



Personal Finance: Another Perspective

Investing 1: Before you Invest

Updated 2020/02/21



Objectives

- A. Know what to do before you invest
- B. Understand the principles of successful investing
- C. Understand the major asset classes and their risk and return history

Note: For a general overview of how we teach investing, please see [Beginning Investing Overview](#).



Your Personal Financial Plan

- Section XII: Investment Plan
 - Includes your detailed Investment Plan (you can copy an outline from [Investment Plan Template](#) (LT5A) and instructions are [LT5B](#). Your Investment Plan includes:
 - I. What are your risk and return goals and objectives?
 - II. What are your investment guidelines and constraints?
 - III. What is your Investment Policy, your Plans and Strategies?
 - IV. When will you Evaluate, Modify, and Communicate results to accountability partners?



Your Financial Plan (continued)

- What are your proposed investments and allocations, your plans and strategies?
 - Include copies of your proposed investments from Morningstar on a minimum of 4 financial assets for your:
 - Emergency Fund
 - Core Financial Asset(s)
 - Diversification Asset(s)
 - Opportunistic Asset(s) (only if you want)
- Include [Expected Return Simulation](#) (LT27) and [Investment Process spreadsheet](#) (LT13)



Teaching Investments

- Please note that my teaching is different
 - Most textbooks take a financial assets approach – we teach principles and how to build a portfolio
- Be patient! Our framework for teaching is:
 - Day 1 (14) – Principles of investing/before you invest
 - Day 2 (15) – Creating your Investment Plan
 - Day 3 (16) – Building your investment portfolio
 - Day 4 (17) – Selecting your financial assets
 - Day 5 (18) – Portfolio monitoring and rebalancing
 - Day 6 (19) – Speaker and summary



Investment Assignments for Today

- Investments 1: Before you Invest
 - 1. Copy [Investment Plan Example Template](#) (LT5A).
 - 2. Add your information and complete the introduction to each of the four sections
 - 3. Take [Risk Tolerance Test](#) (LT16). Determine the type of investor you are: very conservative, conservative, moderate, aggressive, very aggressive
 - 4. Develop your preliminary “asset allocation” targets, i.e., your weights of stocks, bonds, and cash in your portfolio for before retirement and after retirement from your risk tolerance test.



Investment Assignments for Today (continued)

- Investments 4: Bond Basics
 - 1. Bond Volatility. Open [Return Simulation for Asset Classes](#) (LT23). Look at the volatility for bonds compared to other asset classes in the tab labeled “Charts” when you push F9 (calculate)
 - 2. Bond Returns. Open [Expected Return Simulation and Benchmarks](#) (LT27). Go to the tab labeled “Returns and Risk.” Review the 1, 5, 10, 25, etc. year return for bonds compared to other asset classes. Are they more or less volatile? Do you know why market rates and bond prices are inverse (see [Investment Expenses](#) - Bond Prices tab)?
 - 3. Think about what percentage of your portfolio should be in bonds from your risk tolerance results

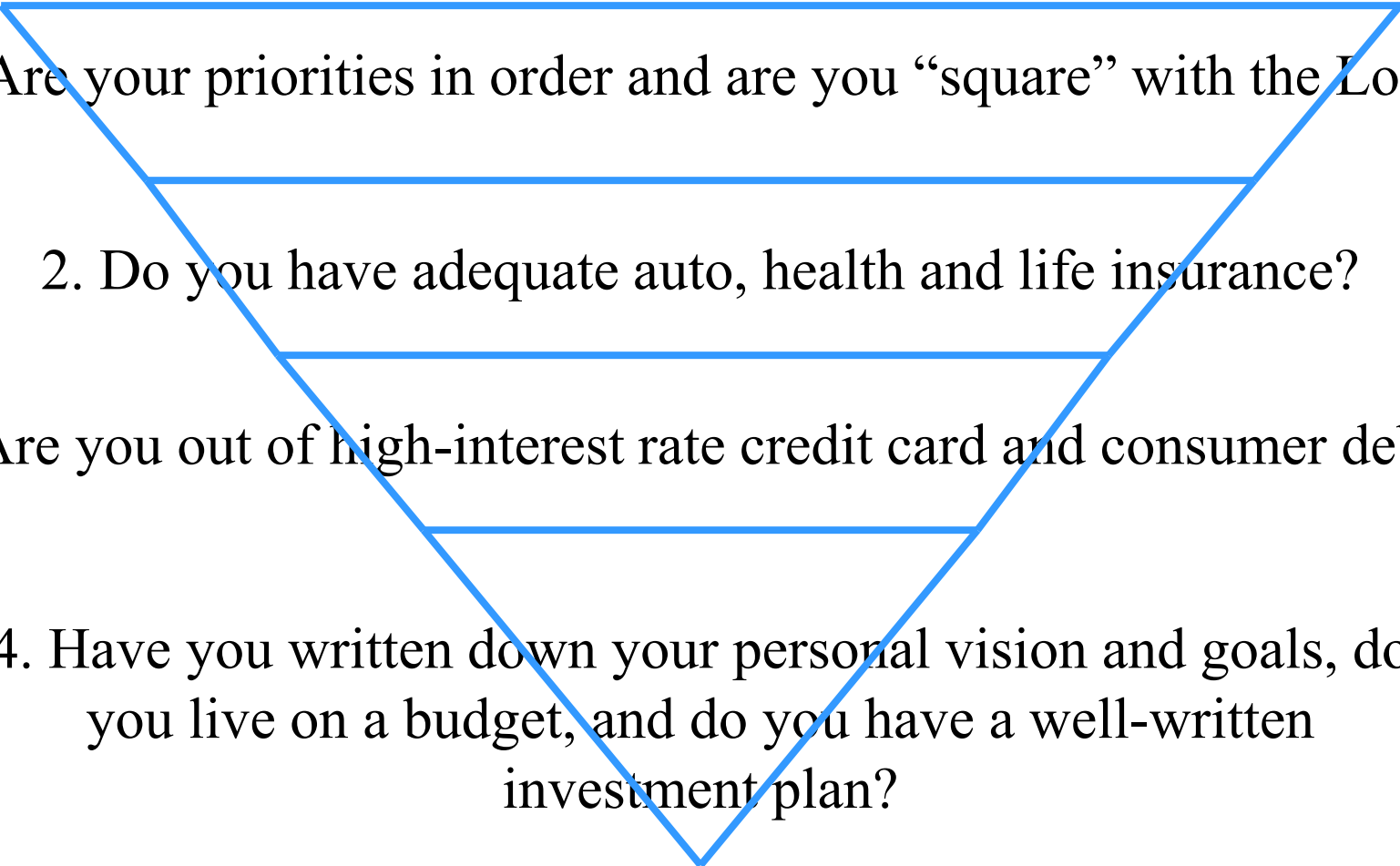


A. Questions to Ask Before you Invest

- What should you do before you start investing?
 - Is there a priority to paying bills?
 - Are there certain things you should never do without?
 - Are their other bills more important than investing?
 - Is there a purpose to investing?



Before You Invest: The Hourglass Top

- 
1. Are your priorities in order and are you “square” with the Lord?
 2. Do you have adequate auto, health and life insurance?
 3. Are you out of high-interest rate credit card and consumer debt?
 4. Have you written down your personal vision and goals, do you live on a budget, and do you have a well-written investment plan?

If you can answer these affirmatively, you are ready to invest!



Before you Invest (continued)

- What does the top of the hourglass do?
 - It helps you keep your priorities in order
- And what should those priorities be?
 - God
 - Family
 - Personal responsibility
 - Your personal vision, goals, budget, and a well-written Investment Plan



B. Understand the Principles of Successful Investing

- Is there one right way to invest?
 - No. There are multiple ways and multiple methods depending on your personal vision, goals and budget
 - The key is for you to know yourself, what you are trying to accomplish, and follow the principles of successful investing

Is there one right way to teach investing?

