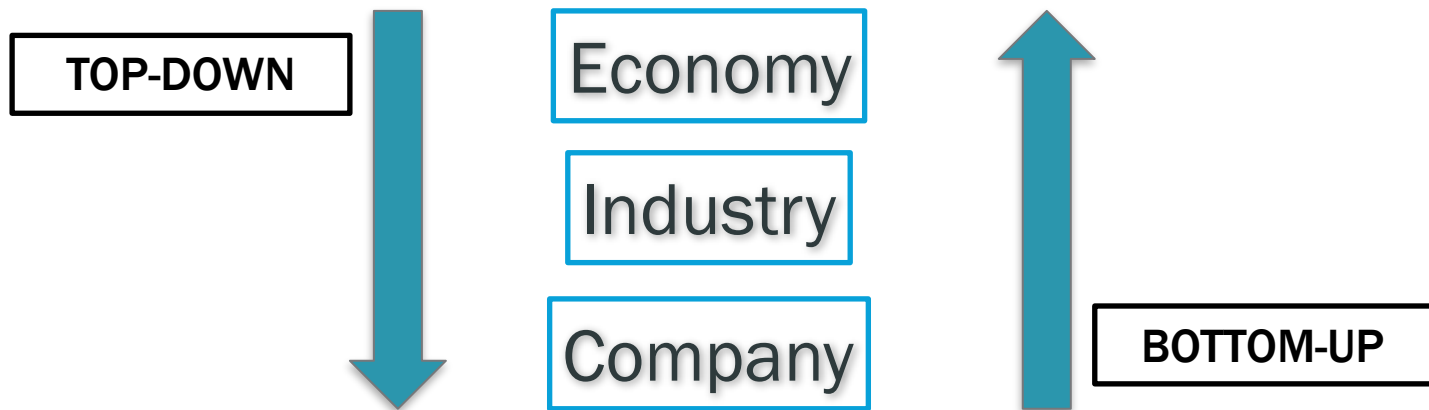


*Every investor has their own unique style. Most successful investors use a blend of these two techniques.
What mixture do you think is appropriate?*

TOP-DOWN V. BOTTOM-UP FUNDAMENTAL ANALYSIS

Fundamental Analysis. The use of all market & non-market data to evaluate the current & future profitability of a company in order to assess its fair market value. Critical to **long-term** investors. Analysis of balance sheets, industries, and economies.

- *Top-Down Analysis.*
- *Bottom-Up Analysis.*



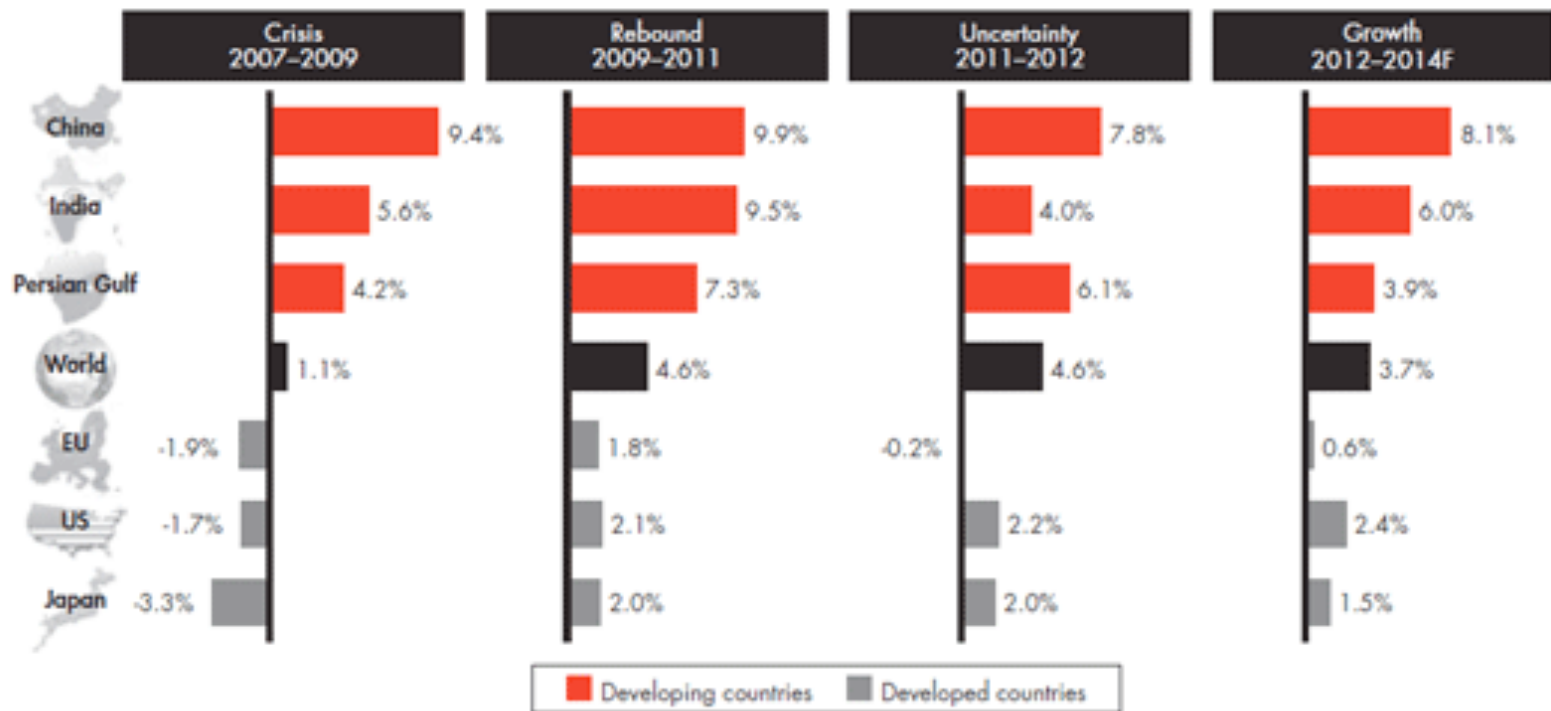
ELEMENTS OF TOP-DOWN

- *Economic growth rate of a country.* Companies will, on average, perform about as well as the economy they are located in (as measured by GDP – gross domestic product). Identifying high-growth countries (relative to our home country) helps us to find market-beating opportunities.
- *Political risk.* Protectionism, trade policy, and the threat of asset seizure in socialist countries are all examples of politics that could affect investments.
- *Currency risk.* If a stock increases by 20% but the currency in which its shares are priced depreciates by 30%, our investment (from our perspective) loses money.
- *Inflation risk.* Although from the perspective of the investor's home country inflation may be temporarily good, in the long run it negatively impacts the business prospects of the company you are investing in.
- Other indicators:
 - Interest rate, unemployment rate, budget deficits, consumer sentiment

RELATIVE GDP GROWTH

Figure 1.3: Growth of developing economies is slowing and Europe remains in a downturn

Real GDP CAGR



Note: Persian Gulf includes Saudi Arabia, United Arab Emirates, Qatar and Kuwait

Source: International Monetary Fund (World Economic Outlook Database, April 2013); Bain analysis

ECONOMIC INDICATORS

A variety of economic indicators should be consulted to arrive at a top-down view of an economy. These indicators *lead*, occur at the same time (*coincident*), or *lag* actual economic performance.

TABLE 12.2

Indexes of economic indicators

A. Leading indicators

1. Average weekly hours of production workers (manufacturing).
2. Initial claims for unemployment insurance.
3. Manufacturers' new orders (consumer goods and materials industries).
4. Fraction of companies reporting slower deliveries.
5. New orders for nondefense capital goods.
6. New private housing units authorized by local building permits.
7. Yield curve: spread between 10-year T-bond yield and federal funds rate.
8. Stock prices, 500 common stocks.
9. Money supply (M2) growth rate.
10. Index of consumer expectations.


B. Coincident indicators

1. Employees on nonagricultural payrolls.
2. Personal income less transfer payments.
3. Industrial production.
4. Manufacturing and trade sales.

