Financial Planning for the Young Physician

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Disclaimer

- This is not a get rich talk, it is about preserving wealth for a comfortable retirement
- I am not a financial professional
- I do not have a degree in finance, mine is in Biochemistry
- I do not claim to be an expert in any subject in this presentation
- I perceived a lack of training in the subject during medical training
- I feel the need to educate my colleagues
- Please enjoy, but hold questions, we have a lot to cover

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Financial Disclosure

- I don’t get paid for giving this talk

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PART 1: OF ALL THE THINGS WE COULD TALK ABOUT, WHY CHOOSE THIS?

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How percent of your education do you use?

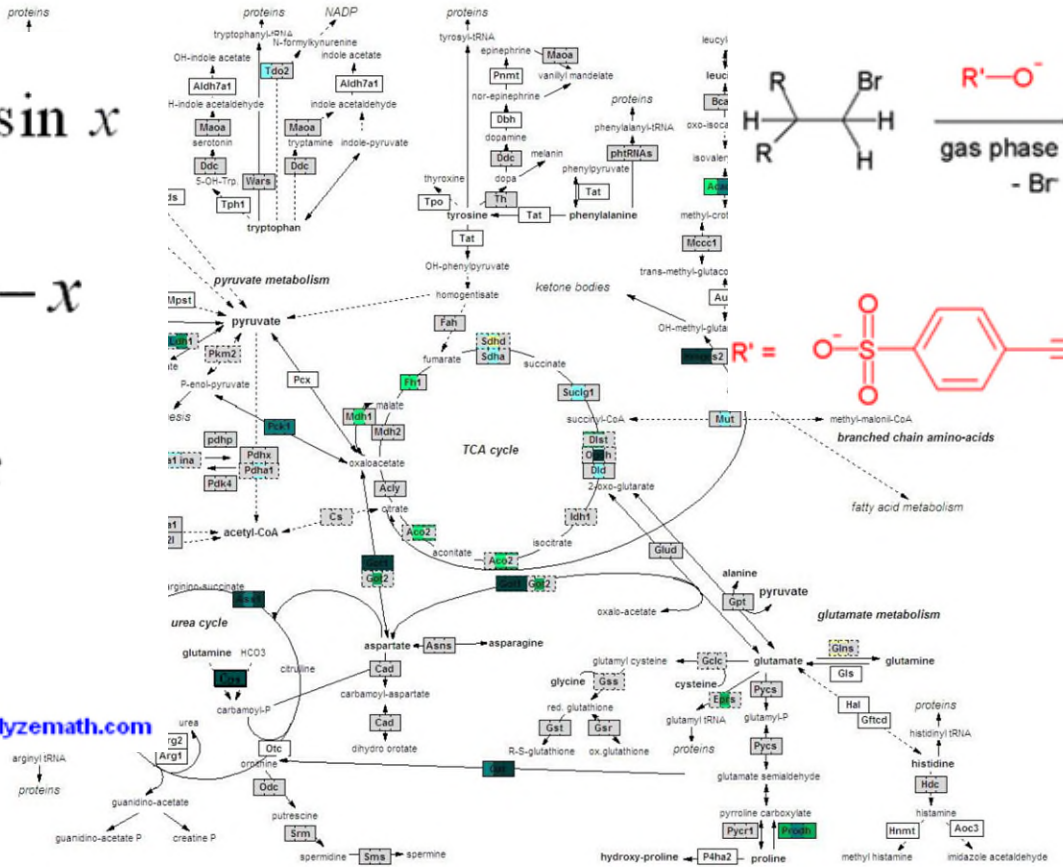
1. $(\frac{d^3y}{dx^3})^4 + 2\frac{dy}{dx} = \sin x$

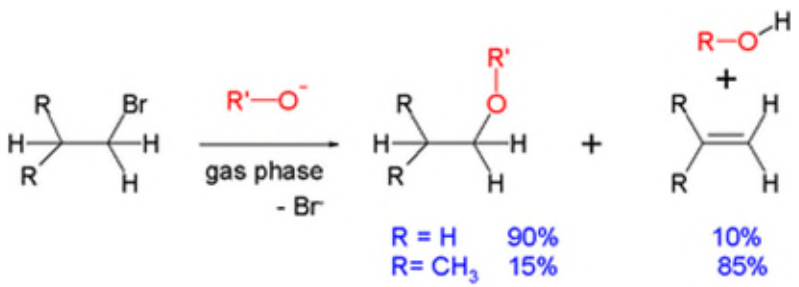
2. $\frac{dy}{dx} - 2xy = x^2 - x$

3. $\frac{dy}{dx} - \sin y = -x$

4. $\frac{d^2y}{dx} = 2xy$

www.analyzemath.com





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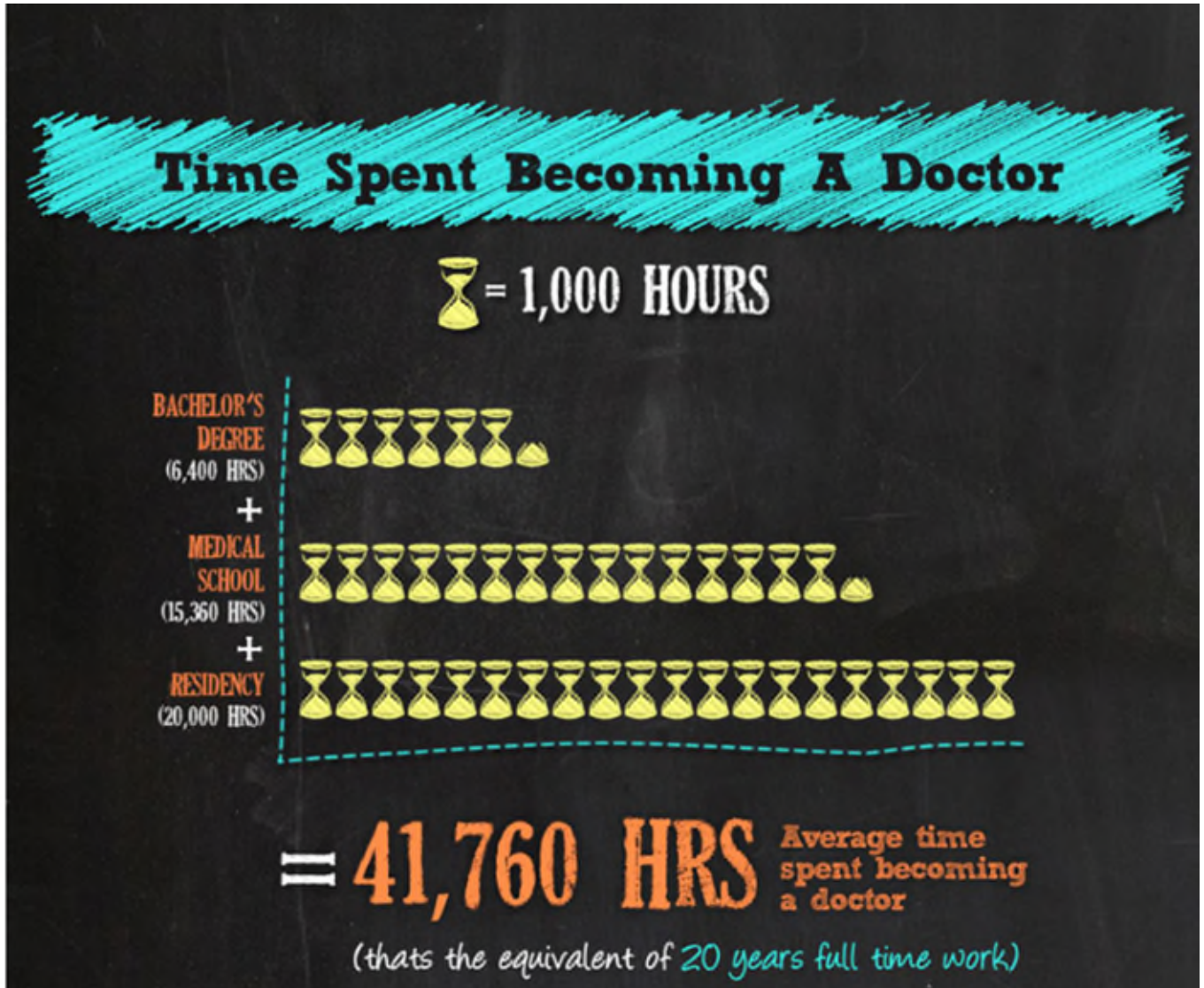
http://www.bestmedicaldegrees.com/salary-of-doctors/