- No. But while there are many different ways, the principles should be the same.



Principles for Successful Investing (continued)

- How have most equity investors done?
 - Each year, DALBAR puts out an annual book on *Quantitative Analysis of Investor Behavior*. It discusses how average equity fund investors have done versus benchmarks over the past 20 years.

		Investor	Index	
Year	Period	Returns*	Returns	Difference
• 2014	1994-2013	3.7%	11.1%	-7.4%
• 2015	1995-2014	5.2%	9.9%	-4.7%
• 2016	1996-2015	4.7%	8.2%	-3.5%
• 2017	1997-2016	4.8%	7.7%	-2.9%
• 2018	1998-2017	5.3%	7.2%	-1.9%
• 2019	1999-2018	3.9%	5.6%	-1.7%

• * Dalbar 2013-2019



Principles for Successful Investing (continued)

- How have most bond investors done?
 - According to DALBAR, bond investors have done equally poorly versus the bond benchmark over the past 20 years.

		Investor	Index	
• Year	Period	Returns*	Returns	Difference
• 2014	1994-2013	0.7%	7.7%	-7.0%
• 2015	1995-2014	0.8%	6.2%	-5.4%
• 2016	1996-2015	0.5%	5.3%	-4.8%
• 2017	1997-2016	0.5%	5.0%	-4.5%
• 2018	1998-2017	0.4%	4.6%	-4.2%
• 2019	1999-2018	0.2%	4.6%	-4.4%

- * Dalbar QAIB 2013-2019, www.dalbar.com, ** Estimate



Principles for Successful Investing (continued)

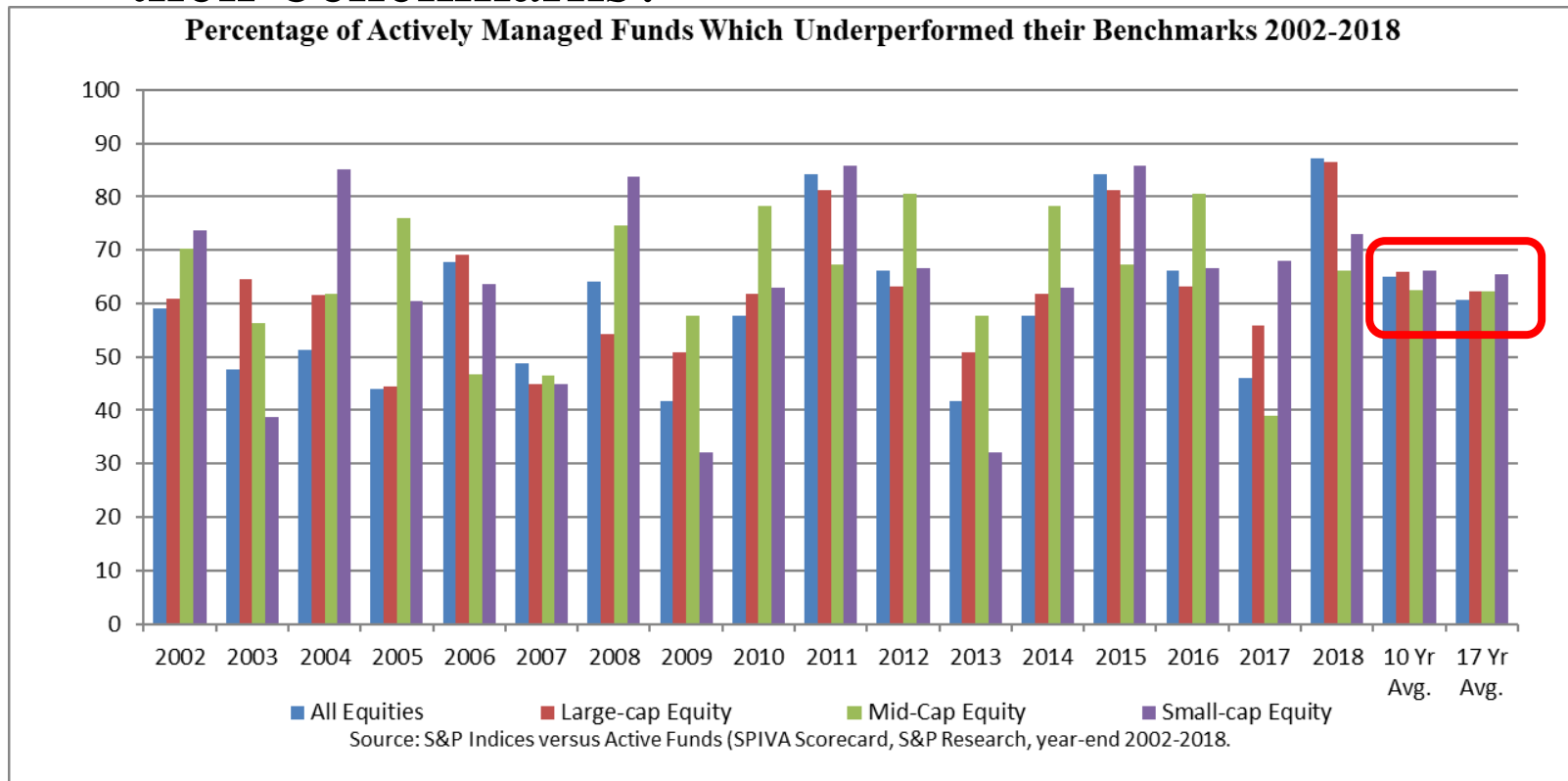
- How have most asset allocation investors done?
 - According to DALBAR, asset allocation investors have done equally poorly versus the bond benchmark over the past 20 years.

		Investor	Index	
• Year	Period	Returns*	Returns**	Difference
• 2014	1994-2013	1.9%	9.7%	-7.8%
• 2015	1995-2014	2.5%	8.4%	-5.9%
• 2016	1996-2015	2.1%	7.0%	-4.9%
• 2017	1997-2016	2.3%	6.6%	-4.3%
• 2018	1998-2017	2.6%	6.2%	-3.6%
• 2019	1999-2019	2.9%	5.2%	-2.3%
• * Dalbar QAIB 2013-2019, www.dalbar.com , ** Estimate of 60% S&P 500 and 40% Barclay's Aggregate				

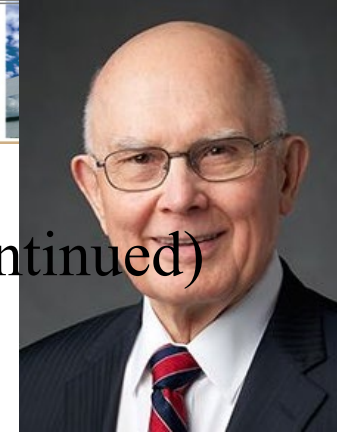


Principles for Successful Investing (continued)

- Have most actively managed funds outperformed their benchmarks?



NO!



Principles for Successful Investing (continued)

Elder Dallin H. Oaks commented:

We live in a complex society, where even the simplest principle can be exquisitely difficult to apply. I admire investors who are determined not to obtain income or investment profits from transactions that add to the sum total of sin and misery in the world. But they will have difficulty finding investments that meet this high standard. Such complexities make it difficult to prescribe firm rules. *We must rely on teaching correct principles*, which each member should personally apply to govern his or her own circumstances (italics added, Dallin H. Oaks, “Brother’s Keeper,” *Ensign*, Nov. 1986, 20).



