



CFA Institute[®]
Investment Foundations

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Module 4: INVESTMENT INSTRUMENTS

Chapter 10: Equity Securities

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Module	Topic	Weight	LOS	Exam Qs	Hours to Study	Module Practice Qs	Chapter Practice Qs
Module 1	Industry overview	5%	7	6	5	28	28
Chapter 1	The Investment Industry: A Top-Down View						
Module 2	Ethics and regulation	10%	14	12	10	91	
Chapter 2	Ethics and Investment Professionalism						49
Chapter 3	Regulation						42
Module 3	Inputs and tools	20%	50	24	20	291	
Chapter 4	Microeconomics						53
Chapter 5	Macroeconomics						57
Chapter 6	Economics of International Trade						47
Chapter 7	Financial Statements						70
Chapter 8	Quantitative Concepts						64
Module 4	Investment instruments	20%	29	24	20	213	
Chapter 9	Debt Securities						69
Chapter 10	Equity Securities						72
Chapter 11	Derivatives						42
Chapter 12	Alternative Investments						30
Module 5	Industry structure	20%	27	24	20	96	
Chapter 13	Structure of the Investment Industry						28
Chapter 14	Investment Vehicles						29
Chapter 15	The Functioning of Financial Markets						39
Module 6	Serving client needs	5%	12	6	5	76	
Chapter 16	Investors and Their Needs						35
Chapter 17	Investment Management						41
Module 7	Industry controls	20%	24	24	20	154	
Chapter 18	Risk Management						51
Chapter 19	Performance Evaluation						53
Chapter 20	Investment Industry Documentation						50
	Total	100%	163	120	100	949	949

AFTER COMPLETING THIS CHAPTER, YOU SHOULD BE ABLE TO DO THE FOLLOWING:

- a) Describe features of equity securities;
- b) Describe types of equity securities;
- c) Compare risk and return of equity and debt securities;
- d) Describe approaches to valuing common shares;
- e) Describe company actions that affect the company's shares outstanding.

EQUITY SECURITIES

Equity securities represent ownership claims on a company's net assets. **As an asset class, equity plays a fundamental role in investment analysis and portfolio management because it represents a significant portion of many individual and institutional investment portfolios.**

The study of equity securities is important for many reasons:

First, the decision on how much of a client's portfolio to allocate to equities affects the risk and return characteristics of the entire portfolio.

Second, different types of equity securities have different ownership claims on a company's net assets, which affect their risk and return characteristics in different ways.

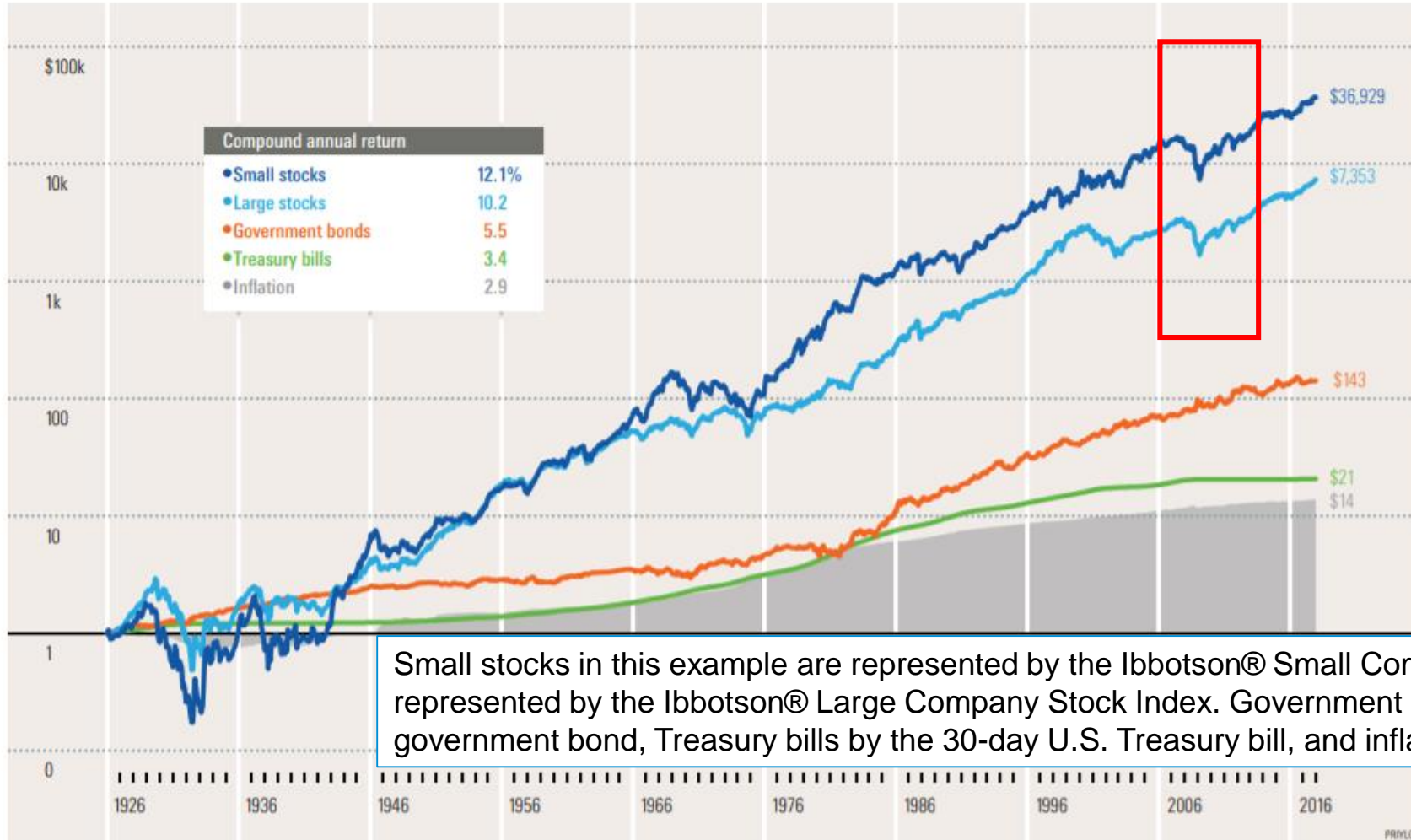
Finally, variations in the features of equity securities are reflected in their market prices, so it is important to understand the valuation implications of these features.

GROWTH OF \$1: 1926 – 2017: USA DATA

$$FV = PV(1 + r)^n$$

$$FV = 1(1 + 0.121)^{92}$$

$$FV = 36,619.83$$



Stocks

Bonds

T Bills

Cash

Small stocks in this example are represented by the Ibbotson® Small Company Stock Index. Large stocks are represented by the Ibbotson® Large Company Stock Index. Government bonds are represented by the 20-year U.S. government bond, Treasury bills by the 30-day U.S. Treasury bill, and inflation by the Consumer Price Index.

Past performance is no guarantee of future results. Hypothetical value of \$1 invested at the beginning of 1926. Assumes reinvestment of income and no transaction costs or taxes. This is for illustrative purposes only and not indicative of any investment. An investment cannot be made directly in an index. ©2018 Morningstar, Inc. All Rights Reserved.



RISKS IN INVESTING: DEFINITION OF RISK

- Greater **variability in market prices** and cash flows can be thought of as commensurate with **increased risk** because an investor owning a risky asset with a **highly variable price pattern** faces **having to sell it for a more unpredictable price** than a less risky asset.
- The assumption that variability in asset returns represents risk and that premiums over what could be earned on a risk-less investment represent the price of risk is the foundation for modern finance theory.
- **It should be stressed that when analyzing investments, returns provide us with only one half the information we need. Information on the risk characteristics of investments are equally important.**
- We measure risk by calculating variance and standard deviation: Quantitative Concepts!

Population	Sample
$\sigma^2 = \frac{\sum_{t=1}^T (R_t - \mu)^2}{n}$	$s^2 = \frac{\sum_{t=1}^T (R_t - \bar{R})^2}{n - 1}$
$\sigma = \sqrt{\sigma^2}$	$s = \sqrt{s^2}$

HISTORICAL MEAN RETURN AND EXPECTED RETURN

1926–2012*

Returns

RISK

	Asset Class	Annual Returns	Standard Deviation
S T O C K S	Small-cap	11.9%	33.0%
	Large-cap	9.8%	20.9%
B O N D S	LT Corporate Bonds	5.7%	9.4%
	LT Treasury Bonds	5.5%	9.0%
C A S H	Treasury Bills	3.6%	3.1%
	Inflation	3.0%	4.2%