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Pop quiz

International Journal of Medical Education. 2017;8:192-204
ISSN: 2042-6372
DOI: 10.5116/ijme.5918.ad11

- Suppose you have $100 in a savings account earning 2% interest. After 5 years, how much would you have?
  A. $110
  B. More than $110
  C. Less than $110
  D. I have no idea

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Take the quiz! Mean quiz score 52%. 50% owed over $200,000 debt.

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An assessment of residents' and fellows' personal finance literacy: an unmet medical education need

Fahd A. Ahmad[1], Andrew J. White[1], Katherine M. Hiller[2], Richard Amini[2], Donna B. Jeffe[1]

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[2]University of Arizona College of Medicine, Tucson, Arizona, USA

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Accepted: April 04, 2017

Conclusions: Residents and fellows had low financial literacy and investment-risk tolerance, high debt, and deficits in their financial preparedness. Adding personal financial education to the medical education curriculum would benefit trainees. Providing education in areas such as budgeting, estate planning, investment strategies, and retirement planning early in training can offer significant long-term benefits.

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How much time does it take to become “financially savvy”

- To start: Read 1 beginners book (See references section of this talk), taking your time over 1-2 months.
- Next: Read 2 more books over a year.
  - This will make you more knowledgeable than 90% of the working USA
- Maintenance: Read 1 books per year, subscribe to a blog or 2 and talk with interested friends, colleagues and family about what you learn
- In 2-3 years you’ll know more about personal finance that most financial “professionals” (more on that industry later)

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I DON’T NEED TO WORRY ABOUT MONEY. I’M A DOCTOR. THERE ARE “SPECIAL” INVESTMENTS AND PROFESSIONALS THAT WILL TAKE CARE OF ME, RIGHT?

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Don’t worry, you’re a doctor. You'll be rich!

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Don’t worry, you’re a doctor. You'll be rich!

Yeah, right….

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OBAMACARE

Yeah, right….

What is “Rich”?

- Average net worth of the top richest 400 Americans?
  - $4.2 billion
- Top 1/100th % US household income?
  - $7.8 million
- “You see these guys worth $3 to $4 billion, and you think to yourself, ‘What have I done wrong?’”
  - - *Nathan Pelz, American Businessman, Networth $970 million*

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So you're not in the top 1/100th %... Where are you?

Louisiana

Annual income required to be in the top 1 percent: **$318,393**

Average annual income of the top 1 percent: **$814,386**

Illinois

Annual income required to be in the top 1 percent: **$456,377**

Average annual income of the top 1 percent: **$1.41 million**

- Conclusions:
  - Compared to the average wage earner, physicians are well compensated. Compared to the really rich, we don't even register on the radar : (

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Perspective

- According to economic historian Angus Maddison, the world's gross domestic product (GDP) average $467 per person in year 1 A.D.
- By 1820 this was still only $666
- 2014 – US ranks about 10th in the world in per capita GDP at $54,000
- 2014 - lowest approx. $600-$800 (Somalia)
- So compared with ancestors, we in the US and most of the world live in an unprecedented age of wealth, luxury and opportunity. Accordingly, our ancestors lived in unimaginable poverty (but perhaps were happier?)

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We would appear to our ancestors as a race of superhumans…..

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DO YOU NEED (WANT) TO BE RICH?

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- Daniel Kahneman – World expert on happiness as it relates to such things as money

Family income/Gender	Active leisure	Eating	Passive leisure	Compulsory	Work and commute
Men			*Time allocation (%)*		
<$20,000	6.6	6.6	34.7	20.8	29.1
$20,000–$99,999	8.1	7.2	26.4	21.8	35.4
$100,000+	10.2	8.6	19.9	23.6	36.9
Women					
<$20,000	5.3	5.7	33.5	35.6	18.5
$20,000–$99,999	7.5	6.7	23.8	34.3	26.7
$100,000+	9.1	7.0	19.6	35.9	27.3

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Not having money is bad, have some is good, having lots may not matter

Response	Percentage indicating global happiness at family income of			
	Under $20,000	$20,000–$49,999	$50,000–$89,999	$90,000 and over
Not too happy	17.2	13.0	7.7	5.3
Pretty happy	60.5	56.8	50.3	51.8
Very happy	22.2	30.2	41.9	42.9

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Daniel Kahneman[1] and Angus Deaton

PNAS | September 21, 2010 | vol. 107 | no. 38 | 16489–16493

- Definitions used in this study:
  - Positive = average scores of happiness, enjoyment, frequent smiling, laughter
  - Blue – average scores of worry and sadness
  - Stress – dichotomous answer to: “Did you experience a lot of stress yesterday?”
  - Cantril Ladder – next slide

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Cantril Ladder – Subjective

Assume that this ladder is a way of picturing your life.The top of the ladder represents the best possible life for you. The bottom rung of the ladder represents the worst possible life for you.