Principles for Successful Investing (continued)

1. Know yourself

- Know your vision, goals and plans
 - Have well-written and thought-out vision, goals, and plans
- Know your budget
 - Live within your means, save 20% and invest
- Know your ability to tolerate risk
 - Know what kind of investor you are
- Invest accordingly
 - Develop a sleep-well portfolio – based on principles you can depend on for a lifetime so that you can “sleep well” at night



Principles for Successful Investing (continued)

- Watch overconfidence
 - Men trade 45% more than women
 - Their annualized returns were 2.7% less
 - Single men trade 67% more than single women
 - Their annualized returns were 1.4% less
 - Most investors have significantly ($> 5\%$ a year) underperformed the market over the last 20 years
 - (DALBAR's Annual Quantitative Analysis of Investor Behavior 2018)
- Watch on-line trading
 - Before on-line, investors beat the market by 1.9%
 - Afterwards, they underperformed by 3.6%

Carla Fried, "The Problem with your Investment Approach," Business 2.0, November 2003, p. 146



Principles of Successful Investing (continued)

2. Seek, receive and act on the Spirit's guidance

- Carlos E. Asay said,
 - When the Spirit is with us, we can think thoughts we've never thought before, we can say words we've never said before, we can perform beyond our natural abilities. That power is related to truth, to the scriptures, to the stirring of the Spirit within. And the power won't come unless we're actively courting the influence of the Holy Ghost ("Scriptures and Sunday Classes," Ensign, January 1986).





Principles for Successful Investing (continued)

3. Understand Risk

- Risk is inherent in all investing activities
 - There are lots of different types of risk
 - Inflation, business, interest rate, financial, market, political and regulatory, exchange rate, call, and liquidity risk
- Invest at a risk level you are comfortable with
 - Find that risk level
 - Taking a risk tolerance test may help. Take [A Risk Tolerance Test](#) (LT16) to get a sense on how much risk you can tolerate



Principles for Successful Investing (continued)

4. Stay diversified

- Always invest in different asset classes and assets
 - Diversification is your key defense against risk
 - Make sure you understand the risks of each and every asset class you invest in
- It's a risky place out there. Be prepared!
 - Remember that the numbers you see for specific asset class performance are from diversified portfolios, not single assets!
- Use [Return Simulation Worksheet](#) (LT23) to see the effects of diversification



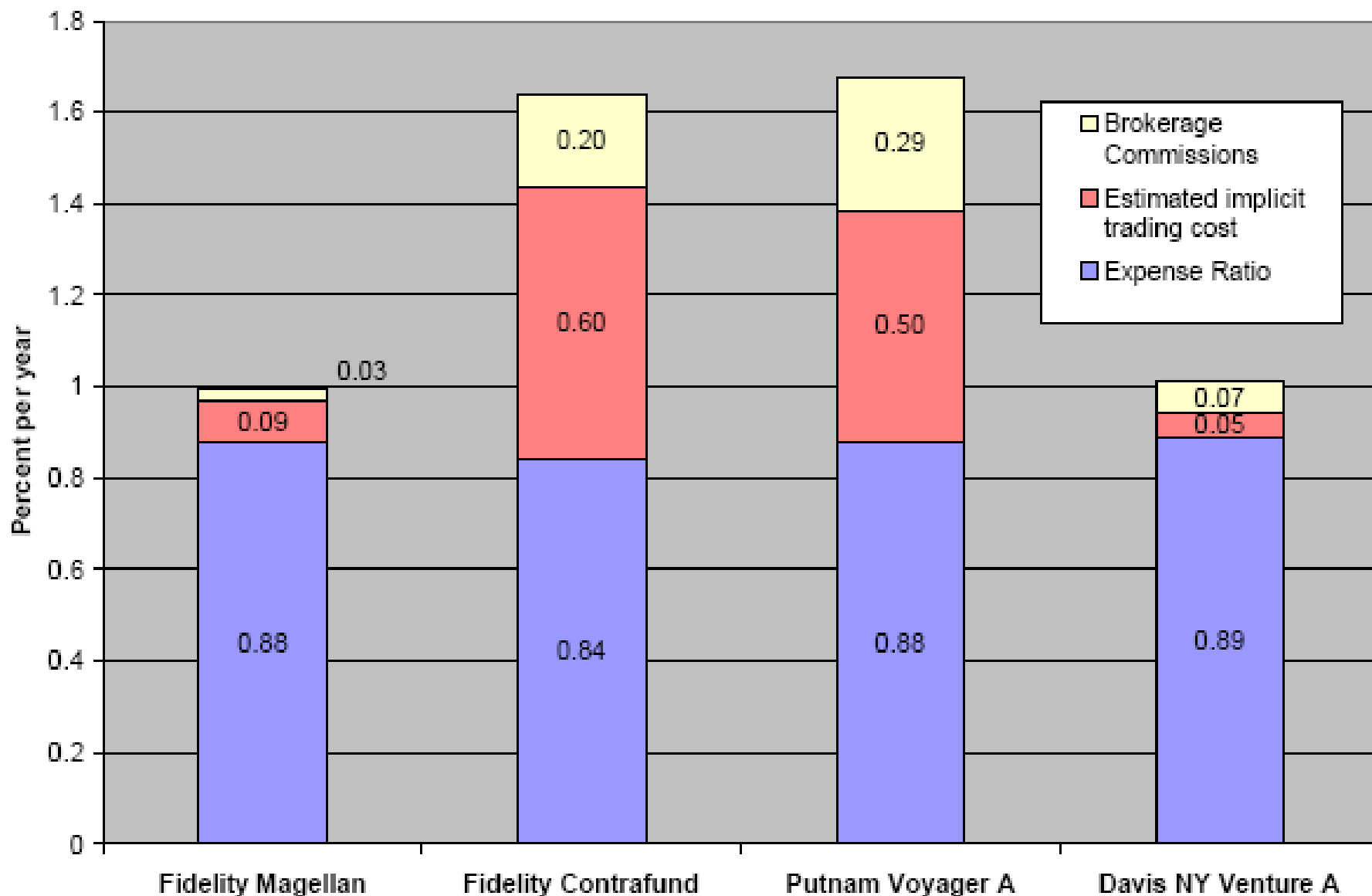


Principles for Successful Investing (continued)

5. Invest low cost and tax-efficiently

- Control what you can.
 - You cannot control returns, but you can control your risk, costs, fees, and taxes
 - A \$1 saved is more than a \$1 earned
 - Lower cost index funds tended to outperform
- Defer or eliminate taxes as much as possible
 - Mutual funds distribute 90% of all earnings each year (that you must pay taxes on)
 - Invest tax-efficiently so you don't have to pay more taxes each April

Exhibit 2: Total 2001 costs of investing: 4 representative large equity funds



Source: Jason Karceski, Miles Livingston, Edward O'Neal, "Mutual Fund Brokerage Commissions, January 2004, p. 12.