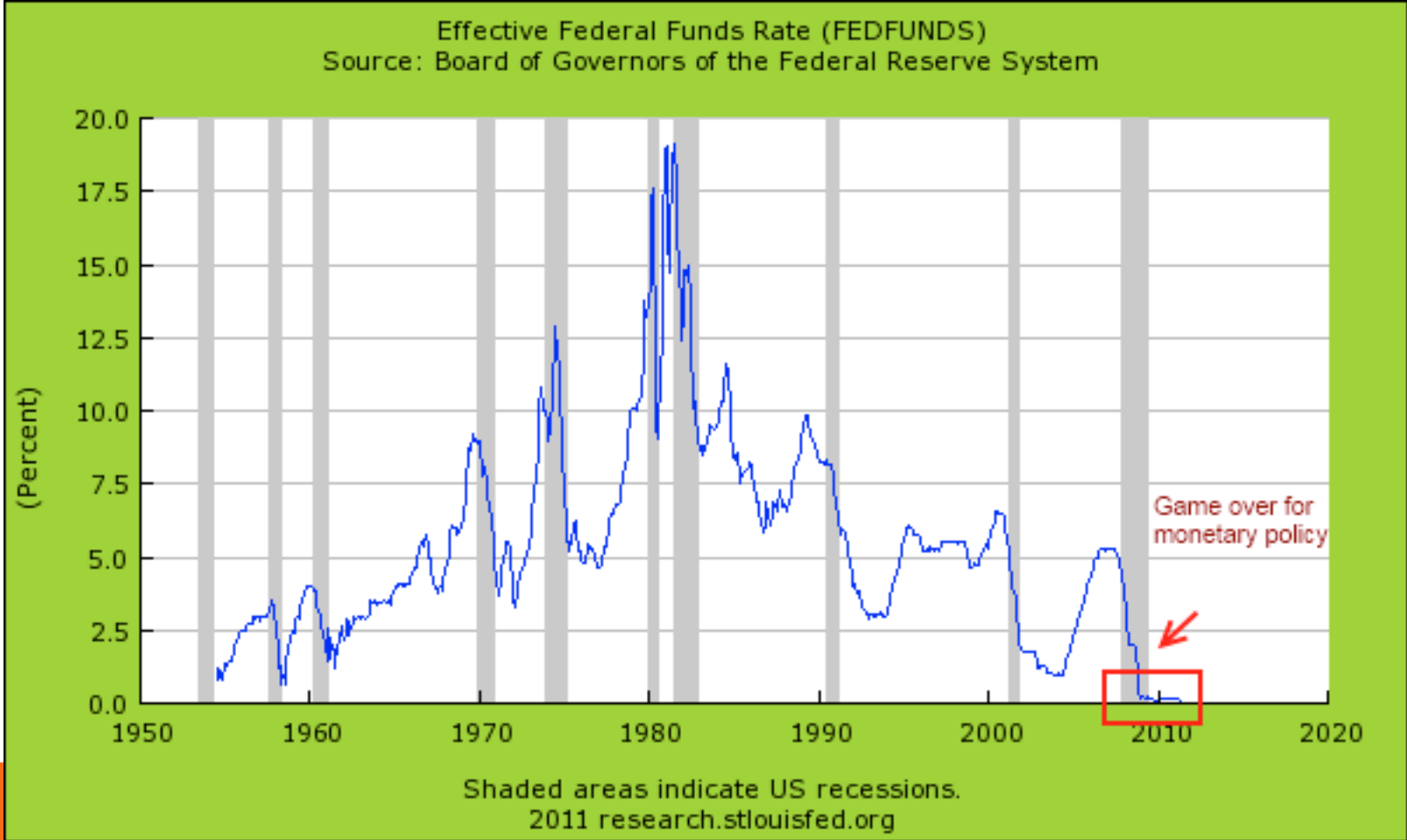
C. Lagging indicators

1. Average duration of unemployment.
2. Ratio of trade inventories to sales.
3. Change in index of labor cost per unit of output.
4. Average prime rate charged by banks.
5. Commercial and industrial loans outstanding.
6. Ratio of consumer installment credit outstanding to personal income.
7. Change in consumer price index for services.

WHY ARE INTEREST RATES AND THE STOCK MARKET NEGATIVELY CORRELATED?

- Bond Prices and Yields are inversely related.
 - RATES UP, BONDS DOWN! and vice versa
 - When rates go up, bonds are cheaper and offer more income, leading investors to increase their allocation to bonds, typically by selling stocks and buying bonds.
 - *Yield Seekers*. Particularly in a low-rate environment, investors that rely on passive income will invest more into higher risk assets like dividend-paying stocks. Rising rates decrease this motivation.
 - *Signaling*. Often, when the Fed increases the **Fed Funds Rate** (which eventually increases interest rates), they do so because they fear an overheated economy. Investors may want to cash in some of their gains based on this signal.
 - *Risk Aversion*. Because government treasury bonds are seen as **risk-free assets**, getting paid more from these securities significantly increases their desirability.
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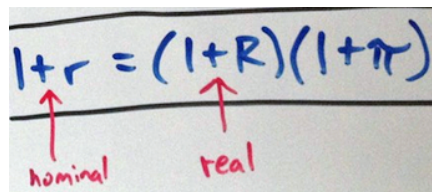
HISTORY OF FED FUNDS RATE



NOMINAL V. REAL INTEREST RATES

- Nominal interest rate. The interest rate “as stated” by an institution.
- Real interest rate. The nominal interest rate adjusted for inflation effects.
- Approximation:
 - Real interest rate = Nominal interest rate - *expected* inflation rate

- Exact Formula:



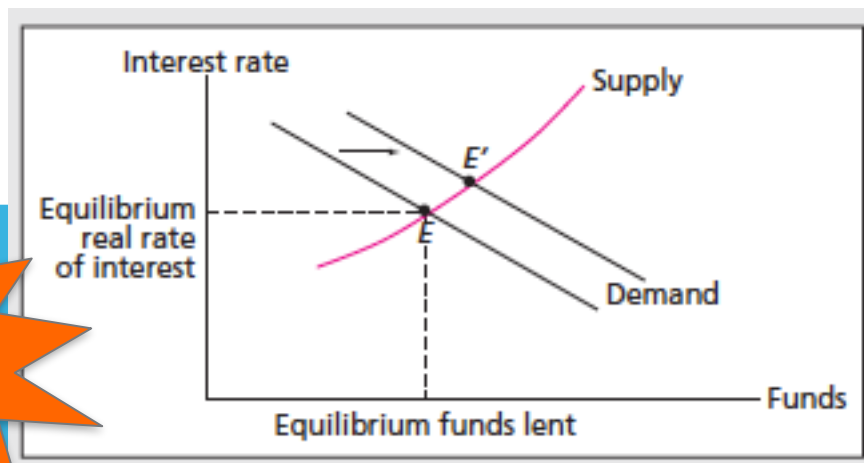
A photograph of a handwritten equation on a whiteboard. The equation is $1+r = (1+R)(1+\pi)$. Below the equation, there are two red arrows pointing upwards. The first arrow points to the '1+r' term and is labeled 'nominal' in red. The second arrow points to the '1+R' term and is labeled 'real' in red.

- *Fisher Effect*. A theory that takes this relationship one step further.
 - If the real interest rate is held constant, then the nominal rate and inflation rate have to be adjusted on a one-for-one basis.
 - Takeaway: An increase in the inflation rate will cause the same increase in the nominal interest rate.

DEMAND V. SUPPLY SHOCKS

- *Demand Shock*. Event that affects the demand for goods and services in an economy.
 - Positive: decreased tax rates, increase money supply, increased government spending, increased demand for exports
 - Negative: the inverse of such trends.
- *Supply Shock*. Event that affects production capacity and costs in an economy. Can also be either positive or negative.
 - Oil prices, interest rates, prices of raw materials

“Macroeconomic predictions are notoriously unreliable.” - BKM

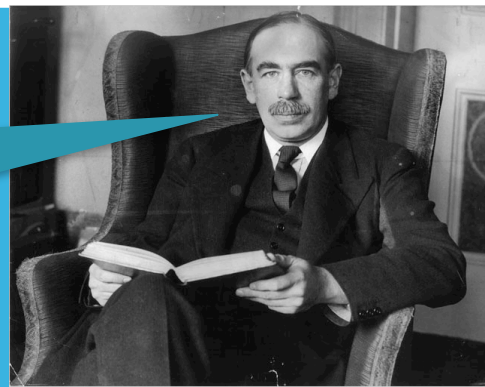


DEMAND
SHOCK!

FISCAL V. MONETARY POLICY

- *Fiscal Policy*. Government spending and taxation that *directly* affects the demand for goods and services in an economy, hence “**demand-side management.**”
 - Slow-moving due to government inefficiency and inability to compromise.
 - Inflexible because much government spending is determined by formula (Medicare, Social Security) rather than policy formulation.
 - Budget deficits, on the whole, spur demand.
- *Monetary Policy*. Manipulation of interest rates and money supply that *indirectly* affects demand in an economy. Another form of **demand-side management.**
 - Easy to implement via the Federal Reserve System.
 - Open market operation. The Fed simply just writes itself a check and poof! new money is created. No need to negotiate with politicians.
 - Efficient in the short run, but not necessarily in the long run.
 - Policy tools:
 - Fed funds rate target, discount rate, reserve requirement.

Hello, I'm John
Maynard Keynes.