Indicate where on the ladder you feel you personally stand right now by marking the circle.

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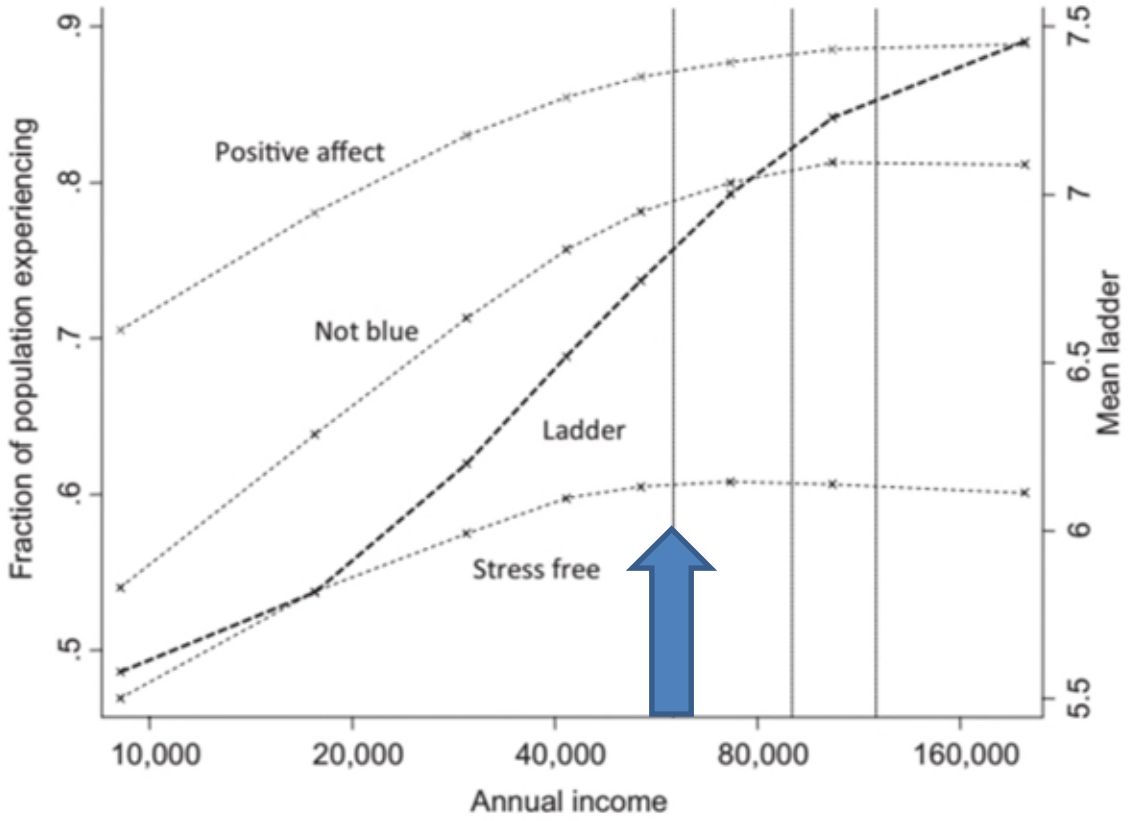
Is that a plateau??? At only $75,000 in 2006 dollars??? Woah!



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WHY ARE DOCS BAD INVESTORS? - “PHYSICIAN, HEAL THYSELF!”

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Know Thyself

- Overconfidence – Believe that our long education makes us good at anything, including personal finance.
- Busy – No time to learn about finance. But it doesn't actually take much time, especially compared with amino acid metabolism and organic chemistry.
- Assumption that all professionals have a fiduciary responsibility, like physicians to the patient – We assume that financial professionals are honest and well trained, like we are.
- Doctors are "Whales" - We are targeted by financial schemes and unscrupulous members of the financial industry because of the above and our (perceived) high income.

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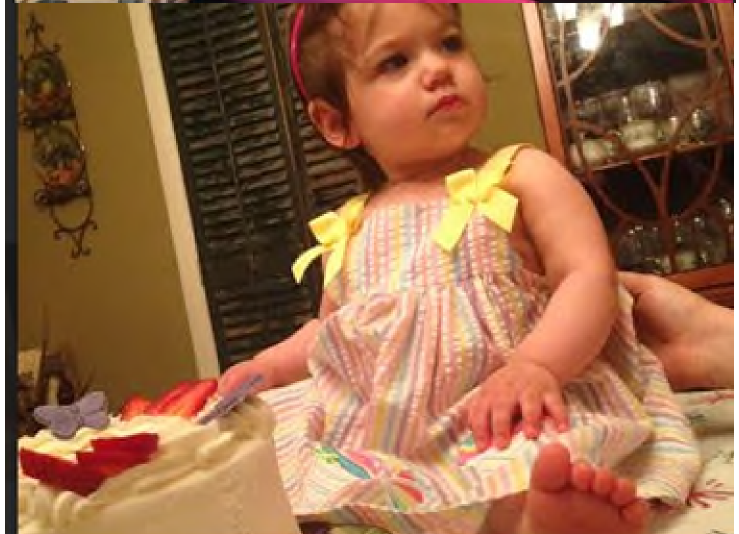