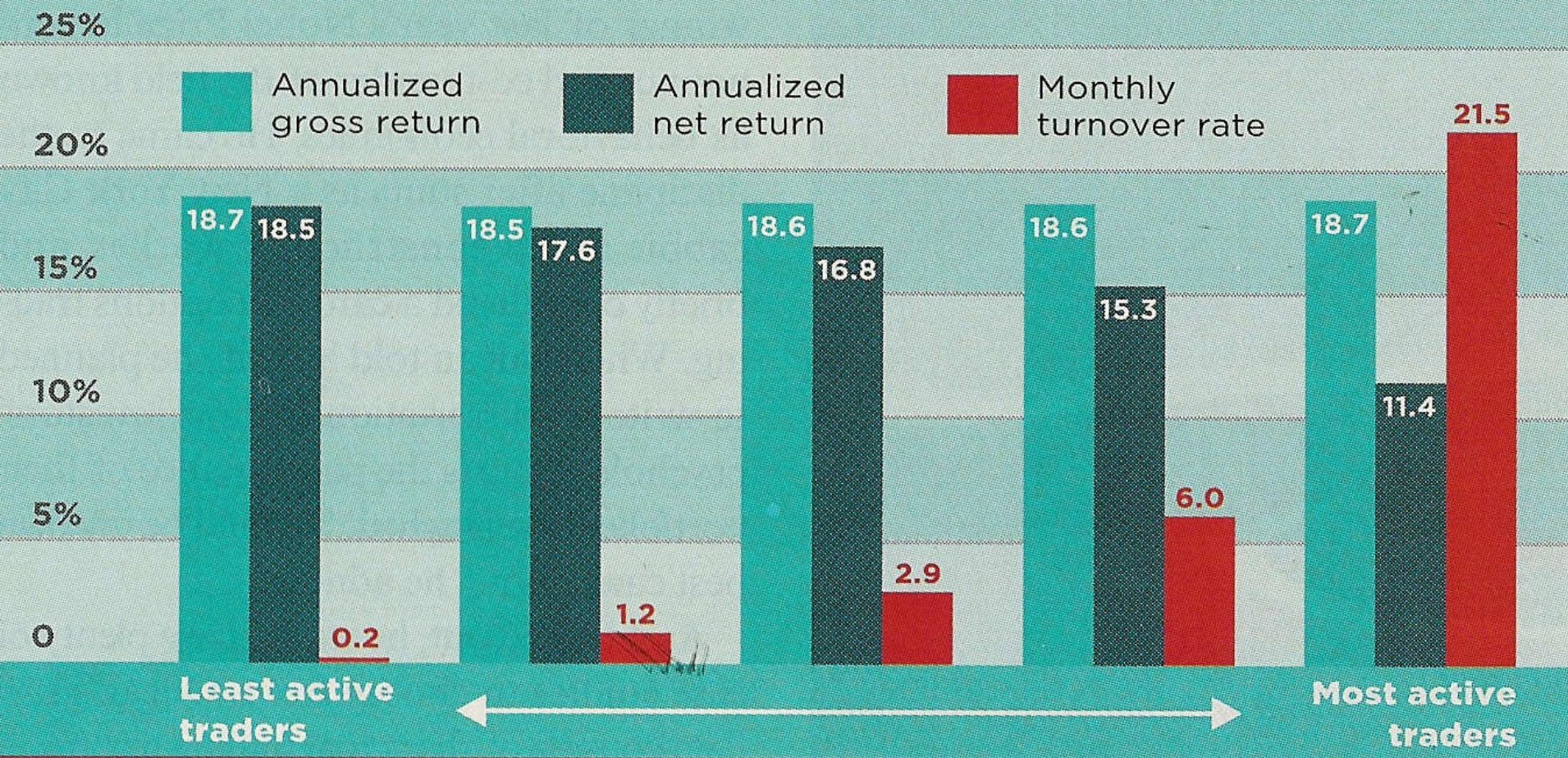
Principles for Successful Investing (continued)

6. Invest long-term

- Avoid short-term and day trading
 - Its expensive and generates transactions costs and taxes
- Invest wisely
 - There are no get-rich-quick schemes that work.
- Stay at least partly in the market
 - Taking money out of the market or not continuing to save and invest stops your progress

Trade More, Make Less

By examining 5 categories of investors, Odean quantified trading's harmful effects. Transaction costs slammed the net returns of the most active traders.



Barber and Odean, *Trading Is Hazardous to Your Wealth*, 2000



Principles for Successful Investing (continued)

7. If you want to invest in individual assets, know what you invest in and who you invest with

- When investing in individual assets, do your homework
 - Know what you are investing in
 - Know who you are investing with
 - Be aware of the environment in which the company operates
 - Be very careful and invest wisely





Principles for Successful Investing (continued)

8. Monitor portfolio performance

- Measure performance. President Thomas S. Monson stated:

When performance is measured, performance improves. Where performance is measured and reported, the rate of improvement accelerates (General Conference reports, 1970).

- How can you know how you are doing if you don't check your performance against some benchmark?
- Interestingly, most investors have underperformed the market benchmarks over the last 20 years
 - (DALBAR's Annual Quantitative Analysis of Investor Behavior 2018)



Principles for Successful Investing (continued)

9. Don't waste too much time, money, and energy trying to beat the market, unless you have a lot of time, money, and energy

- It is very difficult, expensive, and time consuming to try and beat the market
 - If you want to trade, trade tax-efficiently and in tax-deferred accounts



Principles for Successful Investing (continued)

10. Invest only with high quality, licensed, and reputable people and institutions

- When help is needed, don't be afraid to get help.
 - But get good help from good people consistent with the principles discussed and compare their performance to your benchmarks after taxes (and to a passive portfolio)
- Use the best resources available
 - Know how those resources are compensated



Principles for Successful Investing (continued)

11. Develop a good investment plan consistent with your vision, budget, and these principles, and follow it closely

- Think it through and write it wisely
 - It's your roadmap to success
- If you write it wisely and invest accordingly, it will save you much heartache in the future
 - And you will likely achieve your personal vision and goals



Principles for Successful Investing (continued)

Guiding Principles

- Know yourself, your goals and vision
- Seek, receive and act on guidance
- Understand risk (there is lots of it)
- Stay diversified
- Invest low-cost and tax efficiently
- Invest long-term
- Know what you invest in
- Monitor performance vs. benchmarks
- Don't waste time
- Invest with good people and firms
- Develop a good Plan (IPS) and follow it

Doctrines

Identity

Obedience

Stewardship

Accountability

Stewardship

Stewardship

Agency

Accountability

Stewardship

Stewardship

Stewardship



Principles for Successful Investing (continued)

From obedience to consecration

- I am a child of a Creator (identity), living worthy of the Spirit (obedience), striving to understand myself and my risk tolerance (agency), and learning to understand financial markets and instruments (accountability). I am developing my investing talents carefully (stewardship), so I can invest my resources wisely (agency), to earn the return I am expecting (stewardship), to accomplish my personal mission and individual and family vision and goals.



C. Understand Asset Classes and their History

- What are asset classes?
 - Asset classes are broad categories of investments with specific (and similar) risk and return characteristics
- How are they distinguished?
 - Asset classes are distinguished by characteristics specific to particular groups of securities, such as type of financial instrument, market capitalization, maturity, geographic location, etc.
- What are the major asset classes?
 - Cash and cash equivalents, fixed income, and equities



Cash and Cash Equivalents

- Major Goal: Liquidity and to preserve capital
 - Cash includes CDs, money market funds, T-bills, and commercial paper, etc. with a fixed return
 - Cash includes:
 - Money market funds, CDs, short-term bond funds, short-term investments, i.e., treasury bills, savings bonds, loans to the government, commercial paper, loans to corporations
 - Advantages
 - Liquidity, stability, little risk of losing principal
 - Good investment for money you plan to use in less than 3-5 years and don't want to take risks



Cash and Cash Equivalents (continued)

- Disadvantages
 - Less attractive as medium-to-long-term investments (> 5 years)
 - Returns on cash and cash equivalents are unlikely to keep up with inflation
- Thoughts on Cash:
 - Cash is great for liquidity—especially for your Emergency Fund
 - However, returns on cash are unlikely to keep up with taxes and inflation
 - Use cash for liquidity and some diversification, but realize that this asset class will add little to performance



Fixed Income (or Bonds)

- Major Goal: Income and returns in excess of inflation
 - Fixed income includes:
 - Taxable bonds: U.S. Treasuries, corporate bonds and agency issues (bonds issued by U.S. government agencies, like Ginnie Mae).
 - Tax-free bonds: Revenue or general obligation bonds issued by local or state governments
 - Types of fixed-income asset classes:
 - Short-term bonds/bond funds (mature in < 3 years)
 - Intermediate-term bonds/bond funds (3-10 years)
 - Long-term bonds/junk bonds/bond funds (10 or more years)



Fixed-income (continued)