MONETARY TOOLKIT

1. Interest rate target
2. Bank reserve requirements
3. Discount rate for bank short-term liquidity
4. Expansion/contraction of money supply
5. Quantitative Easing (QE)
6. ZIRP => NIRP

} “artificial
stimulants”

SUPPLY-SIDE ECONOMICS

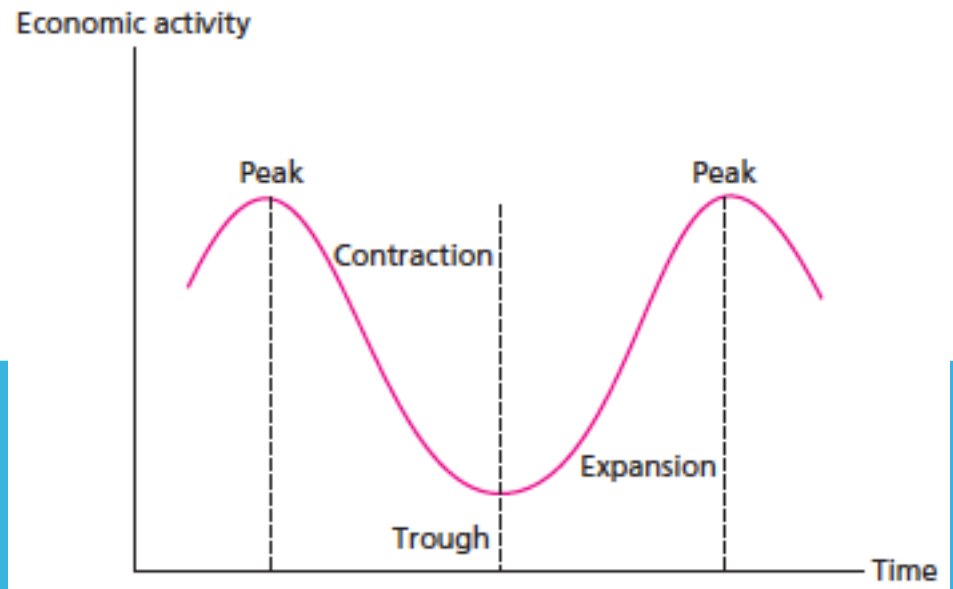
- Also known as *Reaganomics*. Also known as *trickle-down economics*.
- 2001 Bush tax cuts were justified by supply-side economics.
- In contrast to fiscal and monetary policy (which we can think of as demand-side economic policy because they attempt to maintain and promote demand), Reaganomics addresses the productive capacity of an economy by attempting to preserve and spur growth in supply.
- Focused on *incentive*. Why should I work hard if 40% of my income goes to taxes?
- Emphasis on *free market*, which makes fiscal & monetary policy moot.
- Main Policy Tool is tax policy, believing that it will:
 - Elicit more investment (from rich people)
 - Incentivize better, more productive work (by poor people)
 - In combination, these two phenomenon should lead to economic growth, perhaps at an even higher rate than the reduction in the tax rate.

I used to be an actor. Don't really know much about this economics stuff.



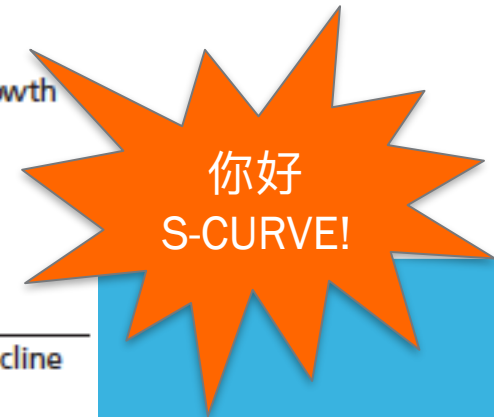
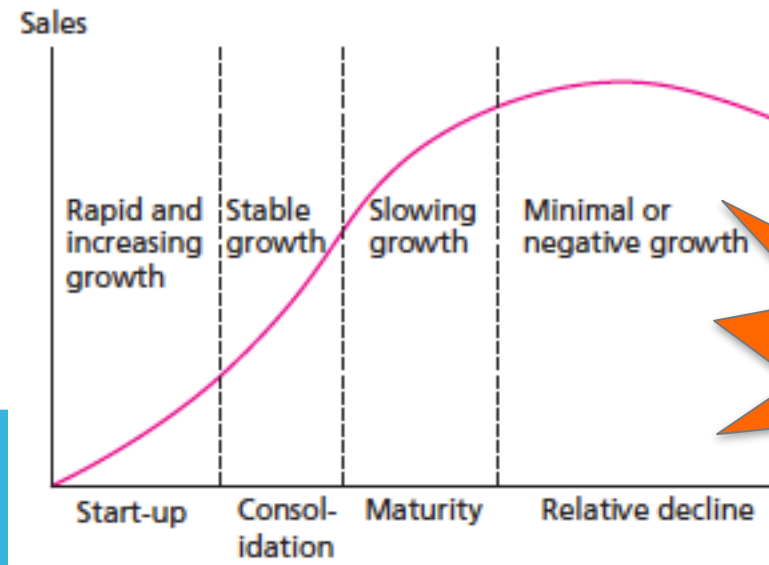
BUSINESS CYCLE

Nothing lasts forever. This maxim applies to both good and bad times. It's never as bad as you think and good times never last as long as you would like. Since the dawn of capitalism, economies have been characterized by a boom-and-bust cycle, otherwise known as the *business cycle*. From peak-to-peak, we never know how long the cycle will last, but we can usually identify when we are in decline (*contraction*) and when we are in ascent (*expansion*). However, we can only identify the *peak* and the *trough* in retrospect. Hindsight is 20/20.



INDUSTRY CYCLES

- Certain industries are more highly correlated with the business cycle than others.
 - Cyclical industries. Highly sensitive to the business cycle. (Ex. Jewelry)
 - Defensive industries. Relatively immune to the business cycle. (Ex. Utilities)
- New industries can operate somewhat independently from the business cycle. However, all good things eventually come to an end. If a company wants to continue to enjoy above-market growth rates, it must identify new opportunities.



NAICS CODES

North American Industry Classification System (NAICS)

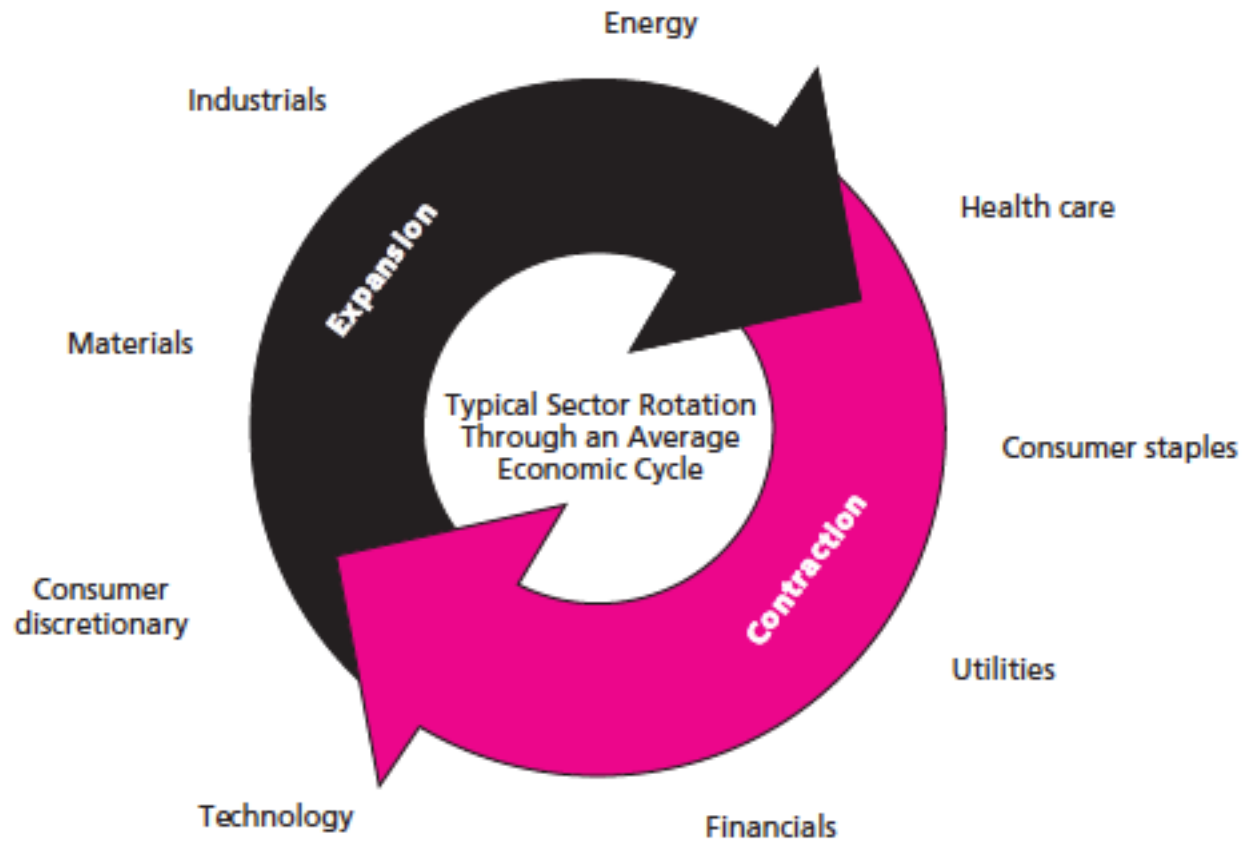
- Introduced in 1997 in US, Canada, & Mexico
- Replaced the 4-digit Standard Industrial Classification (SIC)
- Periodically revised to reflect changes in the N.A. industrial structure
- Six-digit hierarchical coding system that classifies all economic activity into 20 industry sectors (5 goods & 15 services sectors)
- Identification of a company's appropriate industry is necessary to conduct meaningful macroeconomic statistical analysis