Part 2: Laying the Foundation

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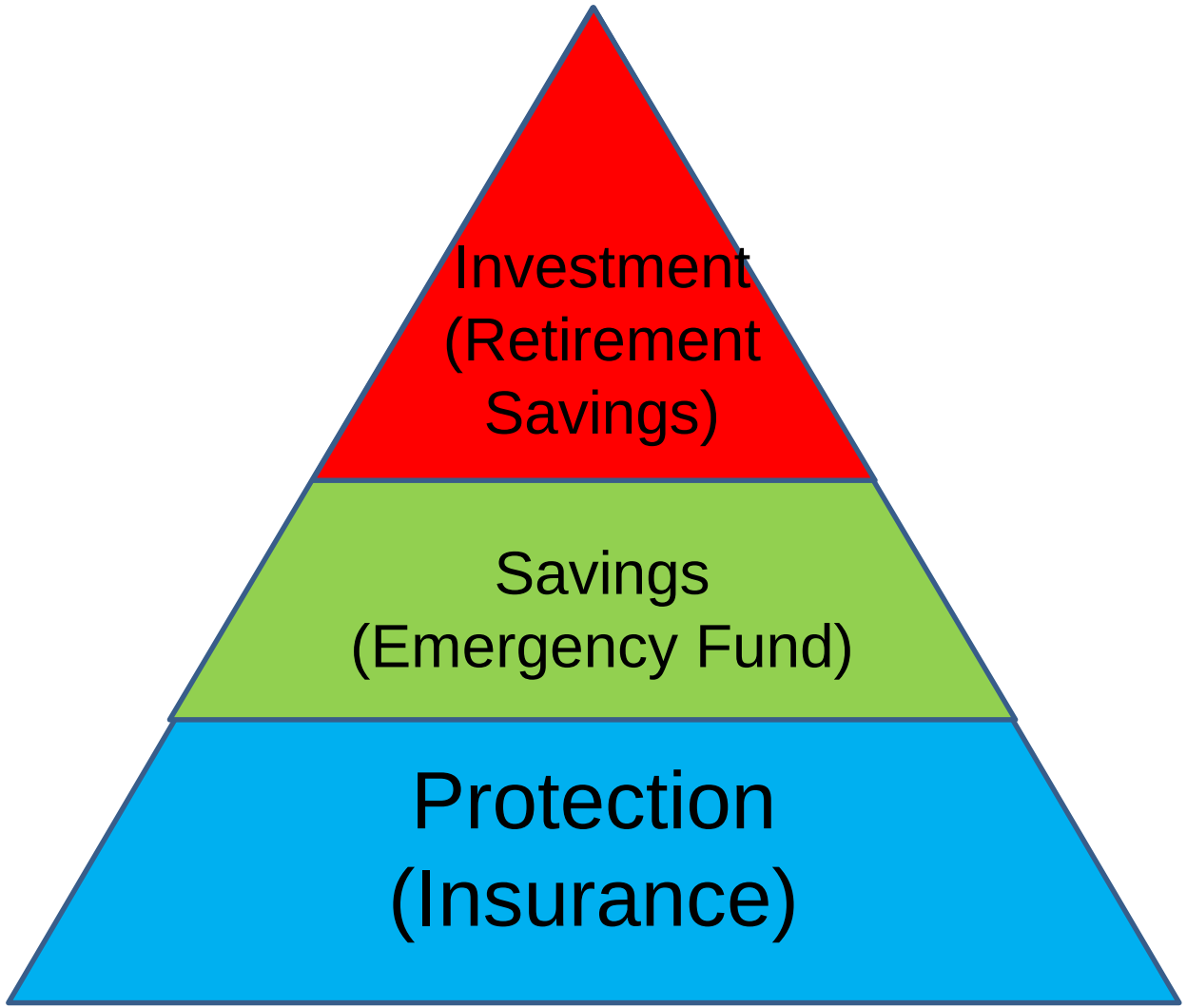
The Financial Pyramid



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Protection = Insurance

- Life Insurance
- Disability Income Insurance
- Health Insurance

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Life Insurance

- Purpose: Replace income so that your family can continue to live reasonably well for a reasonable amount of time, in the event of your untimely demise
- Second Purpose: You can’t begin to save for retirement until you know your family will be ok if you die, hence it’s the pyramids foundation

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Life Insurance

- Two main types
  - Term: You pay a monthly fee called a premium for a fixed amount of money. The policy will expire after a certain amount of time, called the “term”
  - Permanent: Doesn’t expire. More expensive. Often combines life insurance with investments. Complex and many types. Discuss with a professional.
    - Remember the adage: “Complexity favors the seller”…..

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Term Life is Cheap

- It’s a commodity, so there are tons of companies competing for your premium
- Example: term4sale.com
  - 34 year old male, excellent health, 20 year term, $500,000 death benefit (ie insurance) = $23.27/month

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Here are your comparison results:

Today's Date is: March 19th, 2016
Premiums for: Male, Non-Smoker, Preferred Plus
Age: 35 year old
State: North Dakota
Insurance death benefit: $500,000

To correct this information, Run Another Quote

Can you qualify for the premiums in this comparison?
If you are prepared to tell us more about your health and lifestyle, we can tell you more about whether the products you see here are available to you.

To further qualify yourself, use COMPULIFE's
Health Analyzer

20 Year Level Term Guaranteed

Company Name	Annual	Monthly	A.M. Best Ratings as of Mar 11 2016	Product Name	Health Category	Find an agent
American General Life Insurance Company	$269.00	$23.27	A	Select-a-Term - 20 Year (Nov 2015)	Preferred Plus Non-Tobacco	More Info
Pacific Life Insurance Company	$270.00	$22.51	A+	Pacific PRIME Term 20	Super Preferred NonTobacco	More Info
Ohio National Life Assurance Corporation	$270.00	$23.36	A+	FlexTerm Series IX - 20 Year	Super Preferred Non-Smoker	More Info
Protective Life Insurance Company	$271.03	$23.31	A+	Custom Choice No Lapse UL - 20 Year	Select Preferred Non-Tobacco	More Info
United of Omaha Life Insurance Company	$272.50	$23.84	A+	Term Life Answers 20	Preferred Plus Non-Tobacco	More Info
Savings Bank Life Insurance Co of MA	$274.00	$23.84	A+	T-20/20 - 20 Year Term (2015 rates)kR	Preferred Plus Non-Nicotine	More Info
MetLife Insurance Company USA	$274.00	$24.66	A+	Guaranteed Level Term 20	Elite Plus Nonsmoker	More Info
Banner Life Insurance Company	$274.99	$24.06	A+	OPTerm 20 - 20 Year	Preferred Plus Non-Smoker	More Info
Ohio National Life Assurance Corporation	$275.00	$23.79	A+	FlexTerm Series IX - 20 Year Plus	Super Preferred Non-Smoker	More Info
AAA Life Insurance Company	$275.00	$24.20	A-	20 Year Level Term	Super Preferred Non-Nicotine	More Info
Cincinnati Life Insurance Company	$275.00	$24.20	A	LifeHorizons Termsetter 20	Preferred Plus Non-Smoker	More Info
Midland National Life Insurance Company	$285.00	$25.08	A+	Premier CS7 - 20 Year Term	Preferred Plus Non-tobacco	More Info
North American Co for Life and Health	$285.00	$25.08	A+	ADDvantage 20	Super Preferred Non-Tobacco	More Info
Symetra Life Insurance Company	$290.00	$25.38	A	20 Year Level Term	Super Preferred Non-Nicotine	More Info
Principal National Life Insurance Co	$294.33	$25.75	A+	20-Year Term (09/2015)	Super Preferred non-tobacco	More Info

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Disability Income Insurance

- Aka DI
- Purpose: Protects your income against the risk of serious illness or accident.
- Particulary important if you are the primary income earner in a family, a common scenario for physicians.
- According to Social Security Administration, 30% of workers will become disabled before retirement age.

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How much DI?

- Typically, policy maximum is around $17,500 monthly replacement income.
- So if you want more than this, you'll need 2 policies.
- Tax-free if you payed the premium, not if your employer did
- Costs are VERY high because of the potential for (and common occurrence of) abuse
- Costs about 2% of your income. Ex: $350,000 replacement income will cost $7,000/year in premiums.