- Types of fixed-income asset classes (continued)
 - Inflation Protected securities - Securities whose yield is linked to inflation
 - U.S. Government Savings bonds – EE and I bonds
 - Bond mutual funds. These funds buy and sell bonds before they mature. You are buying a share in portfolio of bonds in a changing portfolio.
- Advantages
 - Greater return than cash, but greater risk
 - Good diversification as bonds move differently than stocks



Fixed-income (continued)

- Disadvantages
 - Returns historically lower than stocks, and susceptible to interest rate and other risks
 - Generally, best as part of an overall portfolio as generally do not provide enough growth
- Thoughts on fixed income
 - Fixed interest and the future principle
 - Income and capital may be subject to taxes
 - The longer the bond's maturity, the higher the yield.
 - The lower the borrower's credit, the higher the yield
 - The price of bonds fluctuate with changes in interest rates



Equities (or Stocks)

- Major Goal: Provide growth and earn returns in excess of inflation.
 - A share is ownership in a businesses' earnings and assets
- Types of equity asset classes
 - Capitalization: Large, mid, and small
 - Type: Growth, blend, and value
 - Geographic area: US, international, global and emerging markets



Equities (continued)

- What is market capitalization?
 - It is one measure of the size of a company, and is calculated by multiplying the market price by the number of shares outstanding
- Large-cap (capitalization) stocks
 - Stocks with a market capitalization $> \$10\text{bn}$ in the US, and smaller capitalizations for international
 - Generally the largest, most well established companies in the US, with a history of sales and earnings as well as notable market share
 - These are generally mature corporations with a long track record of steady growth and dividends



Equities (continued)

- Mid-cap or mid-capitalization stocks
 - Stocks with capitalization between \$2-10 billion
 - These tend to grow faster than large cap companies, and are generally less volatile than small cap
 - Mid-caps generally perform similar to the small-cap asset class.
- Small-cap or small capitalization stocks
 - Stocks with a market capitalization $< \$2$ billion
 - These are smaller, sometimes newer, US and global companies that are still developing
 - They are subject to greater volatility, but are expected to grow faster than bigger companies



Equities (continued)

- What are growth, value and blend stocks?
 - Growth stocks
 - These are companies whose earnings are expected to grow very rapidly. Frequently these are companies developing new technologies or new ways of doing things
 - Value stocks
 - These are inexpensive companies (determined by low PE and P/BV ratios) that have potential for good long-term return through appreciation and dividends
 - Blend stocks
 - These are a both value and growth companies



Equities (continued)

- What are International/Global/Emerging Market stocks?
 - Funds that contain a mixture of both U.S. and foreign stocks are called global funds, funds from outside the US are called international funds; and funds with stocks from the developing countries are called emerging market funds
 - These can be of any size (small-cap, large-cap), any type (value, growth) and from anywhere
 - International investments involve additional risks, which include differences in financial accounting standards, currency fluctuations, political instability, foreign taxes and regulations, and the potential for illiquid markets.



Equities (continued)

- Stock Mutual Funds
 - Funds that own groups or types of companies. You are buying a share in a portfolio of stocks
 - You are responsible for paying taxes on all distributions by the mutual fund, which are taxed at your level—not the fund level
- Advantages
 - Offer highest return of the major asset classes
 - Growth and value stocks tend to perform in alternating cycles—it makes sense to own both
 - Good investment for long-term investing—they have consistently beat inflation over the long-term



Equities (continued)

- Disadvantages
 - Offer less stability of principal than other asset classes, and subject to short-term price fluctuations
 - If investing for less than 3-5 years, only a small portion of your investments should be in stocks
- Thoughts on Stocks
 - Stocks have given the highest consistent returns of any asset class, although with the highest risk
 - While volatile in the short-term, they have continued to deliver returns in excess of inflation
 - Through broad diversification, you can reduce some of the risk of this asset class

Asset Class Summary 2020
MBA 620/Fin418/Fin200 Financial Planning (2/22/20)

[illegible]



Asset Class Risk and Return History

- What is risk?
 - Is it the risk of losing all your money?
 - Is it the risk of losing principle?
 - It is the risk of not achieving a specific holding period return?
- How is it measured?
 - Historically, government securities were considered risk-free
 - Later, analysts started using variance (or standard deviation squared) as a better measure of risk.
 - Currently, investors use Beta, which is a measure of how the stock moves with the market



Return

- What is return?
 - It is the change in the value of an asset or portfolio over a specific period, which includes dividends, distributions, or interest received during that period.
- How is it calculated?
 - Your “holding period” return is:
 - $$\text{HPR} = \frac{(\text{Price}_{\text{End}} - \text{Price}_{\text{Begin}} + \text{Div.}/\text{Distrib.})}{\text{Price}_{\text{Begin}}}$$
 - It includes all dividends and distributions, including those received and reinvested
 - To calculate after-tax returns, deduct the taxes to be paid from your dividend and distribution amounts



Return (continued)

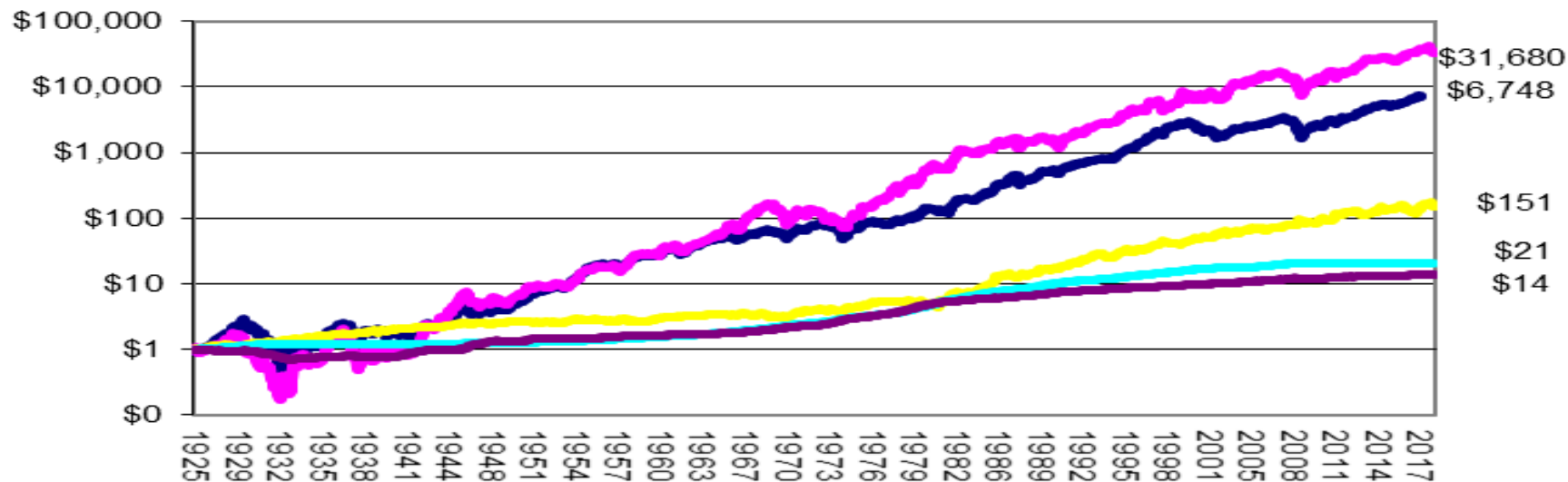
- Why study asset class performance?
 - We know the future will not be like the past?
 - Gordon B. Hinckley stated:
 - All of us need to be reminded of the past. It is from history that we gain knowledge which can save us from repeating mistakes and on which we can build for the future (“Reach with a Rescuing Hand,” *New Era*, July 1997, 4).