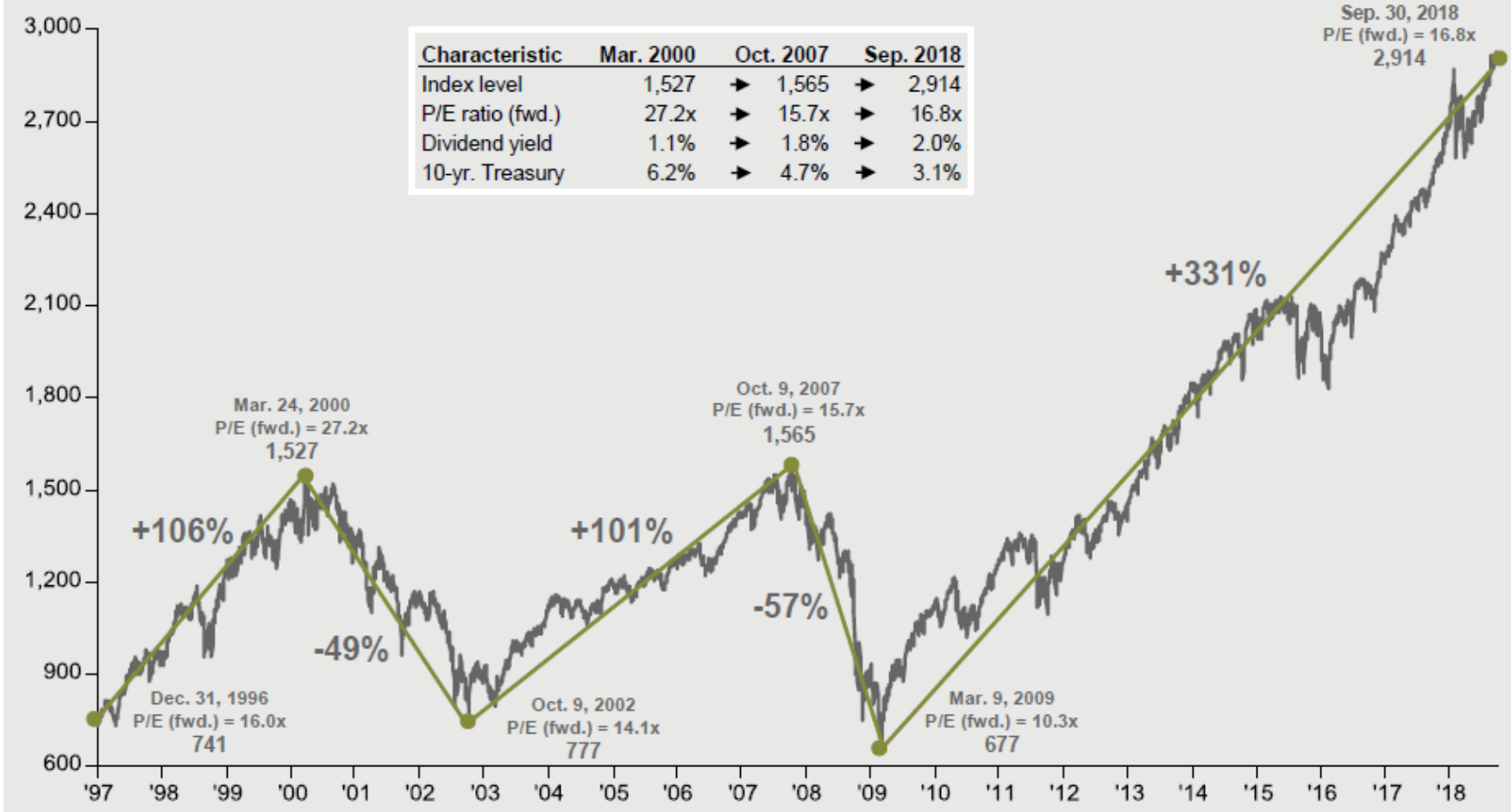
Source: 2012 Ibbotson SBBI Classic Yearbook

STRATEGIC ASSET ALLOCATION – JACK BOGLE ON SIMPLICITY

Stick to simplicity.

- “Don’t complicate the process. Basic investing is simple—a sensible asset allocation to **stocks, bonds, and cash.**”
- Perhaps the most critical decision you face is getting **the proper allocation of assets** in your investment portfolio.
- **Stocks are designed to provide growth of capital and growth of income, while bonds are for conservation of capital and current income.**
- Once you get your balance right, then just hold tight, no matter how high a greedy stock market flies, nor how low a frightened market plunges.
- Change the allocation only as your investment profile changes. **The paradox is that in these times of increasing complexity, simplicity underlies the best investment strategy.**” (Bogle 2012)

S&P 500 Price Index



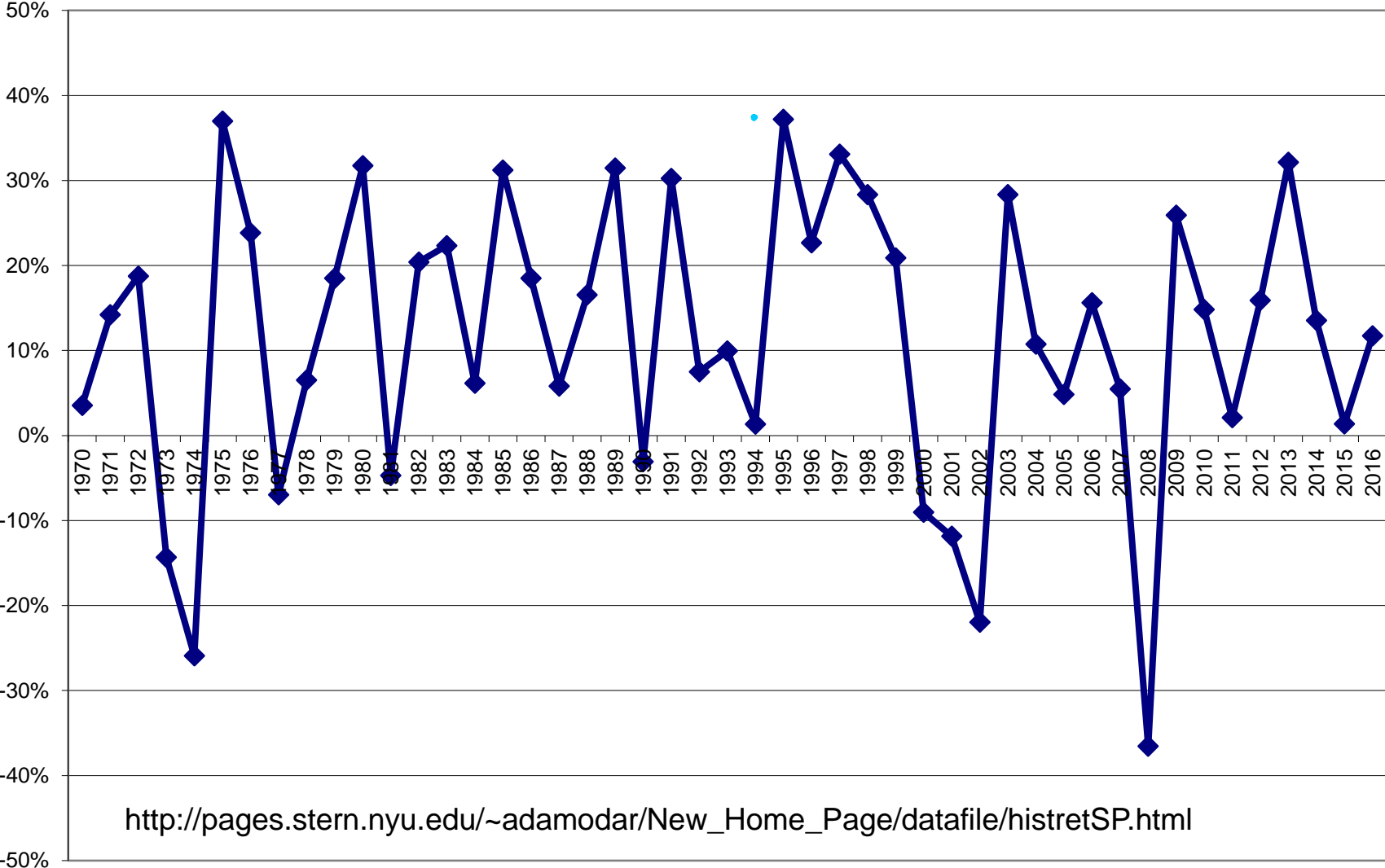
2,531.94
Jan. 4, 5:02 p.m. ES

Source: Compustat, FactSet, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.
Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price to earnings ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns.
Guide to the Markets - U.S. Data are as of September 30, 2018.



S&P 500 ANNUAL RETURNS 1970–2016 (INCLUDES DIVIDENDS)