TABLE 12.5

Examples of NAICS industry codes

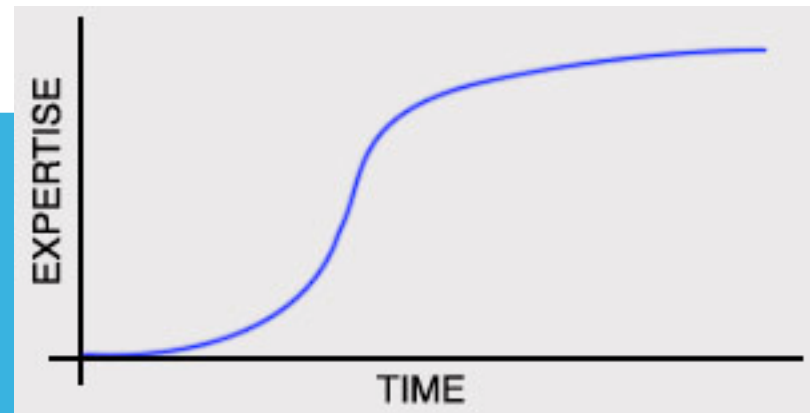
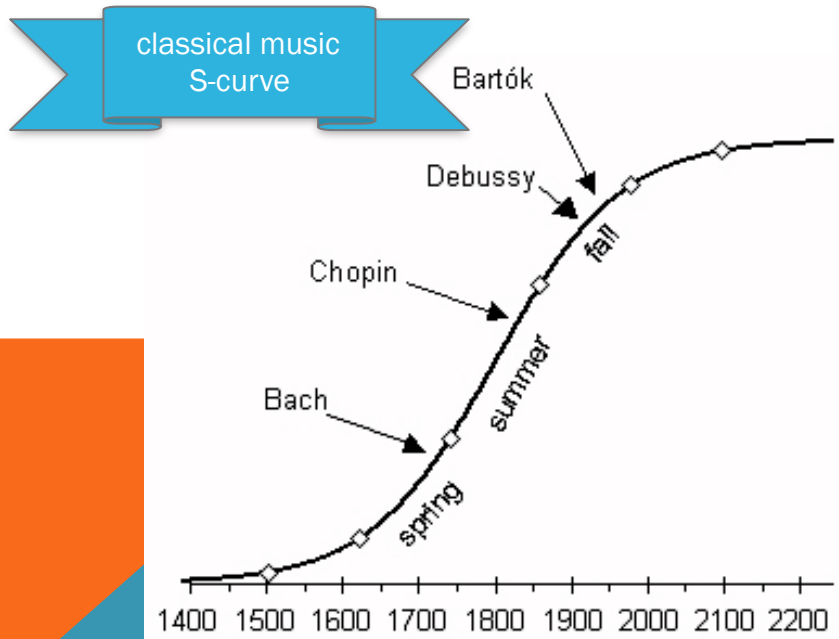
NAICS Code	NAICS Title
23	Construction
236	Construction of Buildings
2361	Residential Building Construction
23611	Residential Building Construction
236115	New Single-Family Housing Construction
236116	New Multifamily Housing Construction
236117	New Housing Operative Builders
236118	Residential Remodelers
2362	Nonresidential Building Construction
23621	Industrial Building Construction
236210	Industrial Building Construction
23622	Commercial and Institutional Building Construction
236220	Commercial and Institutional Building Construction

SECTOR ROTATION



S-CURVES

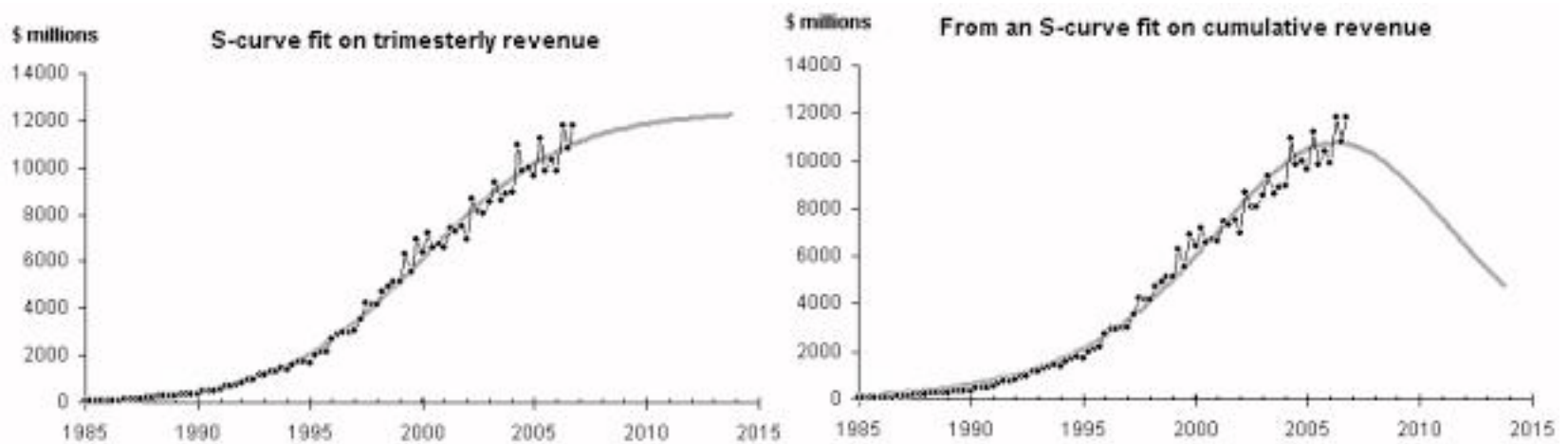
- Many things in life have the characteristic of an **S-curve**.
- Approximates the *product lifecycle*.
- Three basic phases:
 - An *initial accumulation or learning phase* while you experiment with tactics and better understand the market.
 - Eventually, an inflection point is reached after which is an *explosive growth period*.
 - Unfortunately, another inflection point marks the end of good times. At first, growth slows and then eventually declines. We can only hope that the decline will be slow.