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The devil is in the details with DI

- What is the definition of disability. Is it inability to perform “any” job, or your “own occupation” (own-occ)?
- Is it guaranteed renewable, meaning it wont lapse for no reason?
- Is the company reputable, if they go under so might your policy.
- What is the waiting period of being disabled before the policy starts paying? 60, 90 180 days? That’s a long time! Have enough cash to cover you?
- What type of doc are you? Do you need both hands (surgeon?) etc.
- Is there an ability to return part time and still collect part benefits if you cant work full time?
- Is there a cost of living increase rider (COLA)?
- Can you increase your benefit if your income later increases?

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Bottom line with DI

- Meet with an agent and discuss your needs and anticipated income increases
- Be aware that the agent's compensation is often tied to your premium. Don't buy more than you need, its expensive.

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Emergency Fund

- Purpose: This will protect you in case of emergency – medical, house repair, car, family/friend need
- 3 months living expenses (minimum), best is 6 months.
- <u>You CANNOT save for retirement if you have to cash out the retirement fund for a car repair, new airconditioner, etc</u>
- If you lose your job as a doctor, it may take 3 months to get licensed in another state.
- You might think you can just go to the practice next door. Not if you have a "No compete clause" in your contact. *As this isn't a contract talk, I will not discuss the no compete or other contract topics.*
  - Corollary – Keep your old state licenses active, despite the annual fee.

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- An emergency fund has 2 main purposes:
  1. Peace of mind
  2. Protection of retirement– aka, don't have to dip into retirement for emergencies. Avoid early withdrawal penalties.
- Resist the temptation to spend the emergency fund on discretionary items (travel, car, boat, etc.)

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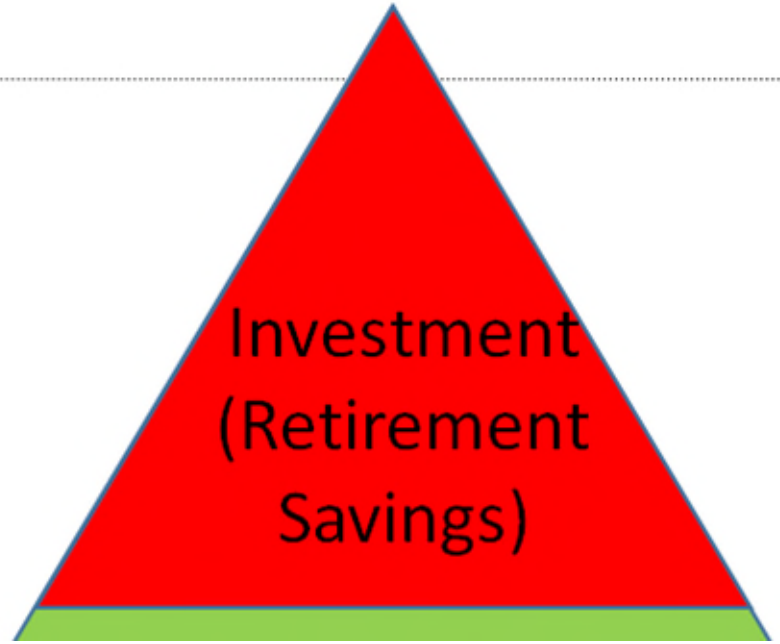
Investment

- Two parts:
  1. Student Loan Debt Managemer
  2. Investments



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Student Loan Changes

- There are many options for refinancing and repayment (RePaye, etc)
- There isn't enough time in this talk, but an example will suffice

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Why consider student loan debt management as part of Investments?

- https://studentaid.ed.gov/sa/types/loans/interest-rates
- Interest rates are set by congress
- Rates are tied to the 10-year treasury note with an added few percent
- Medical school loans were previously subsidized, ie the government paid the loan interest during the deferment period of medical school and residency
- As of 7/1/2012, professional students are no longer eligible to receive subsidized loans
  - Get used to getting less government help because you make more money. Wait until you see the tax brackets later in the talk :)

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Recent Rates https://www.accesslex.org/xblog/2019-20-student-loan-interest-rates-announced

Loan Type	2019-20 Rate
Direct Subsidized Loans (Undergraduate)	4.53%
Direct Unsubsidized Loans (Undergraduate)	4.53%
Direct Unsubsidized Loans (Graduate)	6.08%
Direct PLUS Loans (Graduate and Parents)	7.08%

(note – more advanced degree = more expensive for you)

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Student Loans

- So, you’re currently taking loans out at about 6% interest.
- Average medical school debt 2019 = $200,000

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Simple Interest

- Student Loans accrue interest using the “Simple Interest” formula.
- I = P x R x T
- I = Interest, P = Principal (Amount Borrowed), R = Rate per year in decimal form, T = Time in years
- P = $200,000
- R = 0.06
- T = 30 years
- Interest = $360,000
- You owe Principal + Interest = $560,000

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Should I pay this debt off quickly or pay it slowly and invest the difference?

- So you need an investment that is yielding more than 6% for the next 30 years. No problem right?
- Try stocks: The historic after-inflation (real) yield on the stock market is 6.6% from 1802-2012. However, as you'll see later., there are periods of much lower yields that can last for more than 30 years.
- Also, were are in a long bull market with high stock prices which may predict for lower than average returns in the next decade or so.
- So try bonds: The current yield on the long-term (30 year) treasury note is 2.5%.