S&P 500 Annual % Change

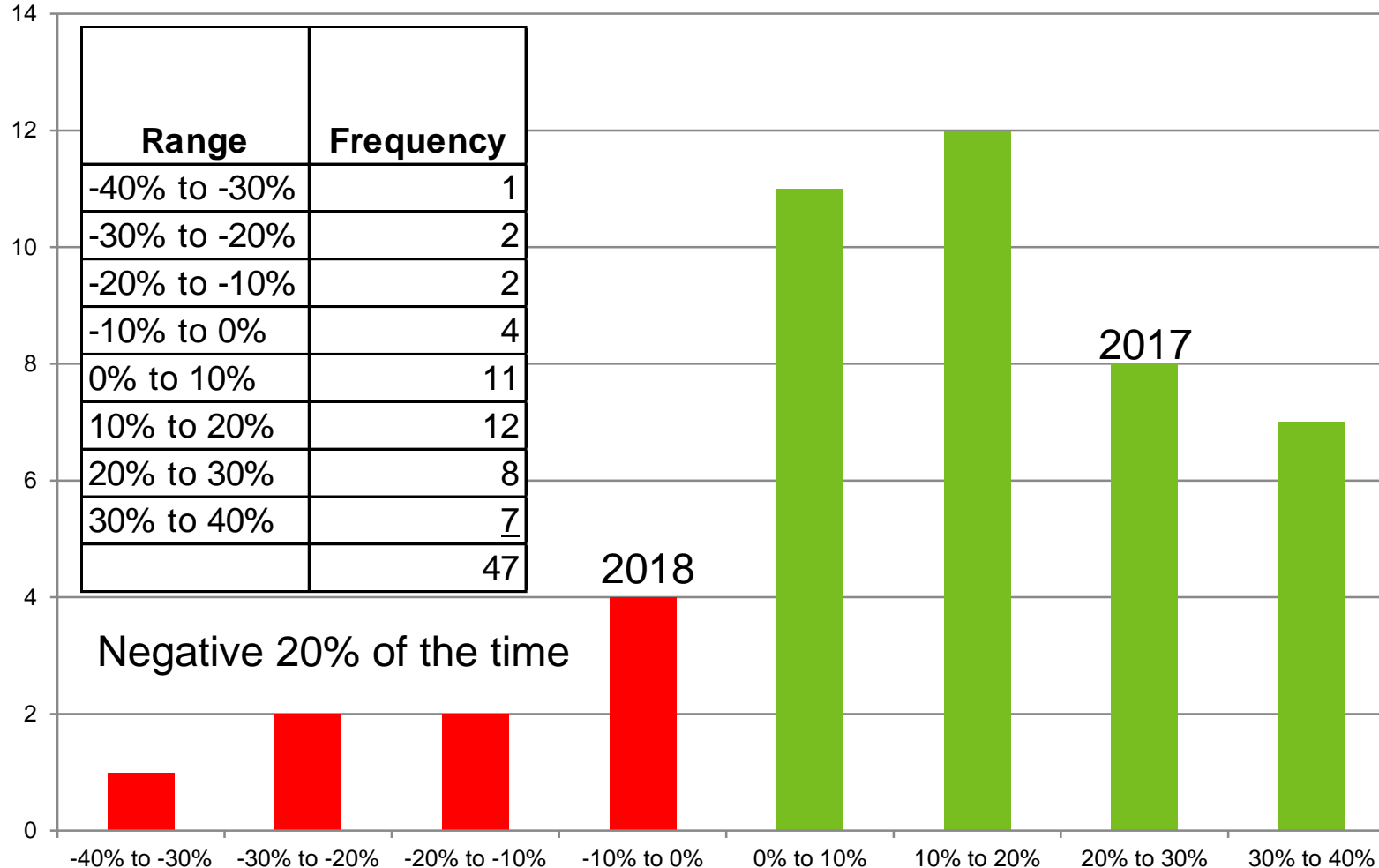


2017: 21.64%
2018: Approx -7%

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html

1970–2016 FREQUENCY OF S&P 500 ANNUAL RETURNS

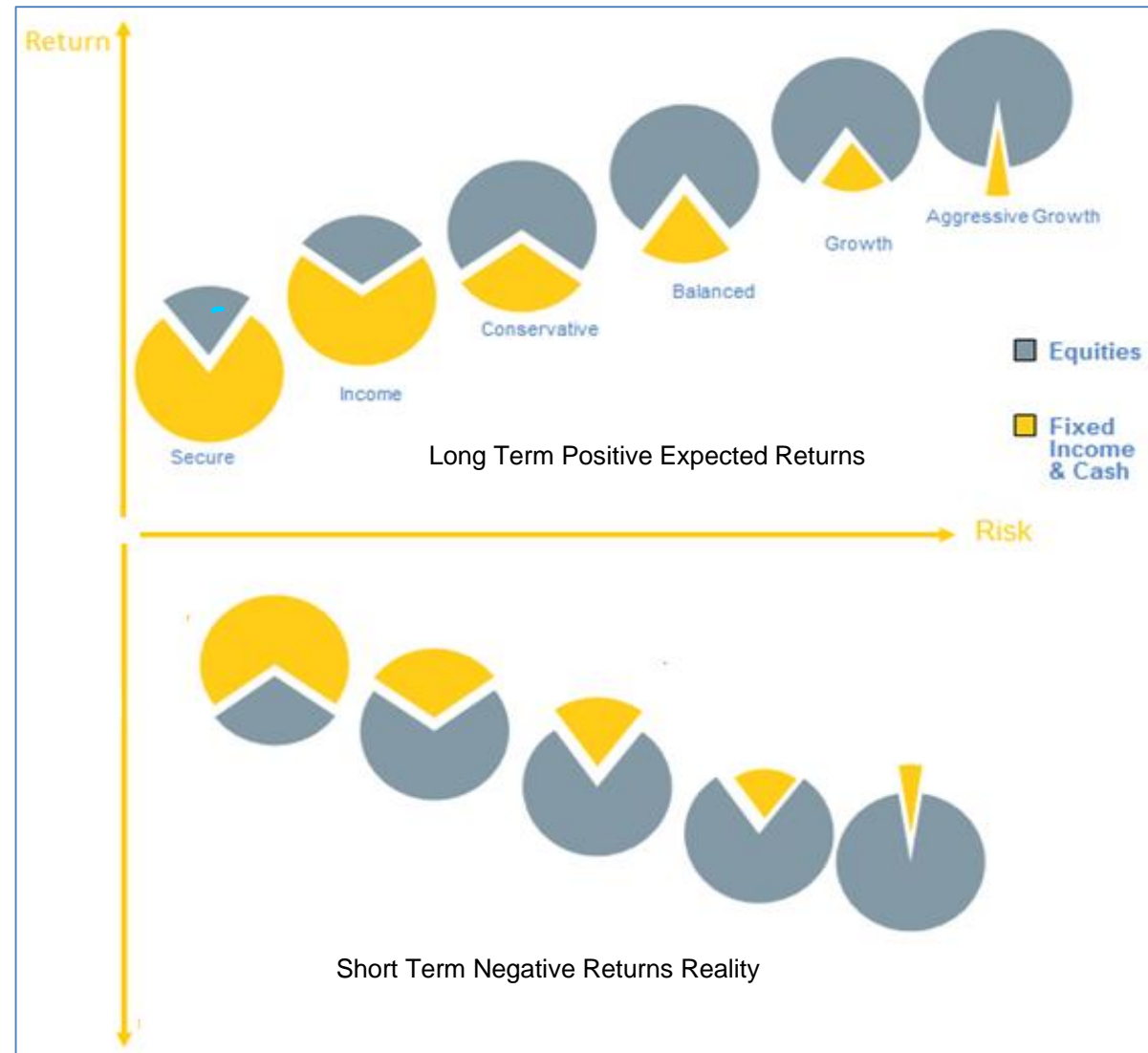
Frequency



Stock return data and other data from continuous distributions may not have a modal outcome. When such data are grouped into intervals, however, we often find an interval (possibly more than one) with the highest frequency: the modal interval (or intervals). Ibbotson data: this was the 10% – 20% return.

STEPS TOWARD AN ACTUAL PORTFOLIO

Six Asset Allocation Profiles: Long Term & Short Term



BENJAMIN GRAHAM ON RISK

Benjamin Graham stated that: **“every investor who owns common stocks must expect to see them fluctuate in value over the years.**

If you overestimate how well you really understand an investment, or overstate your ability to ride out a temporary plunge in prices, it doesn't matter what you own or how the market does.

Ultimately, financial risk resides not in what kinds of investments that you have, but in what kind of investor you are.” (Jason Zweig commentary on Chapter 20 – The Intelligent Investor by Benjamin Graham)

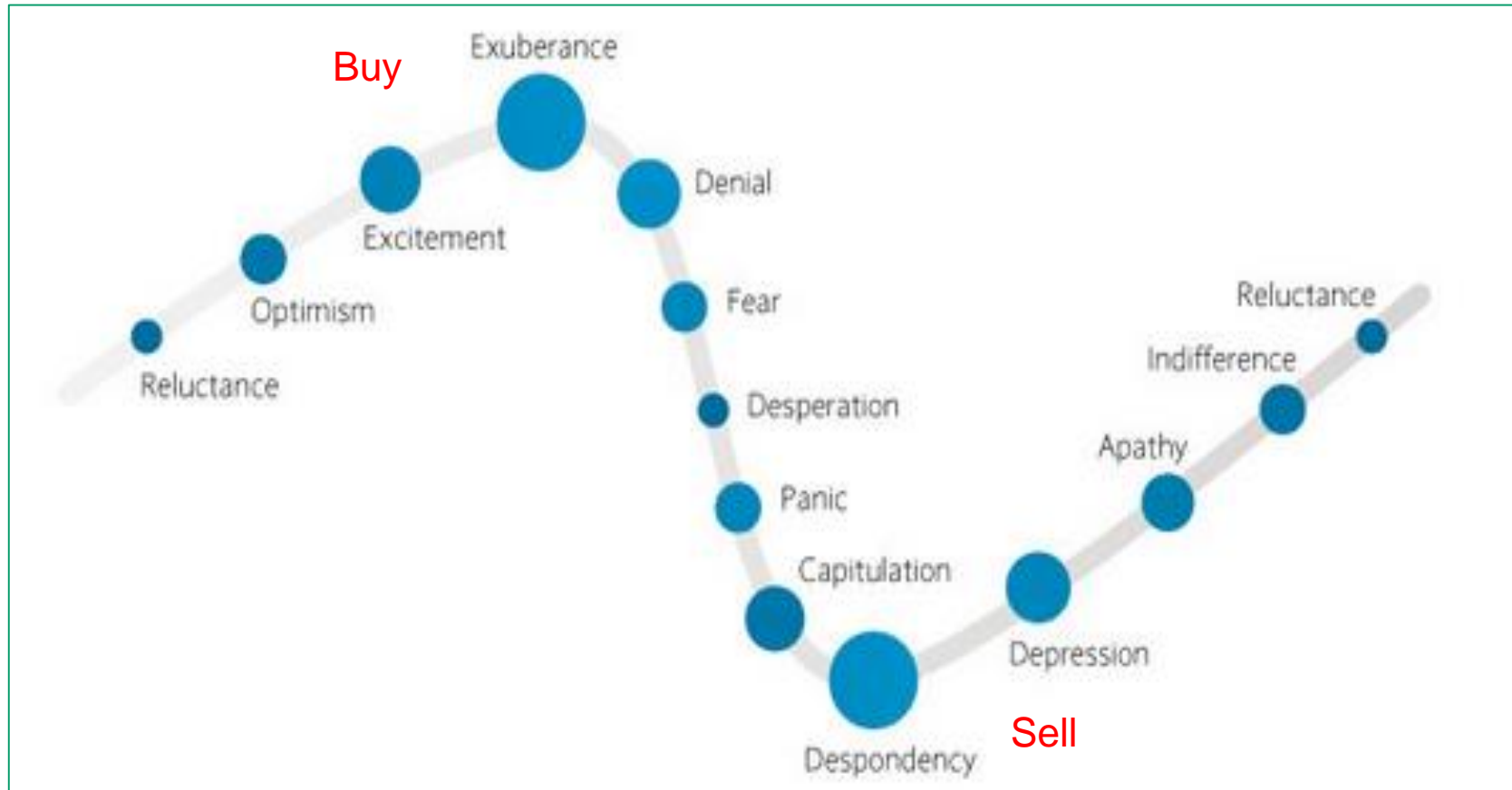
The market is a pendulum that swings between unsustainable optimism (which makes the stocks too expensive) and unjustified pessimism (which makes them too cheap). The intelligent investor is a realist who sells to optimists and buys from pessimists.