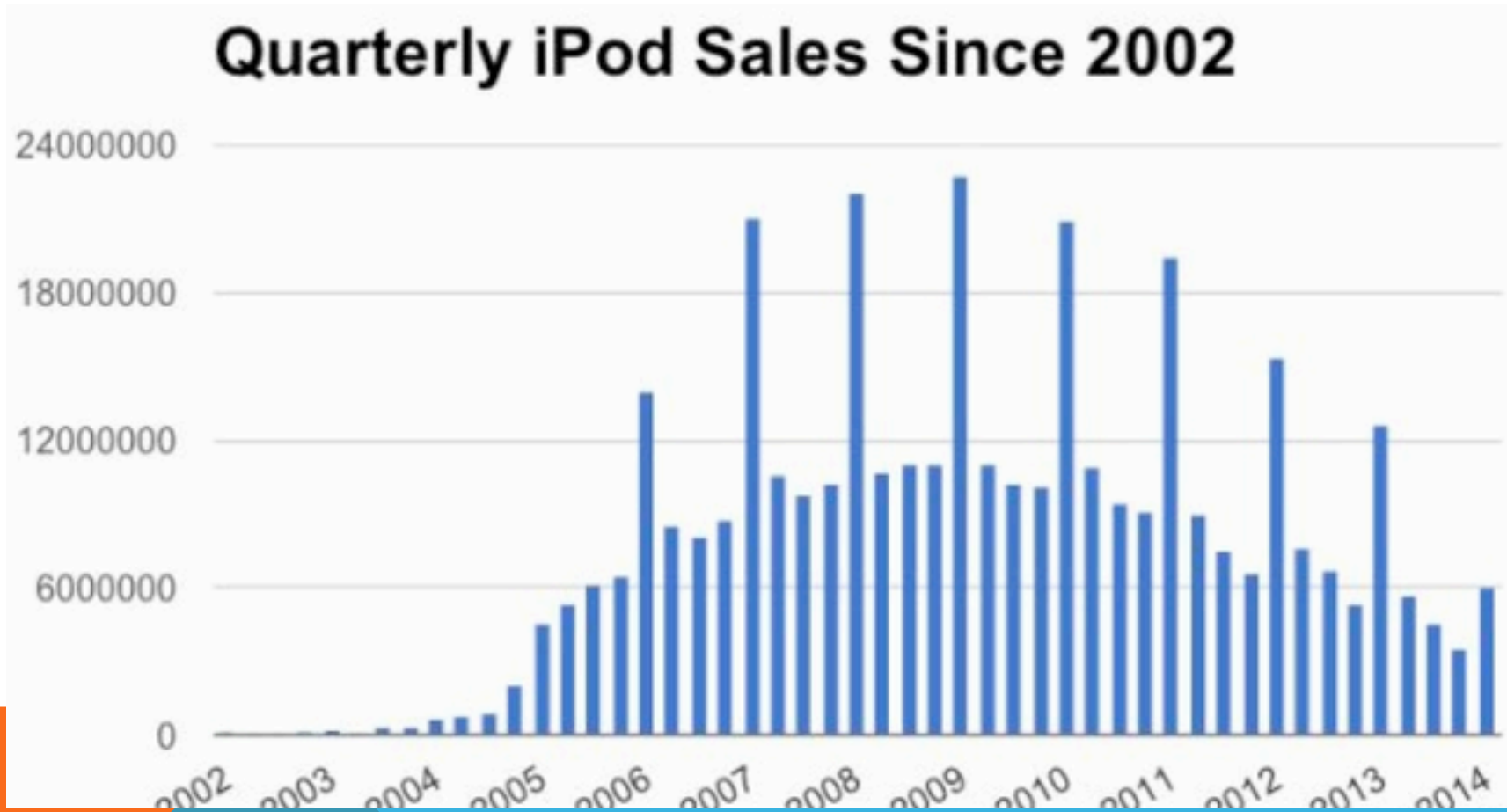
MICROSOFT'S S-CURVE

If it's something new that will stay with us forever, we may see a shape like this...

...but if it's just a good product that's filling a niche, we may see something more like this.



THE IPOD S-CURVE



CASCADING S-CURVES

Success in many industries depends on a company continuously innovating. In other words, they must somehow develop **cascading S-Curves**.



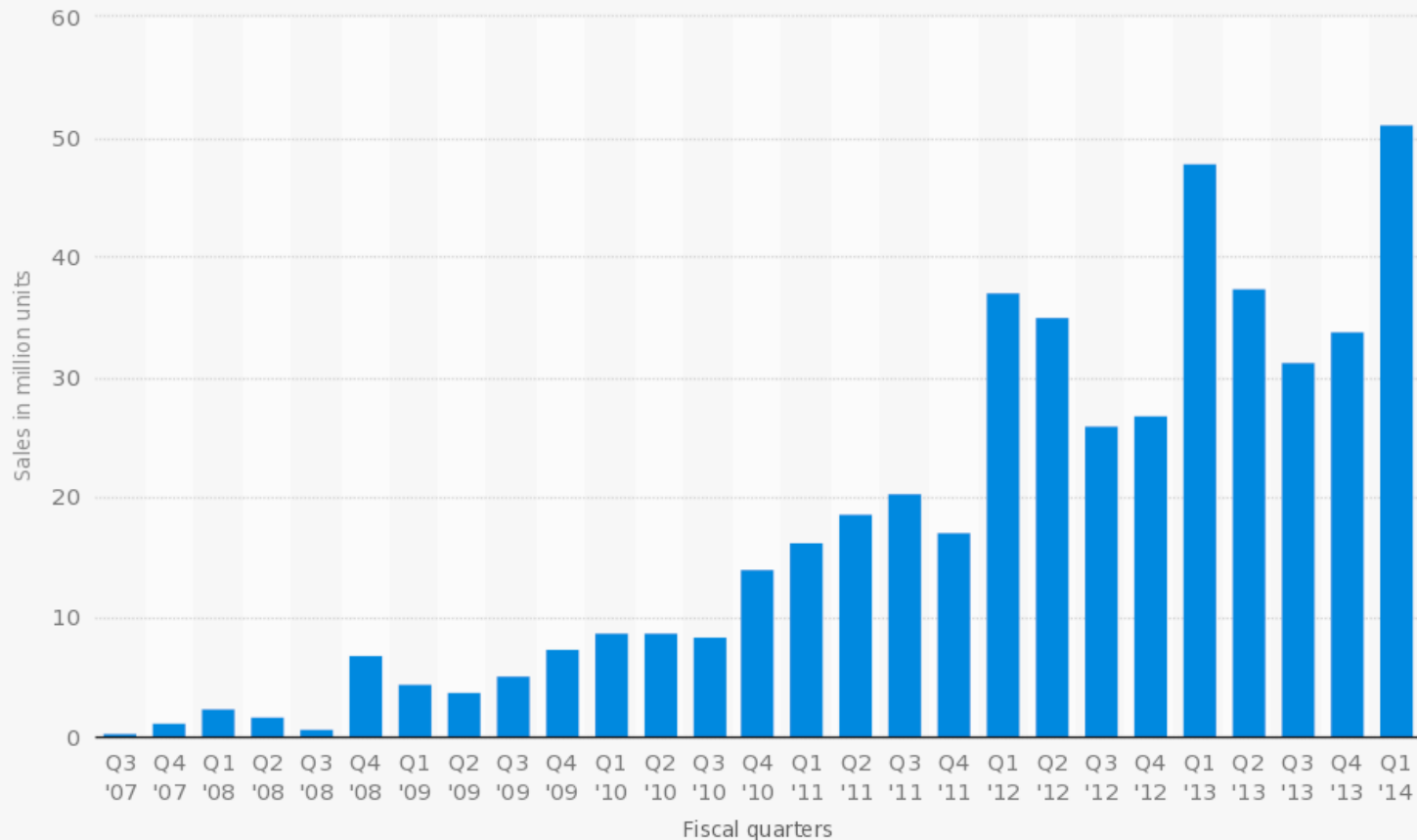
iMac => iPod => iPhone => iPad => 🍏 Watch / 🍏 Pay ???

Have we found our
next S-Curve?
I hope so.



WHERE ARE WE IN THE IPHONE S-CURVE?

Global Apple iPhone sales from 3rd quarter 2007 to 1st quarter 2014 (in million units)