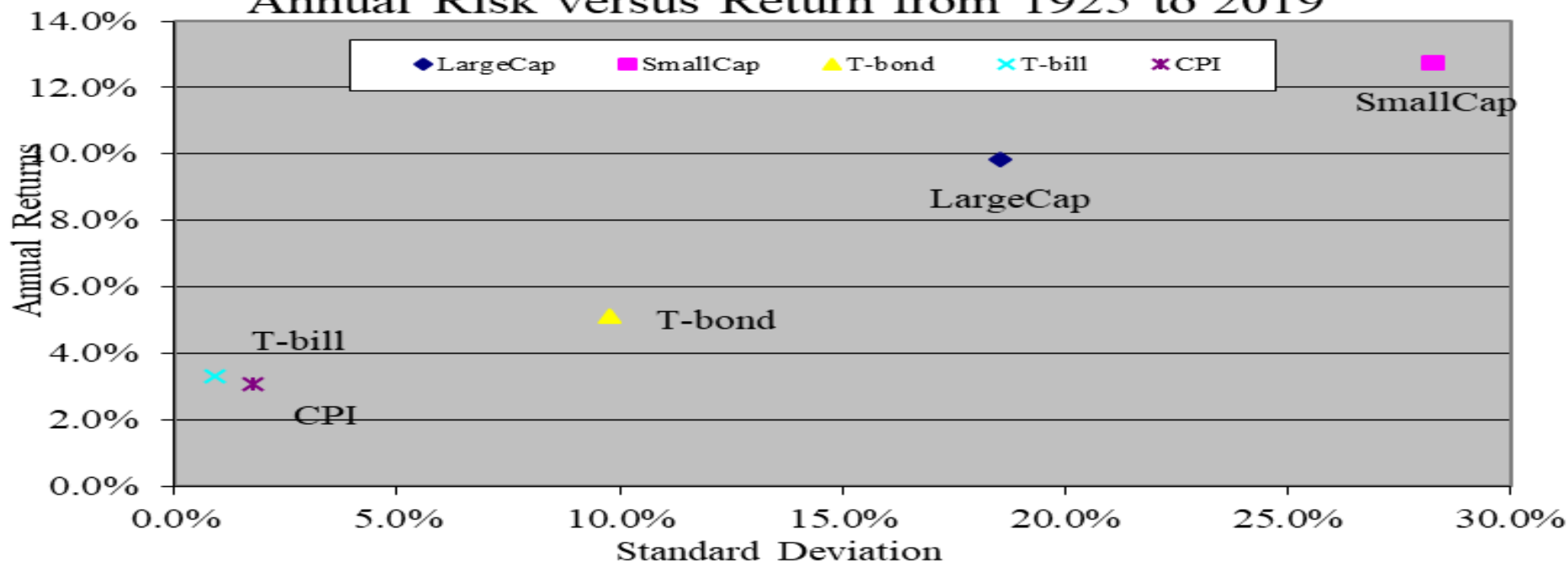
- Note: Data are from Ibbottson Associates for 1925-2014 periods, and from Bloomberg for after 2014.

Asset Class Returns from 1925 to 2019

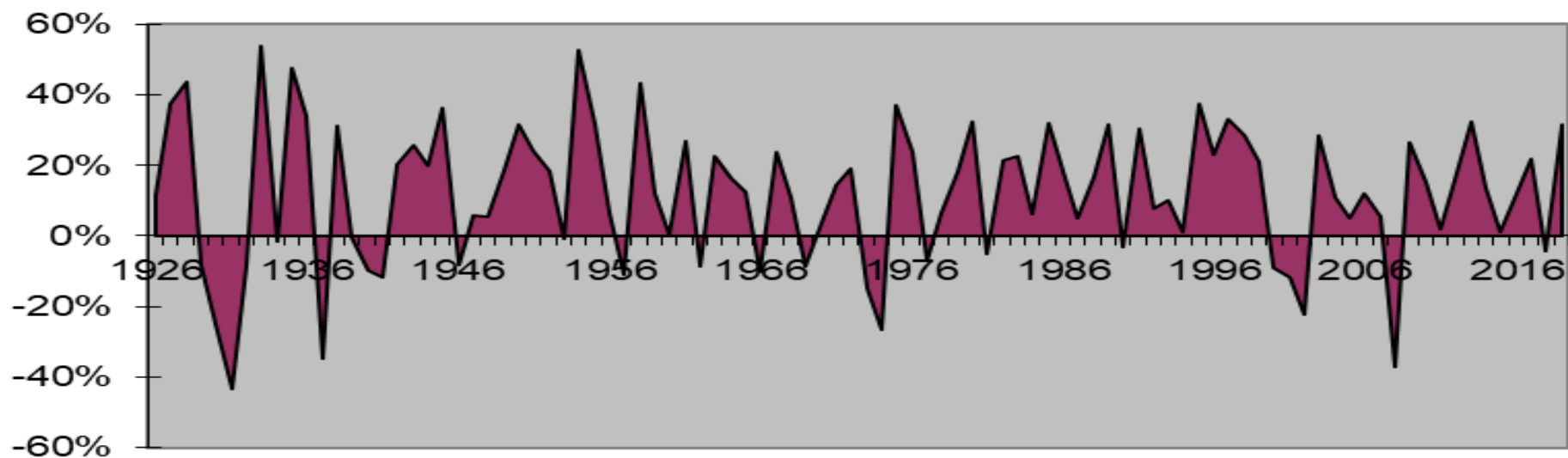
Large Cap Small Cap T-Bonds T-Bills Inflation



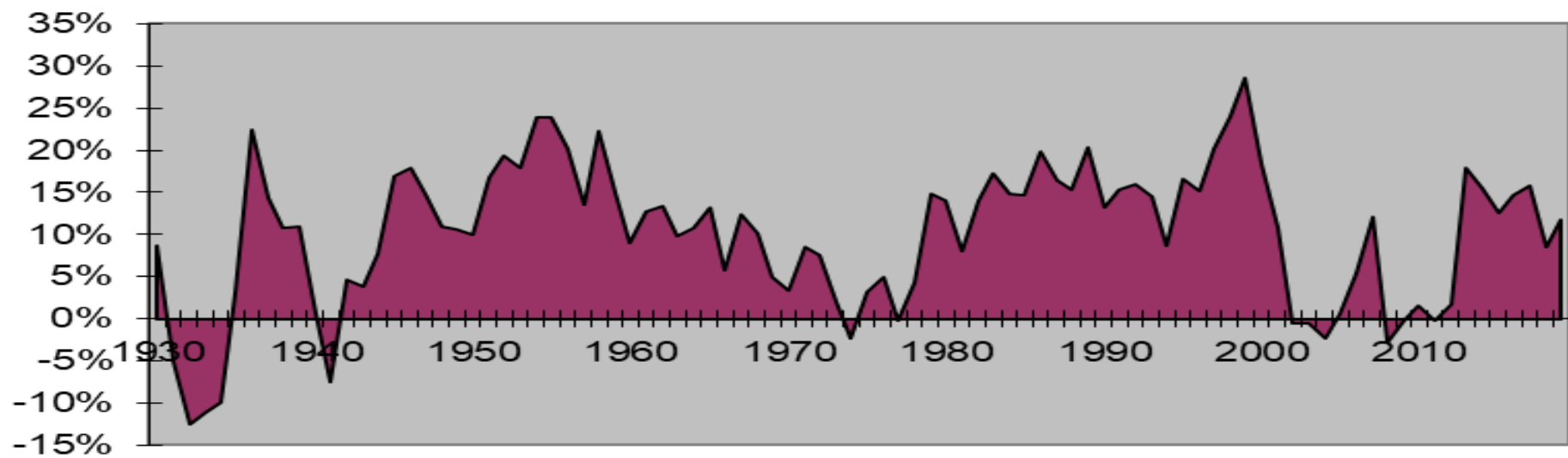
Annual Risk versus Return from 1925 to 2019