Warren Buffett echoed this advice when he said “be fearful when others are greedy and greedy when others are fearful,” (Buffet 2008) and “The sillier the market's behavior, the greater the opportunity for the business-like investor.”

Success comes from harnessing our emotions and understanding the things we can control and cannot control.

STEPS TOWARD AN ACTUAL PORTFOLIO

Barclays: Average Investor Emotions Can Affect Investment Returns



https://wealth.barclays.com/en_gb/home/research/research-centre/white-papers/Behavioural-Finance/Cycle-of-investor-emotions.html

EQUITIES – GLOBAL FRAMEWORK

MSCI ACWI & FRONTIER MARKETS INDEX										
MSCI ACWI INDEX						MSCI EMERGING & FRONTIER MARKETS INDEX				
MSCI WORLD INDEX			MSCI EMERGING MARKETS INDEX			MSCI FRONTIER MARKETS INDEX				
DEVELOPED MARKETS			EMERGING MARKETS			FRONTIER MARKETS				
Americas	Europe & Middle East	Pacific	Americas	Europe, Middle East & Africa	Asia	Americas	Europe & CIS	Africa	Middle East	Asia
Canada United States	Austria Belgium Denmark Finland France Germany Ireland Israel Italy Netherlands Norway Portugal Spain Sweden Switzerland United Kingdom	Australia Hong Kong Japan New Zealand Singapore	Brazil Chile Colombia Mexico Peru	Czech Republic Egypt Greece Hungary Poland Qatar Russia South Africa Turkey United Arab Emirates	China India Indonesia Korea Malaysia Philippines Taiwan Thailand	Argentina	Croatia Estonia Lithuania Kazakhstan Romania Serbia Slovenia	Kenya Mauritius Morocco Nigeria Tunisia WAEMU ²	Bahrain Jordan Kuwait Lebanon Oman	Bangladesh Pakistan ³ Sri Lanka Vietnam
MSCI STANDALONE MARKET INDEXES ¹										
				Saudi Arabia		Jamaica Trinidad & Tobago	Bosnia Herzegovina Bulgaria Ukraine	Botswana Ghana Zimbabwe	Palestine	

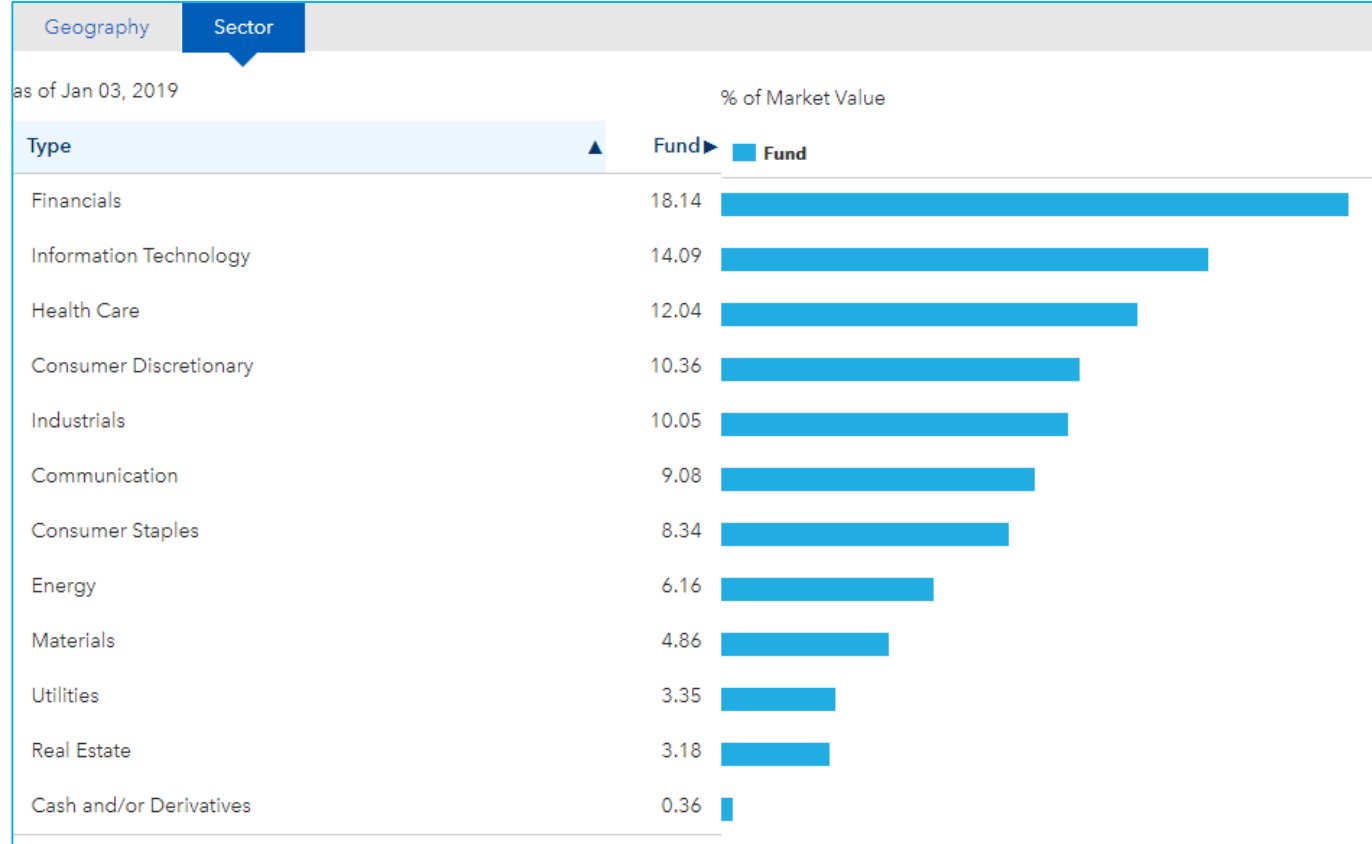


ISHARES MSCI ACWI ?

Geography | Sector

as of Jan 03, 2019

Type ▲	Fund ▶	%
United States	54.98	
Japan	7.63	
United Kingdom	5.34	
China	3.44	
France	3.32	
Canada	3.04	
Switzerland	2.73	
Germany	2.67	
Australia	2.22	
Korea (South)	1.65	
Taiwan	1.29	
Hong Kong	1.19	



Top 3 companies = Microsoft, Apple, Amazon

<https://www.ishares.com/us/products/239600/ishares-msci-acwi-etf>

FEATURES OF EQUITY SECURITIES

Features	
Life	Many equity securities are issued with an infinite life; some have a maturity date.
Par Value	The par value of a share is the stated value, or face value, of the equity security. Equity securities may or may not be issued with a par value.
Voting Rights	Some shares give their holders the right to vote on certain matters. Shareholders with voting rights collectively elect a group of people, called the board of directors .
Cash Flow Rights	Cash flow rights are the rights of shareholders to distributions, such as dividends, made by the company. In the event of the company being liquidated, assets are distributed following a priority of claims, or seniority ranking .

LOS a: Describe features of equity securities.

TYPES OF EQUITY SECURITIES

Types and Classes of Equity Securities	
Common Shares	Also called common stock, ordinary shares, or voting shares
Preferred Shares	Also known as preferred stock or preference shares
Convertible Bonds	Can be converted into shares of common stock
Warrants	An equity-like security that entitles the holder to buy a specified amount of common stock of the issuing company at a specified price per share
Depository Receipts	A security representing an interest in a foreign company that trades like a common share on a domestic stock exchange

LOS b: Describe types of equity securities.