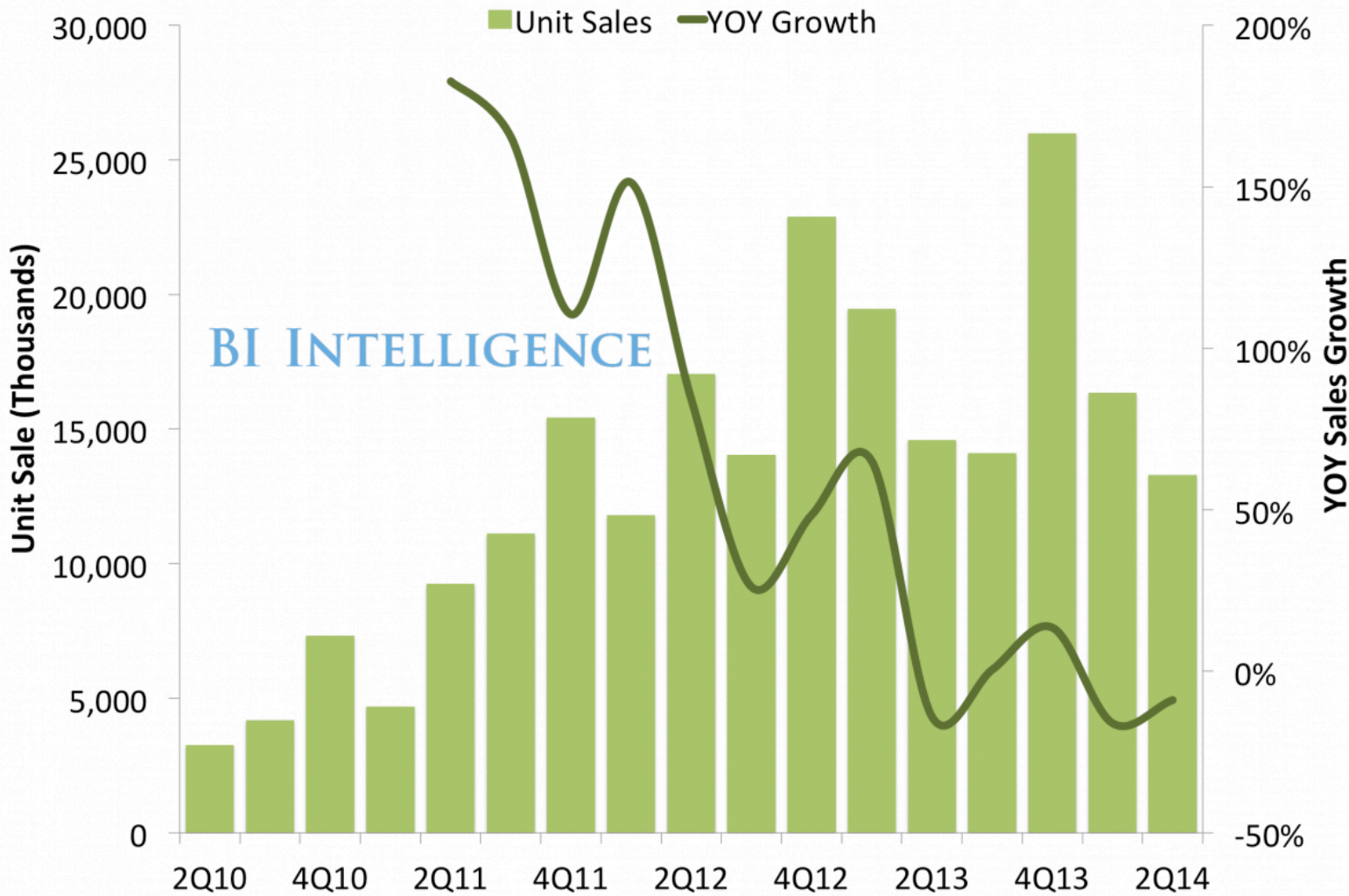


Additional Information
Worldwide; Apple

Source:
Apple
© Statista 2014

IPAD S-CURVE

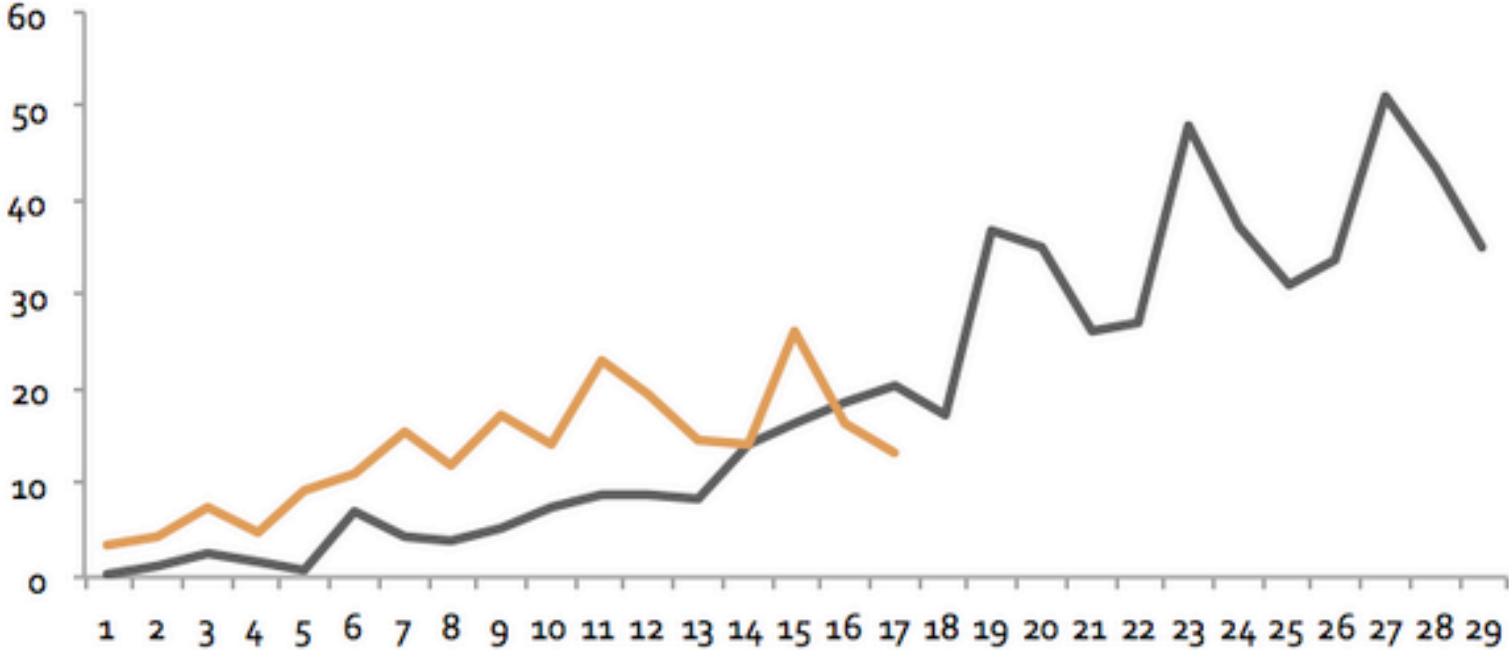
iPad Sales



Source: Apple

IPHONE V. IPAD

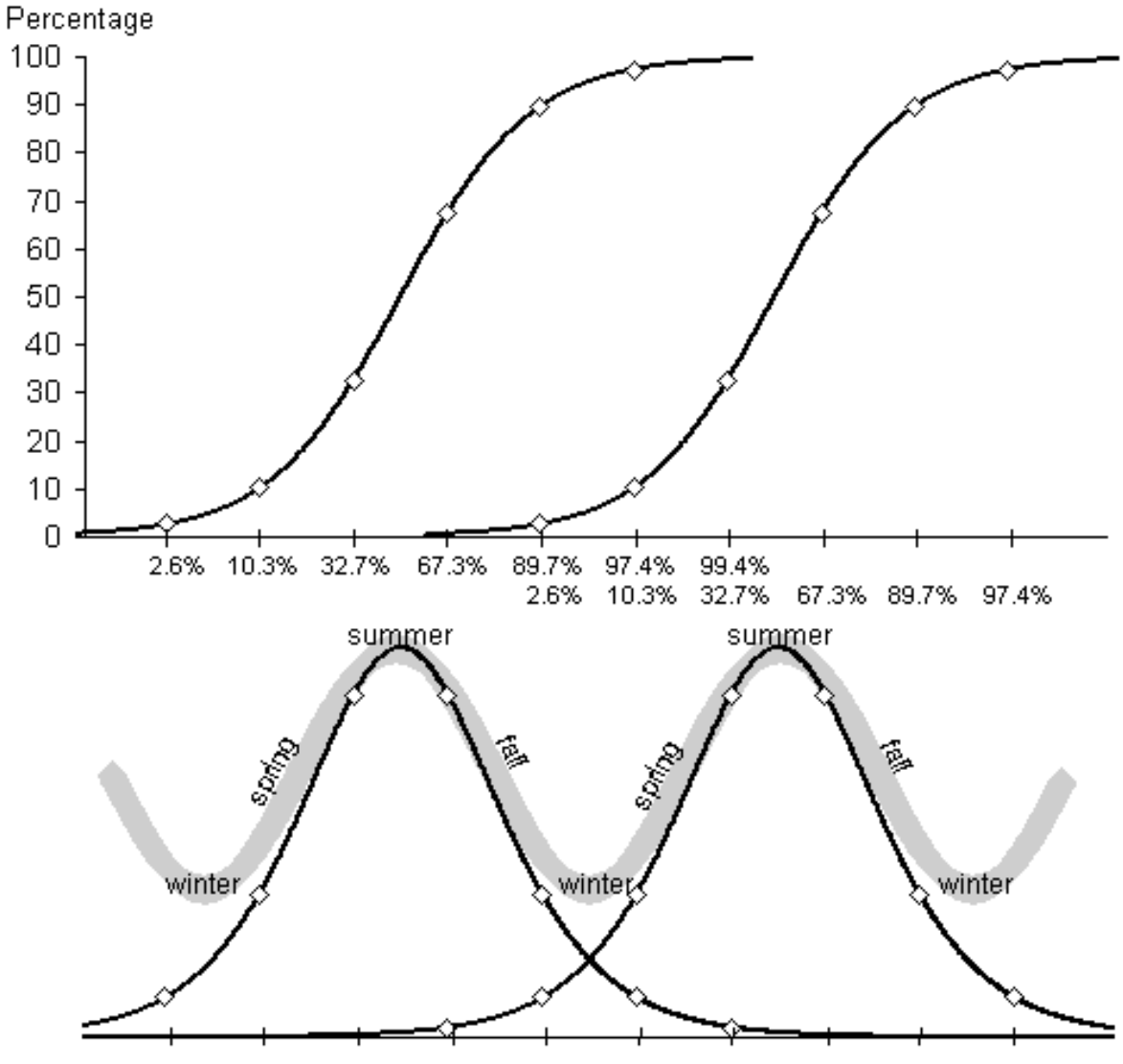
Unit sales by quarters from launch (m)