S&P 500 1 Year Annual Returns from 1928 - 2019

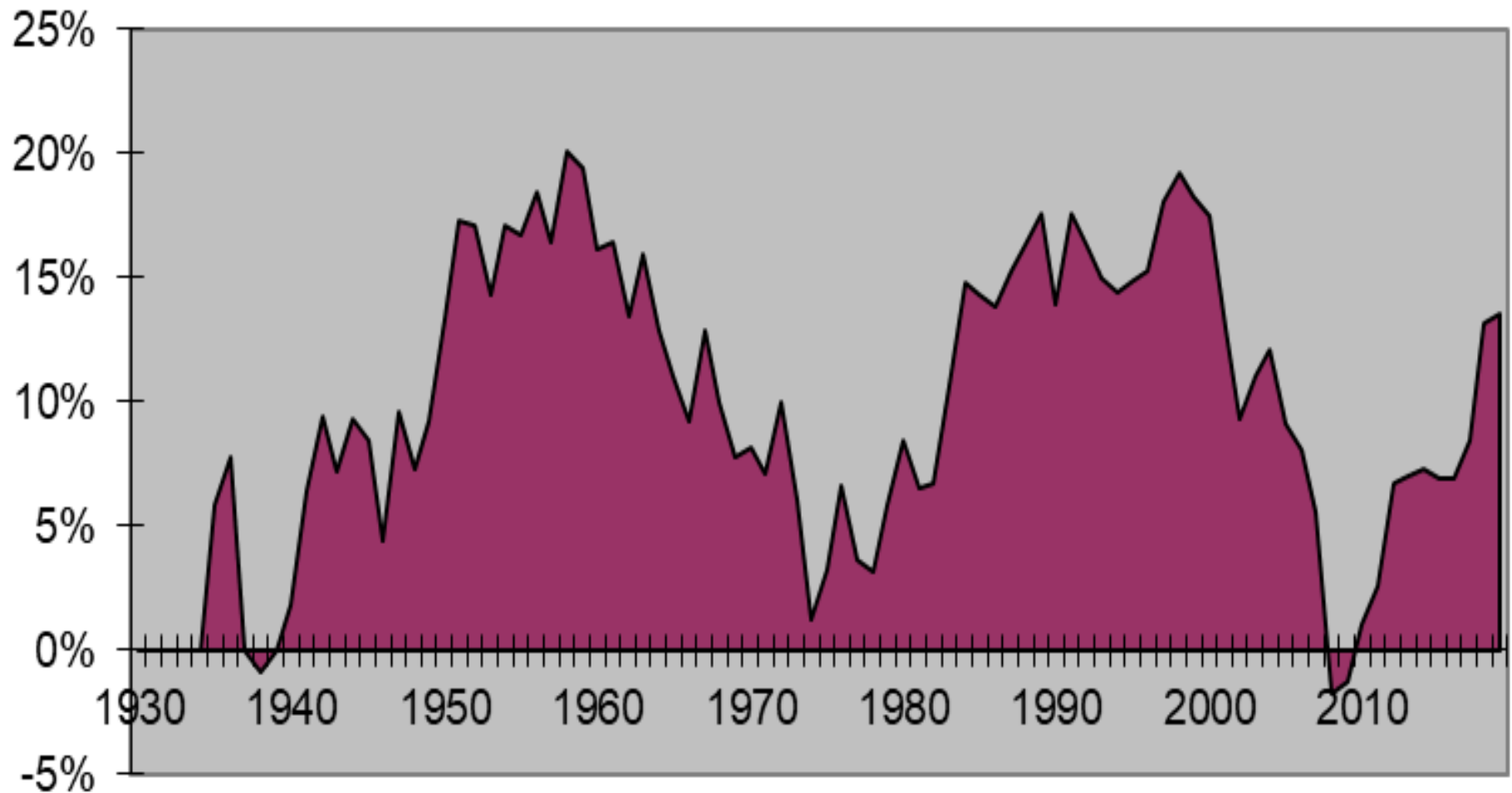


S&P 500 5 Year Annual Returns from 1930 - 2019





S&P 500 10 Year Annual Returns from 1935 - 2019





Questions

- Any questions on asset class risk and return history? (see [Return Simulation Worksheet \(LT23\)](#))

Total Returns For the Periods Ending December 31, 2019

	1 Year	5 Years	10 Years	25 Years	50 Years	75 Years	90 Years
LargeCap							
Compound Return	31.5%	11.7%	13.5%	10.2%	10.6%	11.3%	9.8%
Standard Deviation	16.5%	11.9%	12.4%	14.5%	15.0%	14.3%	18.5%
SmallCap							
Compound Return	25.5%	8.3%	12.8%	11.2%	12.3%	13.3%	12.8%
Standard Deviation	21.7%	15.9%	17.2%	20.3%	21.1%	19.9%	28.2%
T-bond							
Compound Return	-28.6%	-4.9%	2.5%	5.9%	7.4%	5.3%	5.1%
Standard Deviation	36.1%	21.9%	17.3%	13.6%	12.4%	10.5%	9.8%
T-bill							
Compound Return	2.1%	1.0%	0.5%	2.3%	4.6%	3.9%	3.3%
Standard Deviation	0.1%	0.3%	0.2%	0.6%	1.0%	0.9%	0.9%
International							
Compound Return	25.6%	8.4%	2.4%	6.9%			
Standard Deviation	4.3%	11.7%	18.5%	16.0%			
Emerging Markets							
Compound Return	37.8%	4.7%	2.0%	8.0%			
Standard Deviation	6.7%	12.3%	22.7%	22.4%			
US REITs							
Compound Return	4.3%	-0.7%	2.4%				
Standard Deviation	7.3%	42.8%	39.1%				
CPI							
Compound Return	1.8%	1.8%	1.7%	2.2%	3.9%	3.6%	3.1%
Standard Deviation	0.1%	0.6%	0.9%	1.1%	1.3%	1.5%	1.8%

Large Cap (SPTR Index - S&P 500 TR with Gross Dividends) CPI (CPI YOY Index - CPI Urban Not Seasonally Adjusted)
 Small Cap (RU20NTR - Russell 2000 TR with Gross Dvds) REITs (SREIUSRT - S&P REITs USD TR with Gross Dividends)
 International (GDDUEAFE Index - MSCI EAFE TR with Gross Dividends)
 Emerging Markets (GDUEEGF Index - MSCI Emerging Markets TR with Gross Dividends)



Review of Objectives

- A. Do you know what to do before you invest?
- B. Do you understand the principles of successful investing?
- C. Do you understand the various asset classes and their risk and return history?



Case Study #1

Data

- Bill wants to know how much he will need to save each month to have \$1 million in savings when he retires in 30 years.

Calculations

- Assuming Bill can earn an 6.5% return on his investment, how much must he save each month

Application

- ◆ What assets would you recommend Bill use to save?



Case Study #1 Answer

- Calculations for \$1mn in 30 years
 - Set your calculator to 12 payments per year (monthly)
 - $N = 30$, $I = 6.5\%$, $PV = 0$, $FV = \$1,000,000$, $P/Yr = 12$
 - Solve for Bill's monthly payment?
 - Bill would need to save \$904.01 per month
- Recommendations
 - Bill could use any number of investment assets, including stocks, bonds, cash, mutual funds, etc. Because he is just starting out, I would encourage him to consider the use of inexpensive, no-load mutual funds as investment vehicles.

Excel Financial Calculator (LT12)			
The Payment is -\$904.01			
Present Value =	PV		
Years/Periods* =	N	30.00	
Payments/Year =	P/Yr	12	
(Compounding: Ann. = 1, Mon. = 12, Qrtly. = 4)			
Annual Interest =	I _{real}	6.50%	
Ann. Nom. Rate =	I _{nom}	6.50%	
Ann. Inflation =	I _{infl}		
12 Period Rate =		0.54%	
Future Value =	FV	\$1,000,000	
Payments =	PMT	(\$904.01)	



Case Study #2

Data

- Last year you purchased 100 shares of MSAM Corporation for \$40 per share. Over the past 12 months MSAM's price has gone up to \$45 per share, and you received a dividend of \$1 per share.