CLASSES OF COMMON STOCK

Common stock (also known as common shares, ordinary shares, or voting shares) is the main type of equity security issued by companies.

Common stock represents an ownership interest in a company, has an infinite life, and may or may not have a par value.

One Class of Shares	One class for voting rights, cash flow, and dividend rights: “One share, one vote”
Multiple Classes of Shares	Class A Shares: Superior voting and/or cash flow rights
	Class B Shares: Either lower voting rights and/or dividend rights

LOS b: Describe types of equity securities.

PREFERRED STOCK

Companies may also issue preferred stock (also known as preferred shares or preference shares).

They are called preferred because owners of preferred stock will receive dividends before common shareholders and will have a higher claim on the company's assets if the company ceases operations.

Preferred stock is typically issued with an **assigned par value** that, along with a stated **fixed dividend rate**, defines the amount of the annual dividend.

Cumulative preferred stock requires that the company pay in full any missed dividends (dividends promised, but not paid) before paying dividends to common shareholders.

Non-cumulative preferred stock does not require that missed dividends be paid before dividends are paid to common shareholders.

Some companies have more than a single issue of preferred stock (**Series**). Each issue usually carries its own dividend.

LOS b: Describe types of equity securities.

PRACTICE Q: EXPERT

A firm's preferred stock may differ in par value based on the preferred stock's:

- A. series.
- B. rating.
- C. dividend.

PRACTICE Q: EXPERT

A firm's preferred stock may differ in par value based on the preferred stock's:

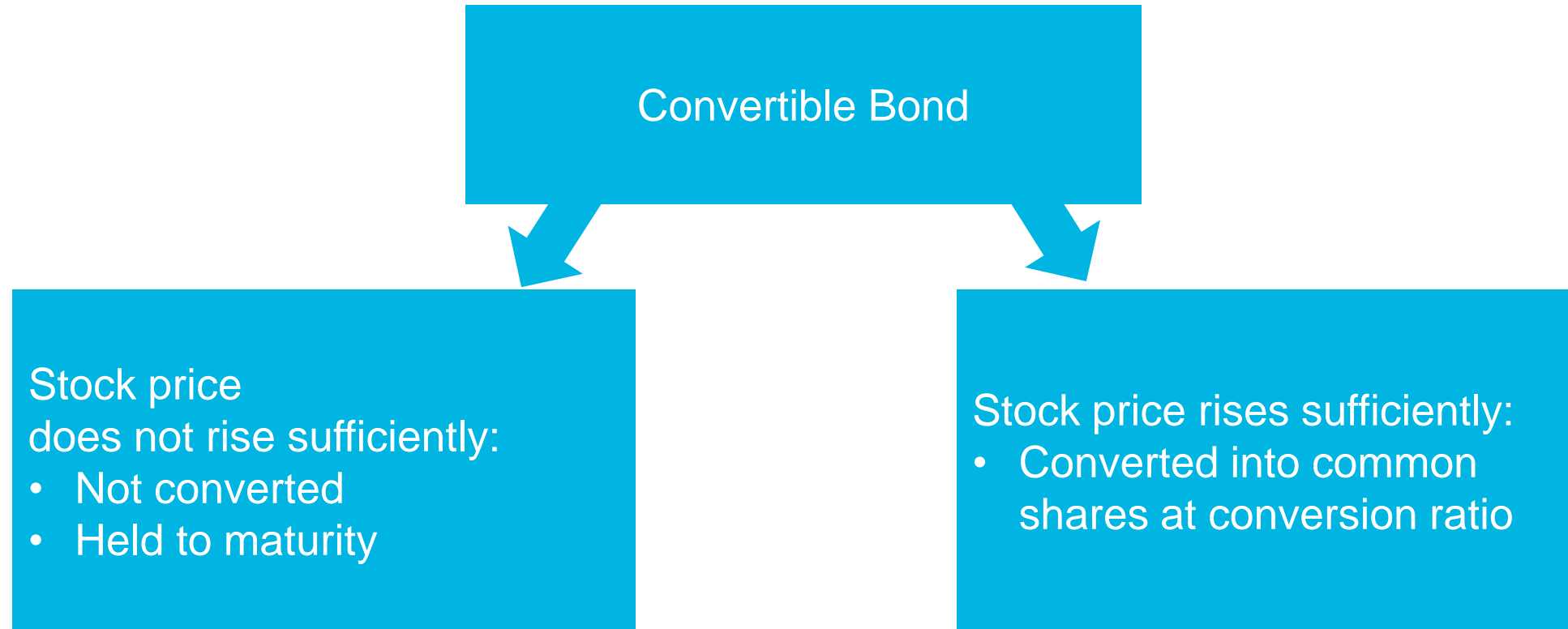
A. **series.**

B. rating.

C. dividend.

A is correct. A firm's preferred stock may differ in par value **based on the series** of the preferred stock.

CONVERTIBLE BONDS



Because the conversion feature is a benefit to the bondholder, a convertible bond typically offers the bondholder a lower fixed annual coupon rate.

LOS b: Describe types of equity securities.

CONVERTIBLE BONDS

- The **conversion ratio** is the number of common shares that each bond can be converted into. The indenture sometimes does not stipulate the conversion ratio but only mentions the conversion price.
 1. Each \$1,000 bond into 19.891 shares
- The **conversion value**, sometimes called the parity value, is the current share price multiplied by the conversion ratio.
 2. On 9 October 2012, the company's common shares closed at \$22.26 and, therefore, each \$1,000 bond's conversion value was \$442.77 ($= \22.26×19.891).
- The **conversion premium** is the difference between the convertible bond's price and its conversion value. For example, if the convertible bond's price is \$912 and the conversion value is \$442.77, the conversion premium is $\$912 - \$443 = \$469$.
- **Conversion parity** occurs if the conversion value is equal to the convertible bond's price.
 3. If bond price was \$912, stock price would have to \$45.85 for parity. $\$45.85 \times 19.891 = \912

EXAMPLE 3. CONVERTIBLE BONDS

On 22 October 2009, Navistar, a US company, issued convertible bonds. The bond issue pays interest semiannually (twice a year) at a rate of 3.0% per year and has a maturity date of 15 October 2014. Owners of this convertible bond issue may convert each \$1,000 bond into 19.891 common shares. The owners may unconditionally convert at any time on or after 15 April 2014 up to the maturity date and may convert the bond prior to that date under certain conditions. No redemption right is included as part of the bond issue. On 9 October 2012, the company's common shares closed at \$22.26 and, therefore, each \$1,000 bond's conversion value was \$442.77 ($= \22.26×19.891). The bond price in the market was \$912. In this case, the bond is trading at close to its straight bond value, rather than at its conversion value.

PRACTICE Q: EXPERT

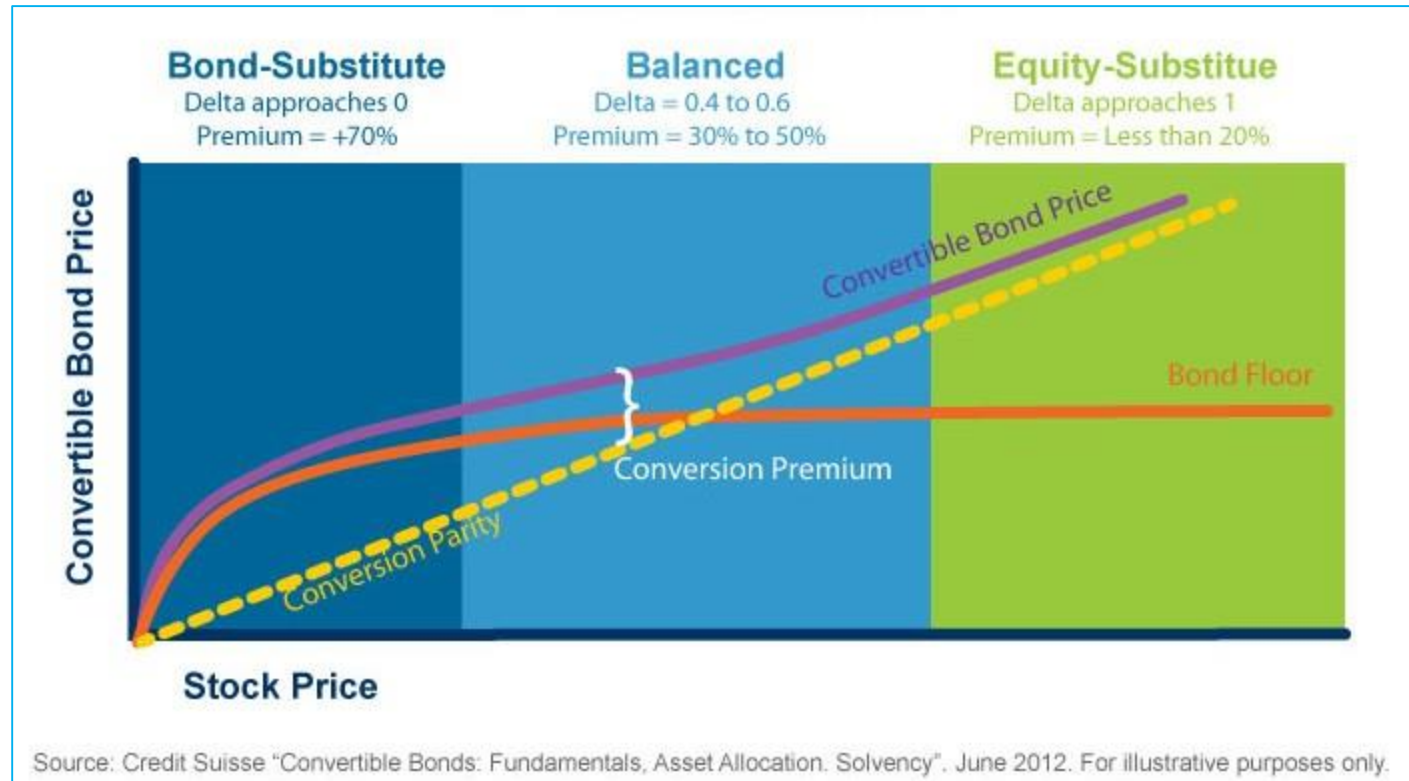
When a convertible bond is issued, compared with its conversion value, its value as a straight bond is most likely:

- A. higher.
- B. lower.
- C. the same.