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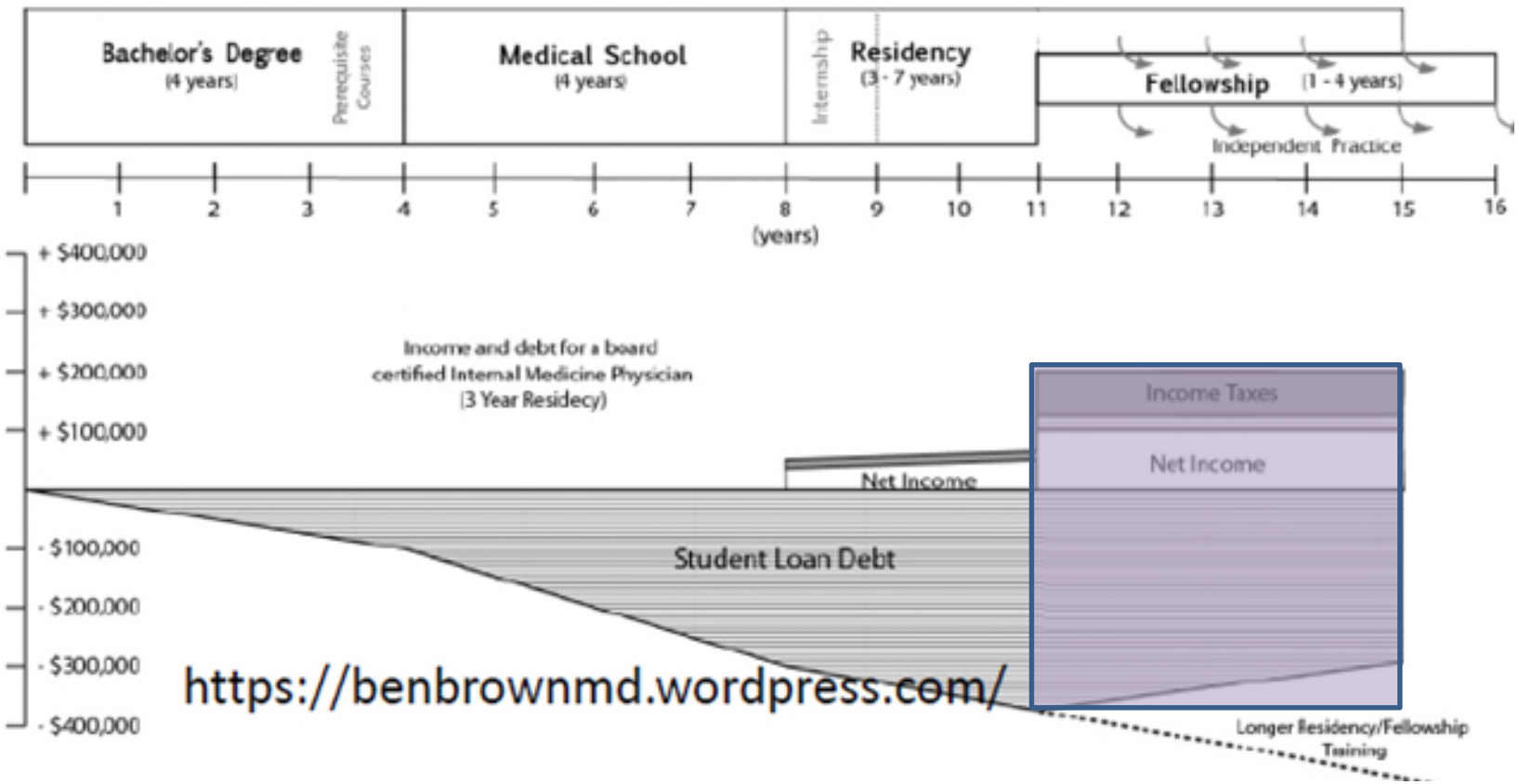

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Another way to look at student debt…..

- Think of paying your debt as “buying” a bond with a yield that is the interest rate of the student loan, ie 6% in 2019.
- Compare this with the yield of the long-term US treasury bond at 2.5% and that’s a deal!
- In essence, you are investing by paying off your debt.

- This is why I put student loan repayment into the Investment portion of the pyramid.
- In fact, one could think of any high-interest debt using this approach and thus rationalize debt-paydown prioritization over investing.
  - Credit cards, car, college/grad school debt, private loans.

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Last but not least

- The peace of mind that comes with being debt free
- The income it will free up later in life when you have more expenses like children :)

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No debt = Options

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A BIT OF HOUSEKEEPING FIRST - TAXES

The hardest thing to understand in the world is the income tax. *Albert Einstein*

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American (and most of the developed world) tax system is Progressive

- Progressive Tax – Tax rate increases as the taxable amount increases
- Aka, the more you make, the more you pay

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2019 Tax Brackets

Rate	For Unmarried Individuals, Taxable Income Over	For Married Individuals Filing Joint Returns, Taxable Income Over	For Heads of Households, Taxable Income Over
10%	$0	$0	$0
12%	$9,700	$19,400	$13,850
22%	$39,475	$78,950	$52,850
24%	$84,200	$168,400	$84,200
32%	$160,725	$321,450	$160,700
35%	$204,100	$408,200	$204,100
37%	$510,300	$612,350	$510,300

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Marginal vs Effective Tax Rate

Rate	For Unmarried Individuals, Taxable Income Over	For Married Individuals Filing Joint Returns, Taxable Income Over	For Heads of Households, Taxable Income Over
10%	$0	$0	$0
12%	$9,700	$19,400	$13,850
22%	$39,475	$78,950	$52,850
24%	$84,200	$168,400	$84,200
32%	$160,725	$321,450	$160,700
35%	$204,100	$408,200	$204,100
37%	$510,300	$612,350	$510,300

- Marginal Tax Rate – The rate at which the last dollar you earned in a year is taxed, ie your “Bracket”
- If you made $500,000 (2018 Sullivan Cotter median Radonc South Central region), your marginal rate is 35%
- Effective Tax Rate = Taxes Paid / Income
  - Because the system is progressive, dollars you earn first are taxed at a lower rate than dollars you earn last.
  - Ex: Earned $100,000
  - First $18,450 you earn, you pay 10% or $1,850
  - Next $56,449 you earn, you pay 15% or $8,476
  - Next $76,299 you earn, you pay 25% or $19,074
  - Next $48,799 you earn, you pay 28% or $13,663
- Total Income = $500,000, Total Federal and LA State Taxes Paid = $184,031
- Therefore, Effective tax rate = $184,031/ $500,000 = 37%

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Taxes

- Complex
- Deductions, business expenses (if any), locums, education, loans, marriage, house, moving, bonuses, children, healthcare, etc.
- I advise using a CPA
- In residency this cost me $100-200 per year. Turbotax is around $50
- If the CPA saves you even $100 a year (it will be more), that's a good investment
- If the CPA saves you from being audited, that is priceless!