— iPhone — iPad

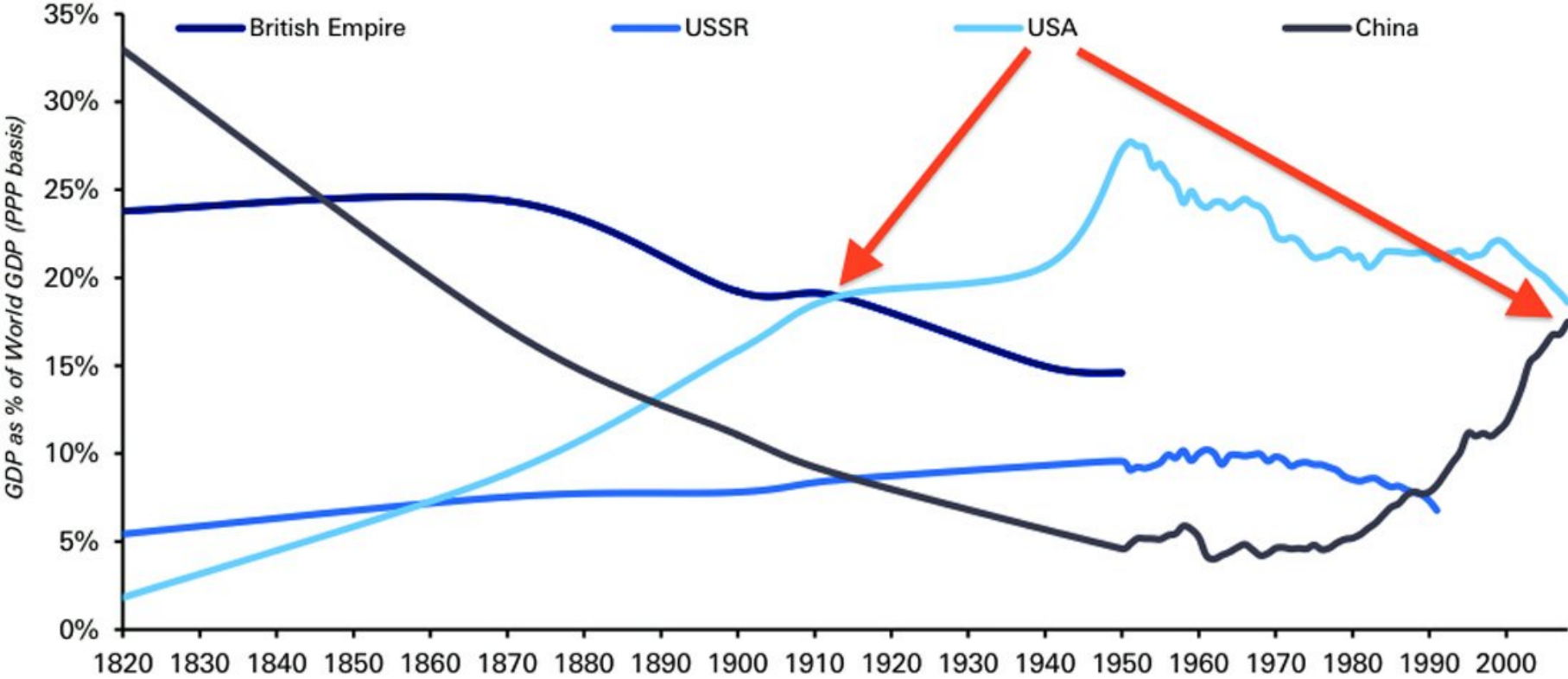
[Source: Apple, a16z]

PERFECT S-CURVES



COULD THIS BE AN S-CURVE?

Figure 96: The Rise and Fall of Modern Empires

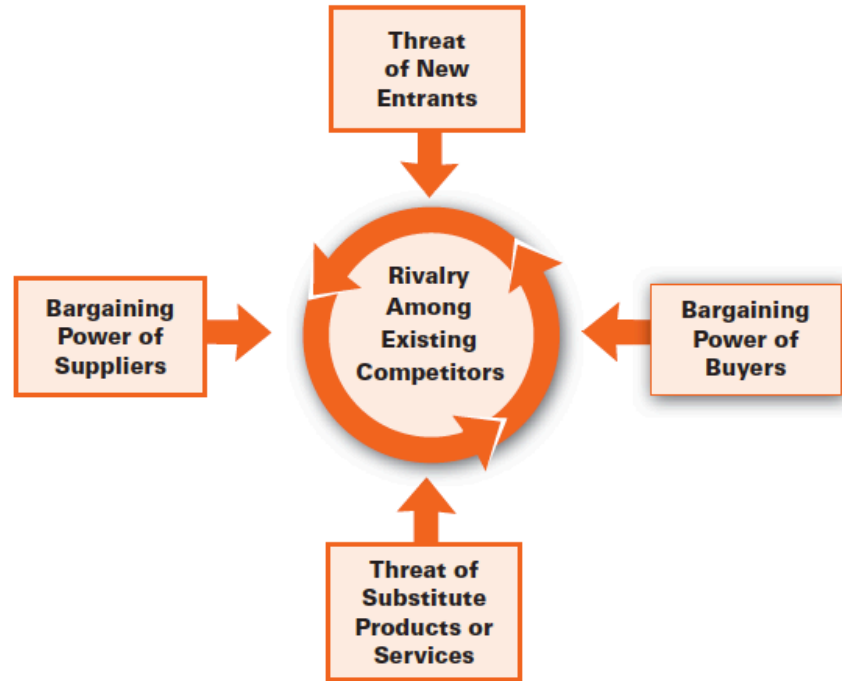


Source: Deutsche Bank, 'The World Economy, a millennial perspective (2001). Paris: OECD.

MICHAEL PORTER'S FIVE FORCES

The Five Forces That Shape Industry Competition

1. Threat of entry
2. Pressure from substitutes
3. Buyers' bargaining power
4. Suppliers' bargaining power
5. Competition between existing rivals



INDUSTRY STRUCTURE & THE FIVE COMPETITIVE FORCES

- Porter's simplified framework can be used to analyze the underlying structure of any industry's overall profitability in the medium and long run.
- Intensity of forces leads to thinner margins.
- Dynamic approach that reflects "true economic value."
- Allows the analyst to focus on structural conditions & not fleeting factors.
- Consider industry growth, technology, government policy, and complementary products within the context of the framework, not as separate individual factors.
- When determining industry attractiveness, look at the average profitability over an extended period of time (one full business or industry cycle), not 1 year or 1 quarter.
- Improved industry structure is a public good. Counterintuitively, the industry leader may lead this charge (Tesla giving away patents, selling batteries cheaply). All industry participants will benefit, but the company with the largest market share benefits most.

"use the framework to spot an industry with a good future before this good future is reflected in the prices of acquisition candidates."

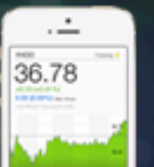
– Michael Porter, 2008

56.77 ↓ 1.54 (2.64%) 4:00PM EDT

After Hours : **56.76** ↓ 0.01 (0.01%) 4:56PM EDT

Beat the market

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Enter name(s) or symbol(s)