PRACTICE Q: EXPERT

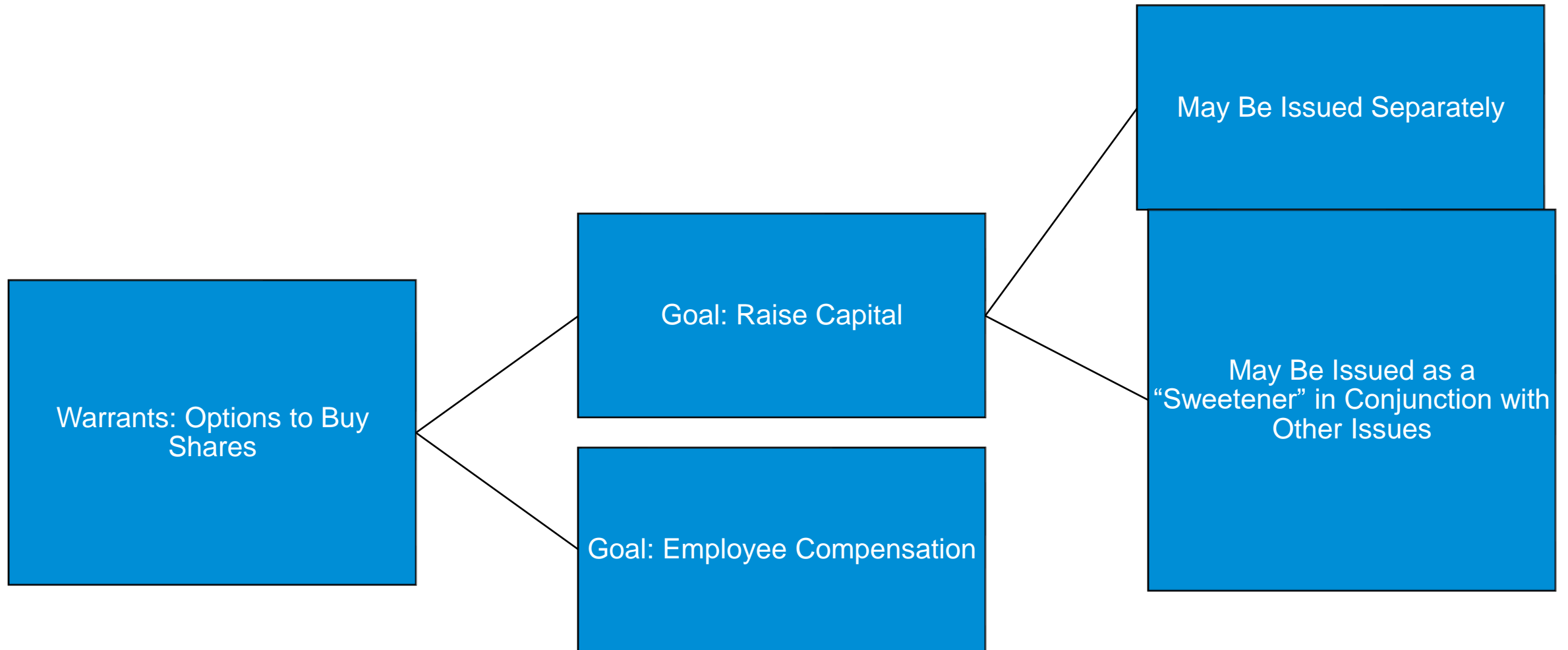
When a convertible bond is issued, compared with its conversion value, its value as a straight bond is most likely:

- A. higher.
- B. lower.
- C. the same.



A is correct. The conversion value of a convertible bond is the value of the number of common shares into which it is convertible. When first issued, the conversion value is below the value of a straight bond to deter investors from immediately converting bonds to common shares and making an instant profit.

WARRANTS



LOS b: Describe types of equity securities.

PRACTICE Q: EXPERT

The pre-specified price for which a warrant can be used to purchase common stock is the:

- A. strike price.
- B. buyback price.
- C. conversion price.

PRACTICE Q: EXPERT

The pre-specified price for which a warrant can be used to purchase common stock is the:

- A. **strike price.**
- B. buyback price.
- C. conversion price.

A is correct. The pre-specified price for which a warrant can be used to purchase common stock is the strike price, or exercise price.

DEPOSITARY RECEIPTS (GLOBAL DEPOSITARY RECEIPTS, OR GDRS)

Mexican bank buys shares of Sony in Tokyo

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graph TD; A[Mexican bank buys shares of Sony in Tokyo] --> B[Mexican bank issues GDRs to investors against the Sony shares it holds in custody]; B --> C[The GDRs are denominated in pesos and trade on the Mexican stock exchange];
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Mexican bank issues GDRs to investors against the Sony shares it holds in custody

The GDRs are denominated in pesos and trade on the Mexican stock exchange

LOS b: Describe types of equity securities.

CASH FLOW AND VOTING RIGHTS

Type of Security	Cash Flow Rights	Voting Rights	Liquidation
Common Stock	Right to dividends if declared by the board of directors	Proportional to ownership	Lowest priority
Preferred Stock	Right to promised dividends if declared by the board of directors; board does not have a legal obligation to declare the dividends	None	Middle priority
Debt Security	Legal right to promised cash flows	None	Highest priority

LOS c: Compare risk and return of equity and debt securities.

RISK AND RETURN OF EQUITY AND DEBT SECURITIES

Common Stock

Highest risk,
highest expected
return

Preferred Stock

Middle risk, middle
expected return

Debt Securities

Lowest risk,
lowest expected
return

LOS c: Compare risk and return of equity and debt securities.

PRACTICE Q: EXPERT

The type of investor who is most likely to have the greatest incentive to closely monitor a firm's activities in regard to maintaining assets when the firm is struggling is a:

- A. debtholder.
- B. common shareholder.
- C. preferred shareholder.

PRACTICE Q: EXPERT

The type of investor who is most likely to have the greatest incentive to closely monitor a firm's activities in regard to maintaining assets when the firm is struggling is a:

- A. debtholder.
- B. common shareholder.
- C. preferred shareholder.

A is correct. When a firm is struggling, a debtholder has the greatest incentive to closely monitor the firm's activities in regard to asset quality because shareholders have little incentive to maintain the assets in this situation.

HISTORICAL ANNUAL RETURNS ON EQUITY AND DEBT SECURITIES, 1980–2010

	Index	Annual Return	Standard Deviation of Returns
Equity	S&P 500	10.80%	15.60%
	Russell 2000	10.35	19.94
	MSCI Europe	10.81	17.80
	MSCI Pacific Basin	7.89	21.13
	FTSE All World	7.26	15.98
	MSCI EAFE	7.09	17.71
Debt	Lehman Brothers Corp. Bond	8.82	7.23
	Barclays Capital Gov. Bond	8.15	5.51
	Merrill Lynch World Gov. Bond	7.88	7.04

LOS c: Compare risk and return of equity and debt securities.

HISTORICAL ANNUAL RETURNS ON EQUITY AND DEBT SECURITIES, 1980–2010

Index	Annual Return	Standard Deviation of Returns	Return / Risk
MSCI Europe	10.81	17.8	0.6073
S&P 500	10.80	15.60	0.6923
Russell 2000	10.35	19.94	0.5191
Lehman Brothers Corp. Bond	8.82	7.23	1.2199
Barclays Capital Gov. Bond	8.15	5.51	1.4791
MSCI Pacific Basin	7.89	21.13	0.3734
Merrill Lynch World Gov. Bond	7.88	7.04	1.1193
FTSE All World	7.26	15.98	0.4543
MSCI EAFE	7.09	17.71	0.4003

LOS c: Compare risk and return of equity and debt securities.

VALUATION APPROACHES

Discounted Cash Flow (DCF) Valuation

- Estimates the value of a security as the present value of all future cash flows that the investor expects to receive from the security.
- Common shareholders expect to receive two types of cash flows from investing in equity securities: dividends and the proceeds from selling their shares

Relative Valuation

- Relies on the use of price multiples, such as the price-to-earnings ratio, of comparable, publicly traded companies or an industry average.

LOS d: Describe approaches to valuing common shares.

VALUATION APPROACHES

Asset-Based Valuation

- Estimates the value of common equity by calculating the difference between the value of a company's total assets and its outstanding liabilities
- Should be based on market values and includes intangible items

LOS d: Describe approaches to valuing common shares.