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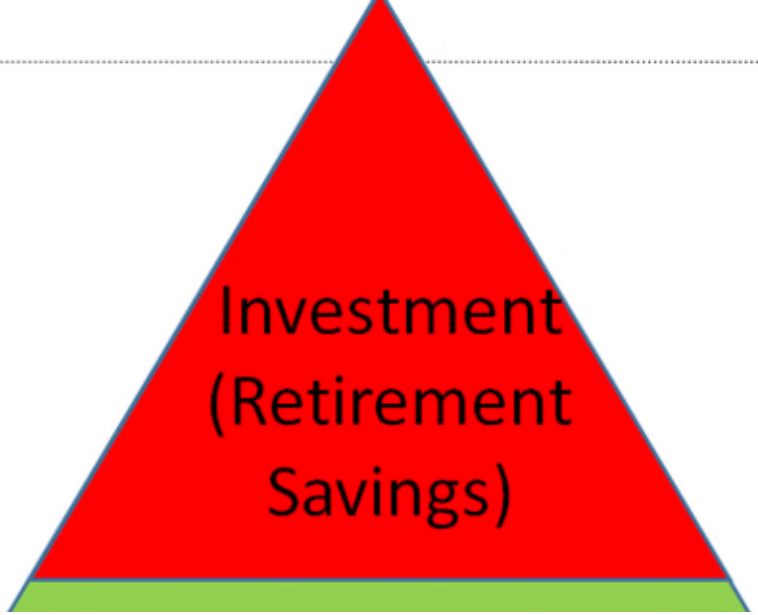

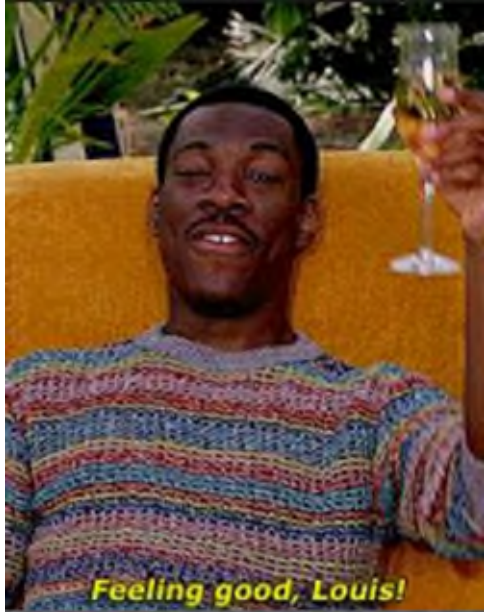

PART 3: GETTING TO THE RETIREMENT PAYOFF

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2 Step Process

1. Figure out how much you need in retirement, ie “The Number”
2. Figure out how much you need to save now to get “The Number”

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1. FIGURE OUT HOW MUCH YOU NEED IN RETIREMENT, IE “THE NUMBER”

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The Number

- A complex question that involves, retirement age, health, how much you spend, lifestyle, pensions, social security, health insurance, etc
- Rule of thumb = 70-80% of pre-retirement income.
- Living expenses are most likely lower in retirement
  - Children out of college
  - Downsizing of lifestyle
  - No business costs
  - Pay less taxes because of lower income and therefore lower tax bracket
  - Don’t pay social security or Medicare tax

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Finding your “number”

- Median Radonc 2018 Sullivan Cotter South Central Region = $500,000 (ugh APM, bundling???)
- 80% of $500,000 = $350,000 or $29,166 per month
- So you need $350,000 of annual income in retirement
- Remember, this is assuming you are needing all that money, if you live below you means you’ll need much less.

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So what size nest egg do you need to withdraw $350,000 annually?

- Another complex question
- Industry rule of thumb is what is known as the “Safe Withdrawal Rate”
- This is generally assumed to be 4% of your total Nest Egg, any more than 4% and you risk running out, any less and you might be too conservative.
- So, The Number(N) x 0.04 = $350,000
- N = $350,000/0.04
- N = $8,750,000
- Some feel that 4% is unsafely high to withdraw, and a lower rate means even more money needed to save!

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N = $8,750,000 is a lot of money

- You may not need all of this, this is an ULTRAconservative estimate
- It doesn’t take into account several things:
- Social security, decreased spending as one ages through retirement, windfalls (inheritance), etc

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Social Security

- The govt taxes 6.2% on all wages up to $132,900 (as of 2019)
- This is where the social security administration (SSA) gets its income

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How much SS will you get?

- Assuming the median radonc salary of $500,000, you will pay the max SS taxes each year, and some of you that worked before medical school have been paying. You will also pay some in residency/fellowship.

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https://www.ssa.gov/OACT/quickcalc/index.html

Enter your date of birth (month/day/year format) 10 / 8 / 1981

Enter earnings in the current year: $500000

Your annual earnings must be *earnings covered by Social Security*.

If you entered 0, we assume you are now retired. Enter the last year in which you had covered earnings and the amount of such earnings.
Year: 2013 Earnings: $500000

Future retirement date option

If you have decided upon a retirement date, enter the month number and year in which you plan to retire. Month 10 Year 2047

Retirement

Your estimated monthly benefit amount, beginning at age 66 in 2047, is **$2,927.00**. For your estimate, we assumed no future increases in prices or earnings.

We have calculated your benefits by making certain assumptions about your past earnings. Please look at these earnings to see if they appear reasonable to you. You can change them and see the effect on your benefit estimates!

Information you submitted

Date of birth: **10/8/1981**
Current earnings: **$500,000.00**
Benefit in **year-2019** dollars
Retirement month: **10/2047**

Note: For your benefit calculation, we limited your earnings to the $132,900.00 taxable maximum for 2019.

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Redo $8,750,(social security

- Need $350,000 a nth for SS = $364,876
- So, The Number(
- N = $314,876/0.0
- N = $7,871,900
- Shaved off $1,00

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STEP 2. FIGURE OUT HOW MUCH YOU NEED TO SAVE NOW TO GET “THE NUMBER” OF $7,871,900

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Can I save 7.8 million?

- You would need to save $262,396 per year for 30 years (7.8million/30)
- At an income of $500,000, that is about half your income, *before taxes!* (remember the $ 184,031 per year taxes from earlier)
- That leaves $316,000 after taxes
- Subtract $262,396 for retirement savings above = $53,604 or $4,467 per month remaining for living
- Factor in student loans, mortgage, living expenses, business expenses, kids, vacation, emergencies and the answer to the above question is NO.