Calculations

- What was your total rate of return on your investment in the MSAM stock?



Case Study #2 Answer

Calculations

- This can be solved either on a total portfolio basis or on a per share basis.

- Total Portfolio

- $$((\$45 * 100 - \$40 * 100) + 1 * 100) / \$40 * 100 = ?$$

- Your return is 15.0%

- Per Share basis

- $$((\$45 - \$40) + 1) / \$40 = ?$$

- Your return is 15.0%

Excel Financial Calculator (LT12)		
The Interest Rate is 15.00%		
Present Value = PV		(\$40)
Years/Periods* = N		1.00
Payments/Year = P/Yr		1
(Compounding: Ann. = 1, Mon. = 12, Qrtly. = 4)		
Annual Interest = I _{real}		15.00%
Ann. Nom. Rate = I _{nom}		15.00%
Ann. Inflation = I _{infl}		
1 Period Rate =		15.00%
Future Value = FV		\$45
Payments = PMT		\$1.00



Case Study #3

Data

- Your investment in MSAM stock was so successful that you decided to hold it for 5 more years. Remember, you purchased 100 shares for \$40 per share. Unfortunately, the price of MSAM stock has not risen; it is back to where you purchased it. The good news is that you earned \$1 per share for five years.

Calculations

- What was your annualized total rate of return?

Application

- Compared to a bank account earning 2.25% over this same period, how did your stock do?



Case Study #3 Answer

- Calculations
 - Your annualized rate of return is your return for the total period, annualized, i.e., taking the geometric return.
 - Your total return for 5 years is:
 - $((\$40 \times 100 - \$40 \times 100) + 5 \times 100) / (\$40 \times 100) = ?$
 - 12.5%
 - Annualizing for 5 years gives:
 - Geometric return = $(1 + .125)^{(1/5)} = 2.38\%$
 - Average return = $12.5\% / 5 = 2.5\%$
 - Using either method, it performed better

Excel Financial Calculator (LT12)			
The Interest Rate is 2.50%			
Present Value =	PV		(\$40)
Years/Periods* =	N		5.00
Payments/Year =	P/Yr		1
(Compounding: Ann. = 1, Mon. = 12, Qrtly. = 4)			
Annual Interest =	I _{real}		2.50%
Ann. Nom. Rate =	I _{nom}		2.50%
Ann. Inflation =	I _{infl}		
		1 Period Rate =	2.50%
Future Value =	FV		\$40
		Payments =	PMT
			\$1.00



Case Study #4

Data

- Sam recently purchased a bond with a 10 year maturity for \$1,000 which pays annual interest of \$100.

Calculations

- What interest rate is Sam receiving?
- If interest rates for ten year bonds today are 5%:
 - How much can Sam sell his bond for today?
- How much could he sell the bond for tomorrow if interest rates move up to 10%?

Applications

- Based on your calculations, what is the relationship between interest rates and the value between bonds?



Case Study #4 Answer

• Calculations

- The bond's current yield is $\$100/\$1000 = 10\%$
- At 5% Sam can sell his bond for:
 - $N=10, I=5\%, PMT=100, FV=1,000, PV=?$
 - \$1,386.09
- At 12% Sam can sell his bond for:
 - $N=10, I=12\%, PMT=100, FV=1,000, PV=?$
 - \$887.00
- This implies a negative relationship between bond prices and interest rates. In other words, as rates increase (fall) bond prices fall (rise)

Excel Financial Calculator (LT12)		
The Present Value is -\$1,386.09		
Present Value =	PV	(\$1,386)
Years/Periods* =	N	10.00
Payments/Year =	P/Yr	1
(Compounding: Ann. = 1, Mon. = 12, Qrtly. = 4)		
Annual Interest =	I _{real}	5.00%
Ann. Nom. Rate =	I _{nom}	5.00%
Ann. Inflation =	I _{infl}	
1 Period Rate =		5.00%
Future Value =	FV	\$1,000
Payments =	PMT	\$100.00

Excel Financial Calculator (LT12)		
The Present Value is -\$887.00		
Present Value =	PV	(\$887)
Years/Periods* =	N	10.00
Payments/Year =	P/Yr	1
(Compounding: Ann. = 1, Mon. = 12, Qrtly. = 4)		
Annual Interest =	I _{real}	12.00%
Ann. Nom. Rate =	I _{nom}	12.00%
Ann. Inflation =	I _{infl}	
1 Period Rate =		12.00%
Future Value =	FV	\$1,000
Payments =	PMT	\$100.00



Case Study #5

Data

- Ryan is 35 years old, and took the Risk Tolerance test from the teaching tools (Teaching Tool 16). He determined that he was “moderate” in terms of risk.

Application

- Based on the rule of thumb of his age in bonds and the results from the Risk Tolerance test, which of the following most likely represents Ryan’s preferred asset allocation (assume his emergency fund is included in cash and bonds):
 - A. 35% cash, 40% large cap, 25% bonds
 - B. 25% cash, 35% large cap, 25% small cap, 15% international
 - C. 10% cash, 25% bonds, 50% large cap, 15% small cap
 - D. 15% bonds, 30% large cap, 30% small cap, 25% international



Case Study #5 Answer

- Ryan's preferred allocation would likely be C for the following reasons:
 - Portfolio A has too much exposure to cash and bonds.
 - Portfolio B has too large an allocation to international and small cap (40%), both much more risky.
 - Portfolio C is more consistent with your risk exposure, i.e., 35% in bonds and cash, and has some (limited) exposure to small caps
 - Portfolio D has too little exposure to bonds and cash, and too much small cap and international.



Case Study #6

Data

- Assume the same information from Problem 5, but now Ryan's result (age 35) from his Risk Tolerance test (Learning Tool 16) was “aggressive” in terms of risk.

Application

- (a) Based on the same rule of thumb, which of the following most likely represents Ryan's asset allocation:
 - A. 35% cash, 40% large cap, 25% bonds
 - B. 25% cash, 35% large cap, 25% small cap, 15% international
 - C. 10% cash, 25% bonds, 50% large cap, 15% small cap
 - D. 15% bonds, 30% large cap, 30% small cap, 25% international
- (b) What would his allocation be if his results were “very aggressive”?



Case Study #6 Answer

- (a) The preferred allocation for “aggressive” would be B.
 - Portfolio A has too much exposure to cash for his risk level
 - Portfolio B is recommended. It has a larger allocation to international and small cap (40%), a lesser allocation to bonds and cash, and is more consistent with his risk results
 - Portfolio C has too much (35%) in bonds and cash, and likely not enough to the riskier assets
 - Portfolio D has too little exposure to bonds and cash, and likely too much small cap and international.



Case Study #6 Answer

- (b) The preferred allocation for “very aggressive” would be D.
 - Portfolio A has too much exposure to cash for his risk level, but a good allocation to small cap (more risky)
 - Portfolio B has a large allocation to international and small cap (40%), consistent with his risk results, but too much cash
 - Portfolio C has too much (35%) in bonds and cash, and likely not enough to riskier assets
 - Portfolio D has less exposure to bonds and cash, and much more small cap and international (55%), consistent with “very aggressive” risk



Summary

- The key to investing is to know yourself, your vision and your goals. Then do 5 key things:
 - 1. Know what to do before you invest, and understand the principles of successful investing
 - 2. Know the factors you control, assets, asset classes and investment vehicles
 - 3. Understand your risk level, and determine an asset allocation consistent with your level of risk
 - 4. Understand what makes a good mutual/index fund, and write your investment plan
 - 5. Choose good mutual/index funds, rebalance tax-efficiently, and hold for 40 years or longer