IMPLICIT ASSUMPTIONS OF VALUATION APPROACHES

The **DCF valuation approach** relies solely on estimates of a company's future cash flows and implicitly assumes that the company will continue to operate forever.

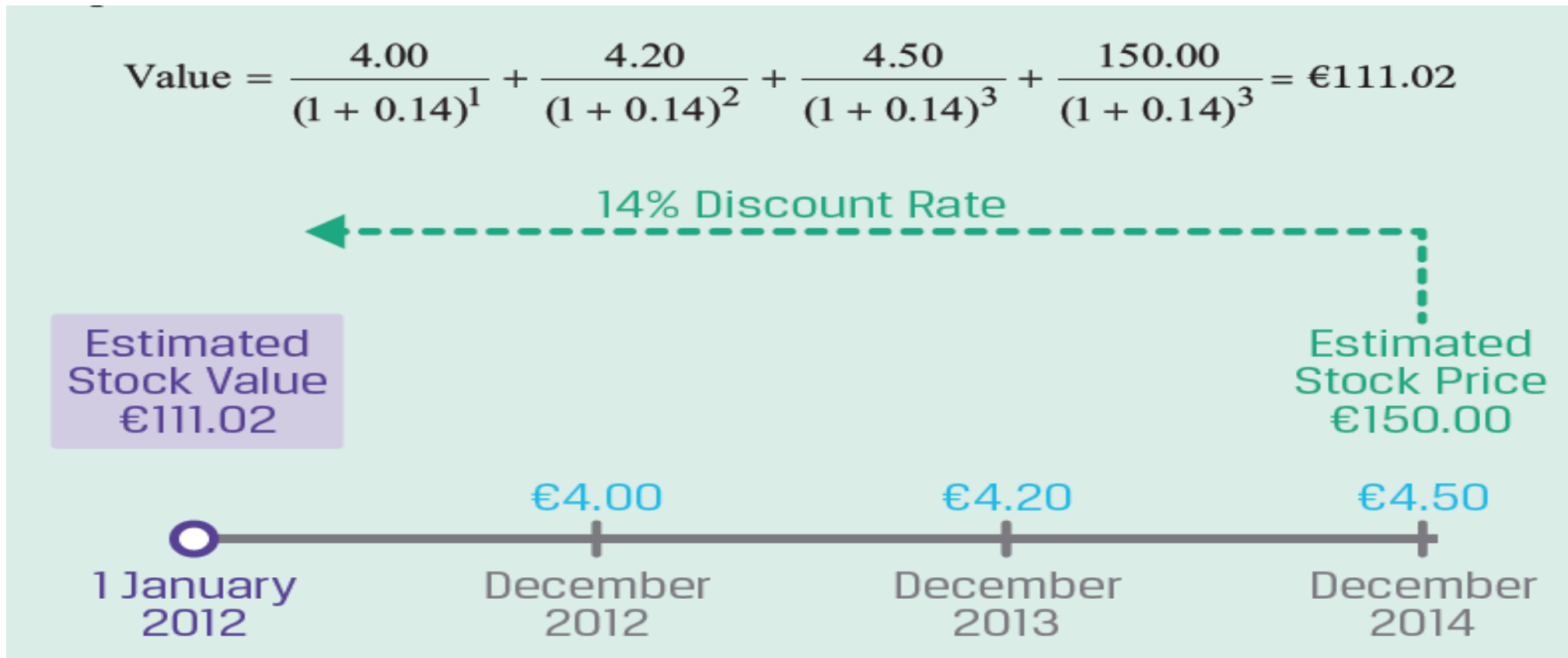
The **relative valuation approach** does not estimate future cash flows but instead uses price multiples of other comparable, publicly traded companies to arrive at an estimate of equity value.

The **asset-based valuation** approach implicitly assumes that the company will stop operating and essentially provides a liquidation value.

LOS d: Describe approaches to valuing common shares.

DISCOUNTED CASH FLOW APPROACH

You forecast that a stock will pay a dividend of €4.00 in one year, €4.20 in two years, €4.50 in three years, and then be worth €150. You want a 14% return.



LOS d: Describe approaches to valuing common shares.

COMPANY ACTIONS THAT AFFECT EQUITY OUTSTANDING

Initial Public Offering (IPO)

Seasoned or Secondary Equity Offering

Share Repurchases or Buybacks

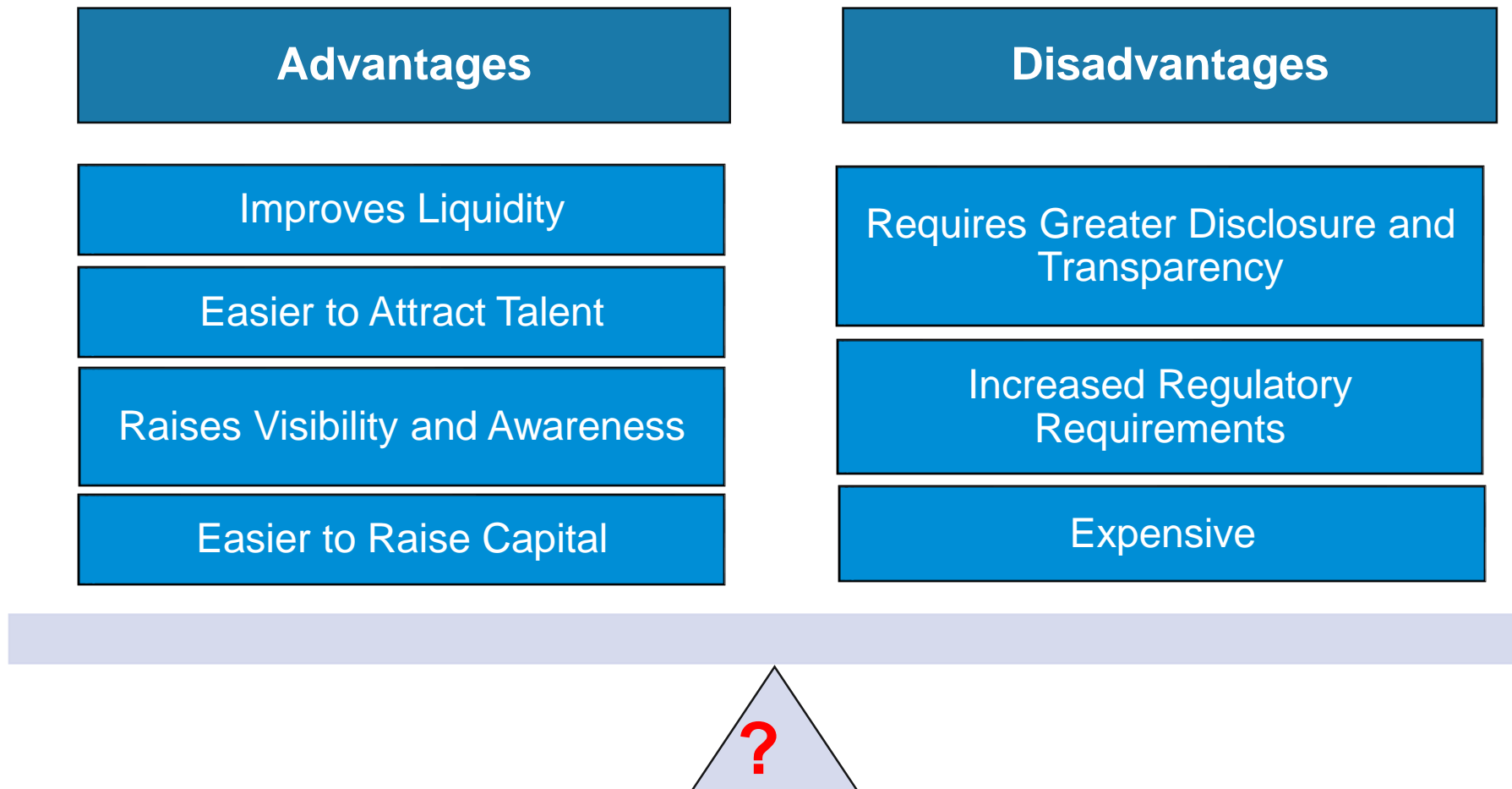
Stock Splits and Stock Dividends

Exercise of Warrants

Acquisitions and Spinoffs

LOS e: Describe company actions that affect the company's shares outstanding.

INITIAL PUBLIC OFFERING (IPO)



LOS e: Describe company actions that affect the company's shares outstanding.

SEASONED OR SECONDARY OFFERINGS

Seasoned Equity Offering

After an IPO, publicly traded companies may sell additional shares to raise more capital.