GET CHART

COMPARE

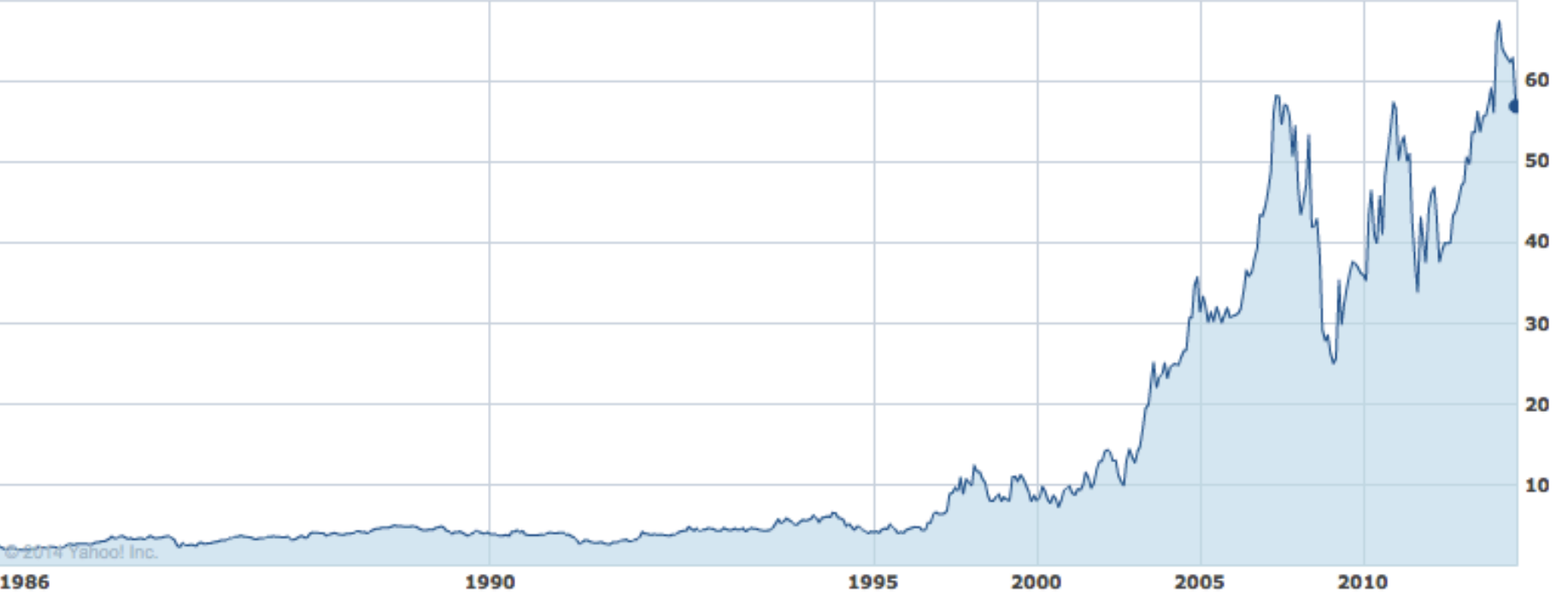
EVENTS ▾

TECHNICAL INDICATORS ▾

CHART SETTINGS ▾

RESET

Sep 2014: ■ PCAR 56.88



Volume: 1,695,728



1D 5D 1M 3M 6M YTD 1Y 2Y 5Y Max

FROM: Jul 9 1986

TO: Oct 1 2014


+1,934.69%

THREAT OF ENTRY

Barriers to entry

1. Supply-side economies of scale
2. Network effects
3. Customer switching costs
4. Capital requirements
5. Size-independent incumbency advantages
6. Unequal access to distribution channels
7. Restrictive government policy

Expected retaliation

1. Historical response
 2. Available resources
 3. Industry growth characteristics
 4. Ability to cut prices
- 

POWER OF SUPPLIERS

When the supplier has significant power, they can take a larger share of the profit.

EXAMPLES

- Microsoft provides operating systems to Dell/HP/Lenovo/etc.
- Workers seeking to increase the minimum wage affects the profitability of fast-food chains.

OTHER CONSIDERATIONS

- Switching costs for both the supplier and the company
- Ease of substitutes
- Forward integration (ex. Google making phones)



POWER OF BUYERS

- What is the status of the buyer group? Flush with cash or cash-strapped?
- Product differentiation: Does it matter what toilet paper or fuel you buy?
- Importance of quality: Is the component a large part of the cost of an end product (ex. engines)? Can companies earn their money back if the quality is high (tax accountants, consultants)?
- Producers sometimes market directly to end users (Stainmaster carpets or Intel chips) to directly create demand among a group of buyers.

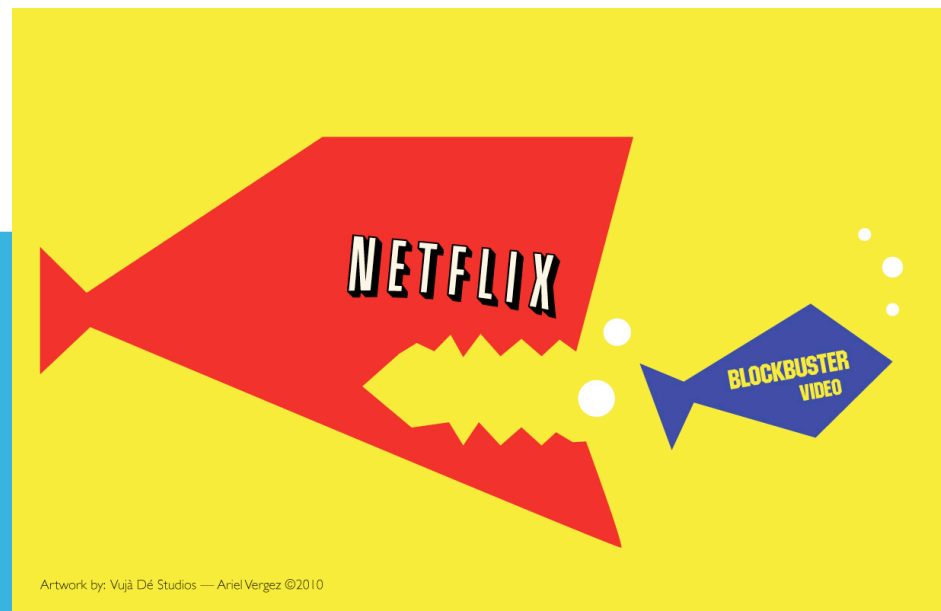
All of these considerations impact the power of buyers. Remember that a buyer does not have to be an end user. When companies are in the middle of a *supply chain*, they also act as buyers.

THREAT OF SUBSTITUTES

Substitute products can be obvious (WeChat for SMS, iPhone for Nokia, Facebook for Myspace, Netflix for Blockbuster, digital cameras for Kodak film), usually in the short run.

In the long run, substitute products can come from entirely different industries (e-mail for post, cable companies for phone companies, Father's Day gifts, DIY, improvement in plastics displaced steel used in cars).

Note it is the *threat* that impacts profits, not necessarily the actual presence of substitutes.



EXISTING RIVALRIES

The more competitors, the less the profitability.

Pepsi/Coke are essentially a duopoly. Hence, they both maintain high profit margins.

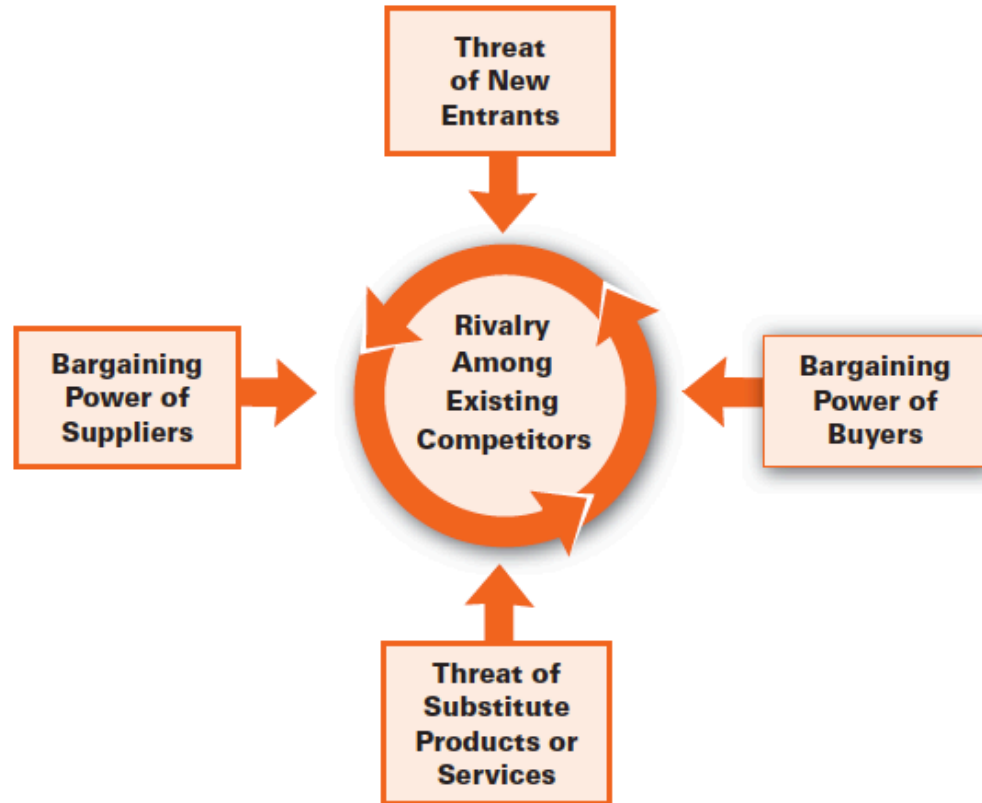
McDonald's/KFC were a duopoly on Western fast food in China and generated enormous profit from their China operations since coming into the country in 1987. However, as BK/Starbucks/CarlsJr/Subway/etc. enter the market, these profits are not as easy to come by.

What is the *intensity* and *basis* of the competition?

Is there competition on aspects other than price alone (product features, support services, delivery time, brand image, quality, etc.)?



The Five Forces That Shape Industry Competition



CONCEPT CHECK

How can Porter's five competitive forces help explain the vast difference in profitability between these different industries?

**ROIC: return on invested capital*

Profitability of Selected U.S. Industries

Average ROIC, 1992–2006