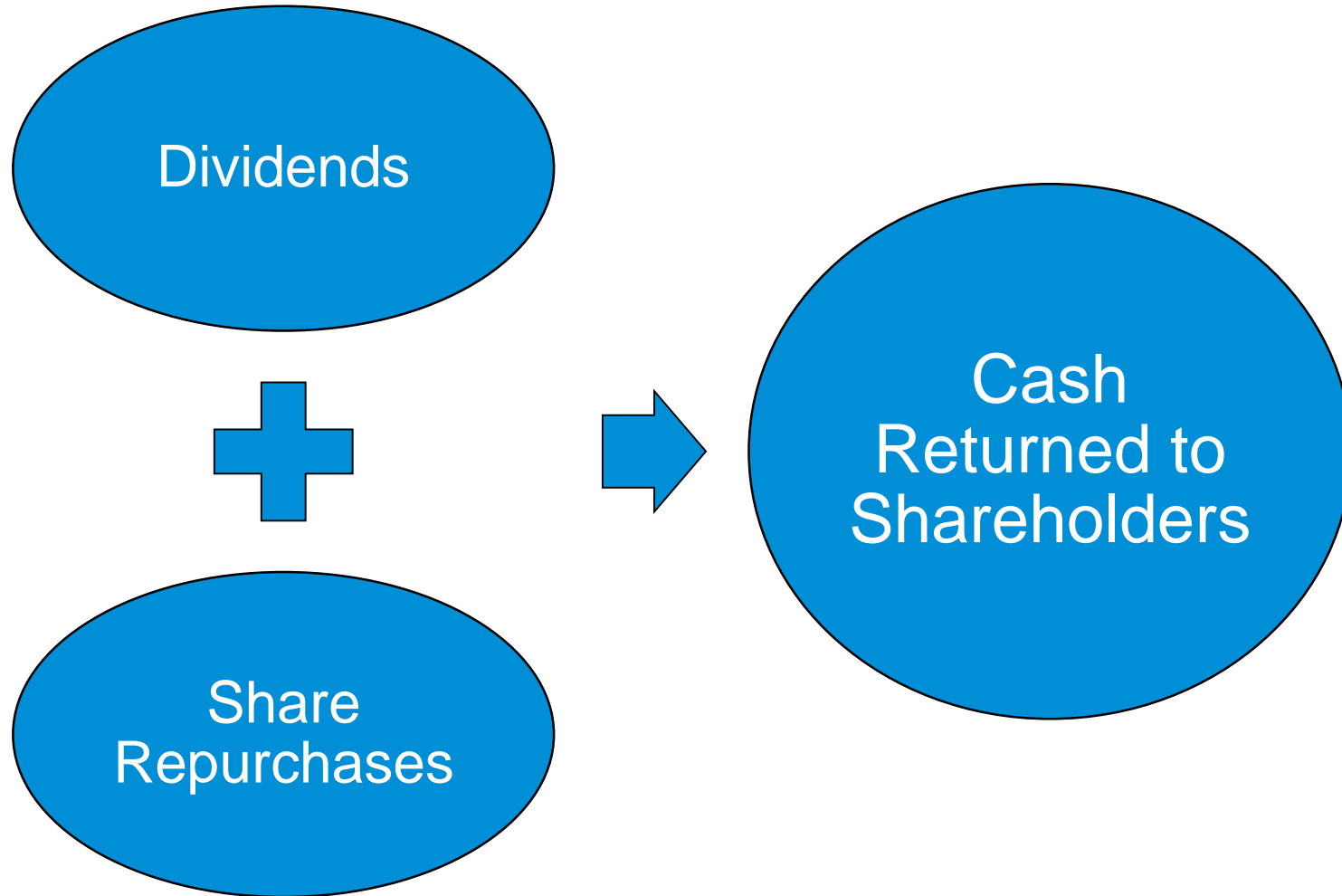
The selling of new shares by a publicly traded company after an IPO is referred to as a seasoned or secondary equity offering.

A seasoned equity offering typically has far lower costs associated with it compared with an IPO.

For an existing investor who does not buy additional shares in the seasoned equity offering, **the increase in shares outstanding dilutes the investor's ownership percentage.**

LOS e: Describe company actions that affect the company's shares outstanding.

SHARE REPURCHASES



LOS e: Describe company actions that affect the company's shares outstanding.

STOCK SPLITS AND STOCK DIVIDENDS

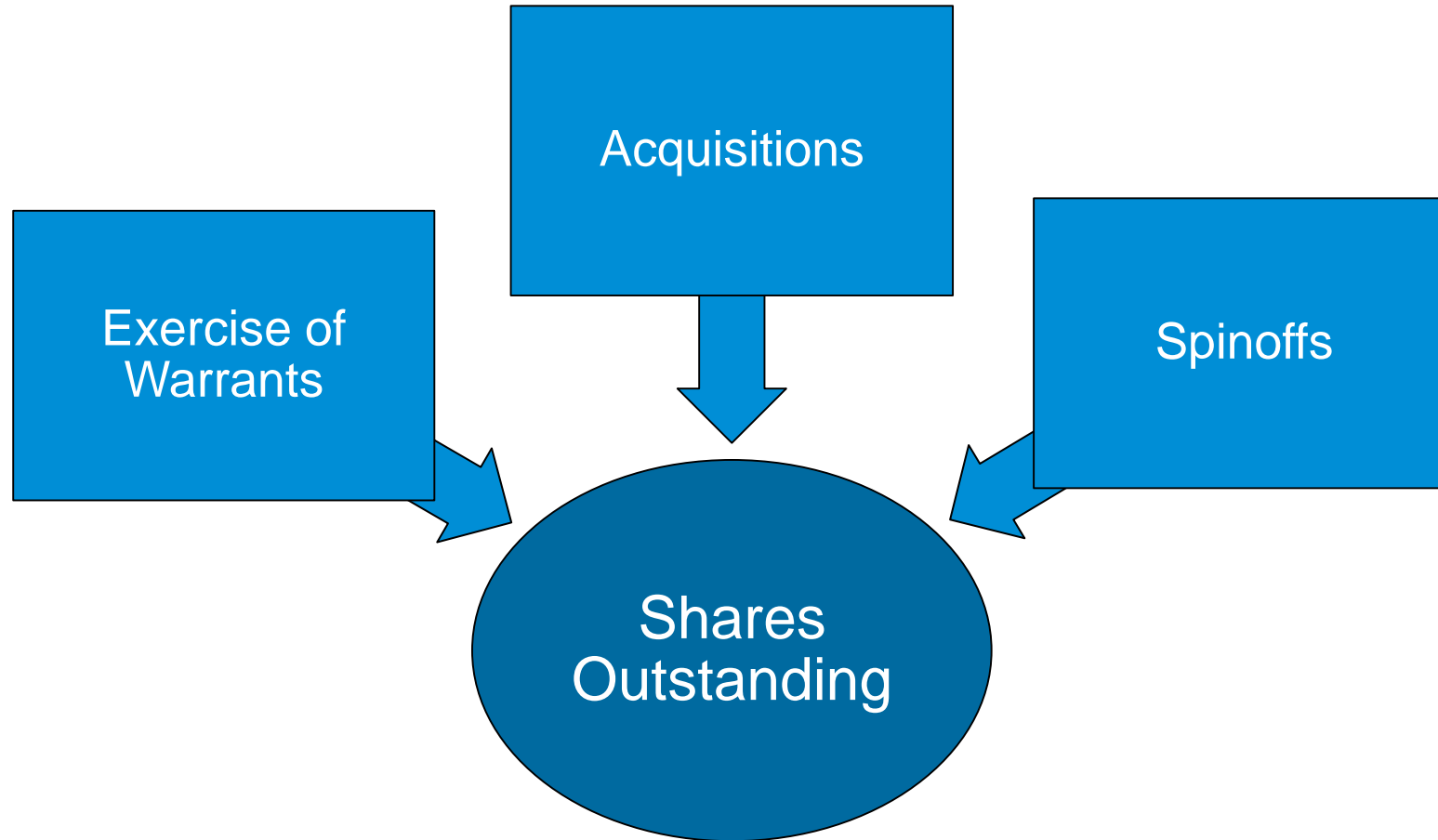
Before Split	3:2	After Split	Result
24,000 shares	$\times (3/2)$	= 36,000 shares	Number of shares increase
Worth €75.00 each	$\div (3/2)$	= €50.00 each	Price drops
= €1,800,000		= €1,800,000	Total value unchanged

Or Issue a 50% Stock Dividend
$24,000 + 0.5 \times 24,000$ $= 36,000 \text{ shares}$
$€75.00 / (1 + 0.50) = €50.00$

A stock split or stock dividend does not change a shareholder's proportional ownership of the company.

LOS e: Describe company actions that affect the company's shares outstanding.

OTHER ACTIONS THAT AFFECT SHARES OUTSTANDING



LOS e: Describe company actions that affect the company's shares outstanding.

PRACTICE Q: EXPERT

From the firm's perspective, the corporate action that most likely will have the same effect as paying a cash dividend is a stock:

- A. split.
- B. buyback.
- C. dividend.

PRACTICE Q: EXPERT

From the firm's perspective, the corporate action that most likely will have the same effect as paying a cash dividend is a stock:

- A. split.
- B. buyback.**
- C. dividend.

B is correct. From the firm's perspective, a stock buyback is similar to a cash dividend because the company still distributes cash. However, shareholders receive the cash only if they choose to sell their stock back to the firm.

A is incorrect. A firm does not make any cash disbursement to the shareholders with a stock split.

C is incorrect. A firm does not make any cash disbursement to the shareholders with a stock dividend.

PRACTICE Q: EXPERT

Dilution can be caused by a:

- A. stock split.
- B. stock dividend.
- C. seasoned equity offering.

PRACTICE Q: EXPERT

Dilution can be caused by a:

- A. stock split.
- B. stock dividend.
- C. seasoned equity offering.**

C is correct. A seasoned equity offering can create new shares in a manner that changes the proportional equity ownership of individual shareholders from what it was prior to the offering (i.e., dilution).

A is incorrect. **A stock split does not affect the proportionate equity ownership** of individual shareholders.

B is incorrect. **A stock dividend does not affect the proportionate equity ownership** of individual shareholders.