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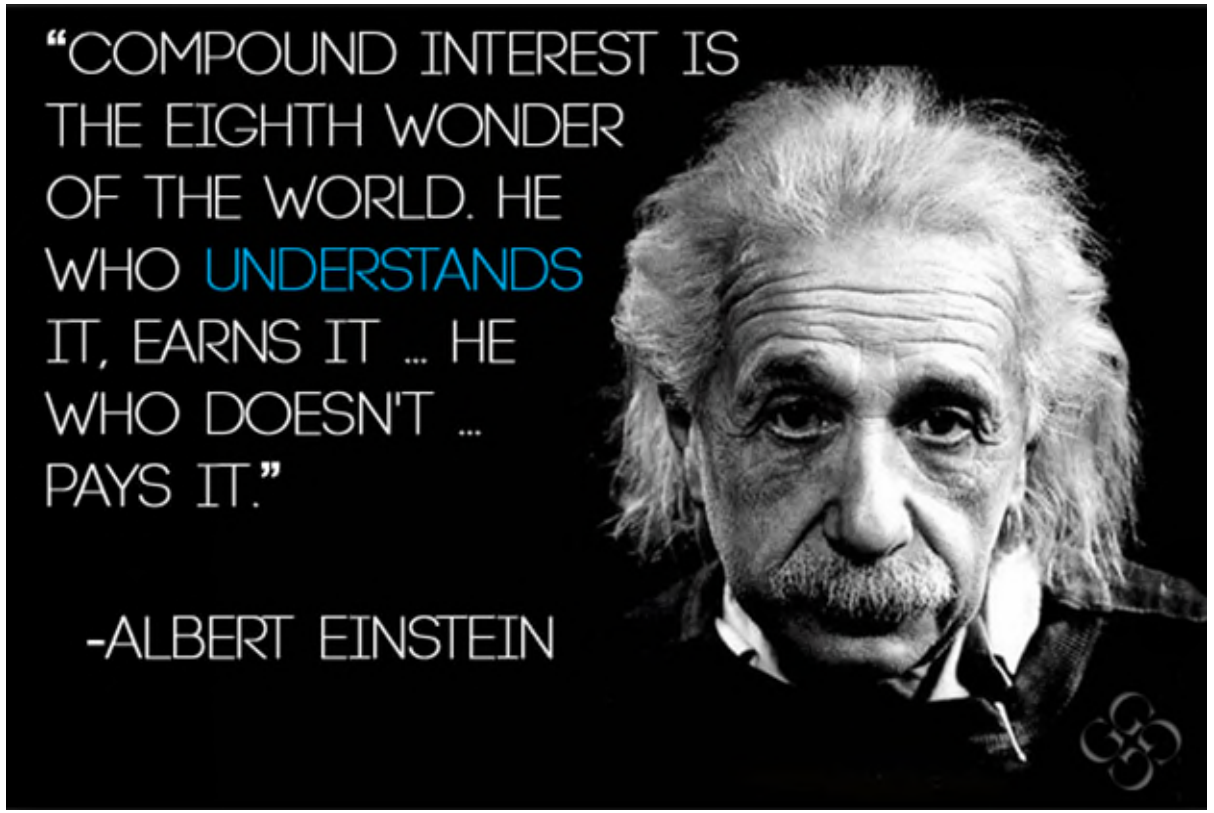
Compound Interest = Maybe Einstein said this



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Definitions – Simple Interest

- Principal = The amount invested
- Interest = The amount earned on your principal
- Example – 3 year loan to a friend $100 at 5% simple interest
  - in 1 year you will have $105
  - 2 years $110
  - 3 years $115
  - 5 years you will receive the $100 principal back plus you will have earned $25 interest, not bad

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Simple vs Compound Interest

- Simple interest
  - I = P x R x T

Compound Interest – Starting with principal P then the amount A in an account after t years, with an annual interest rate r compounded n times a year, is given by:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

- Compound Interest
- Interest on the Principal + Interest on the Interest you've already earned

Note – time is an exponent here

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Quick example

- $100 loan to a friend for 5 years at compound interest
- How much interest do you earn in the first year?
  - Well, its 5% of $100 = **$5**
- How much interest do you earn in the second year?
  - Well, its 5% of $105 = **$5.25**
- How much interest do you earn in the third year?
  - Well, its 5% of $110.25 = **$5.51$**
- Etc…
- After 5 years the total interest earned is **$27.63**, compared with $25 for the simple interest, 1.1 times more with compounding

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That’s only 5 years, what about longer, ie 30 years till retirement?

- Lets do the same loans as before but this time to 30 years.
- Simple interest $100 loan at 5%
  - Total interest = 30 years x $5 = $150
- Compound interest $100 loan at 5%
  - Total interest = $332.19
- That’s 2.21 times more with compounding!

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Rule of 72

- At 7.2% interest, it takes 10 years to double your money
- Let see what this does with $1.00

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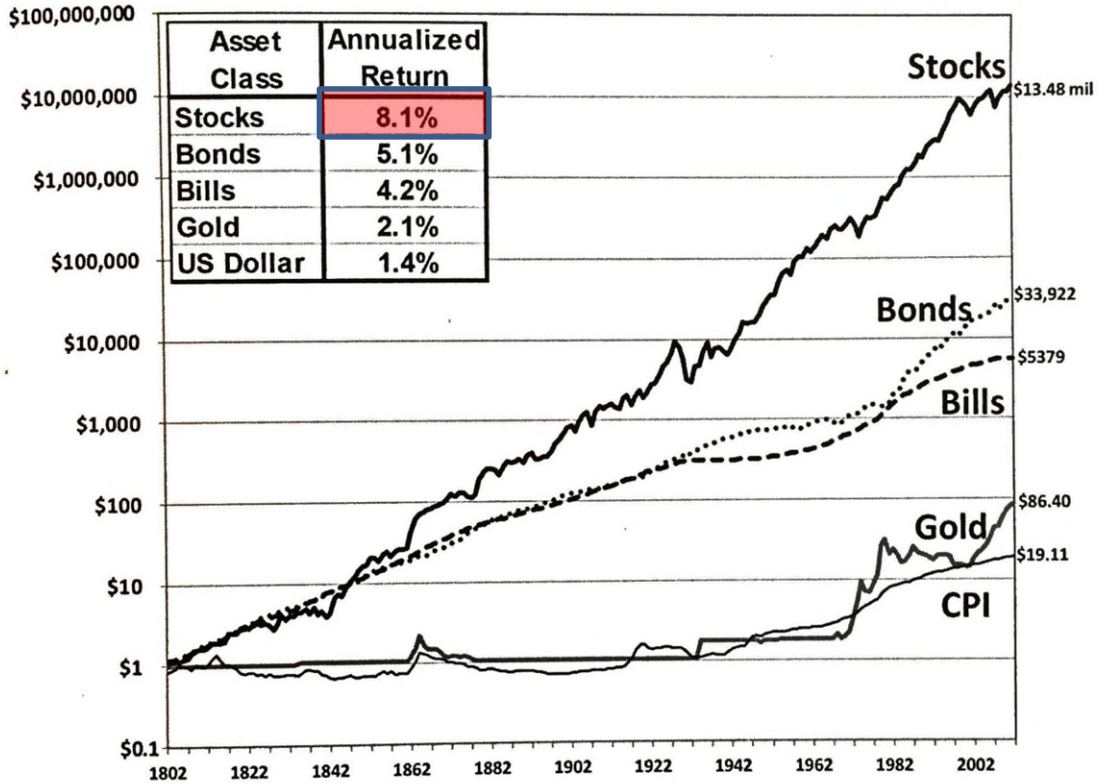
Growth of $1 invested in the US stock market in 1802 and left untouched until 2012

FIGURE 5–1

Total Nominal Returns and Inflation 1802–2012



13.48 million

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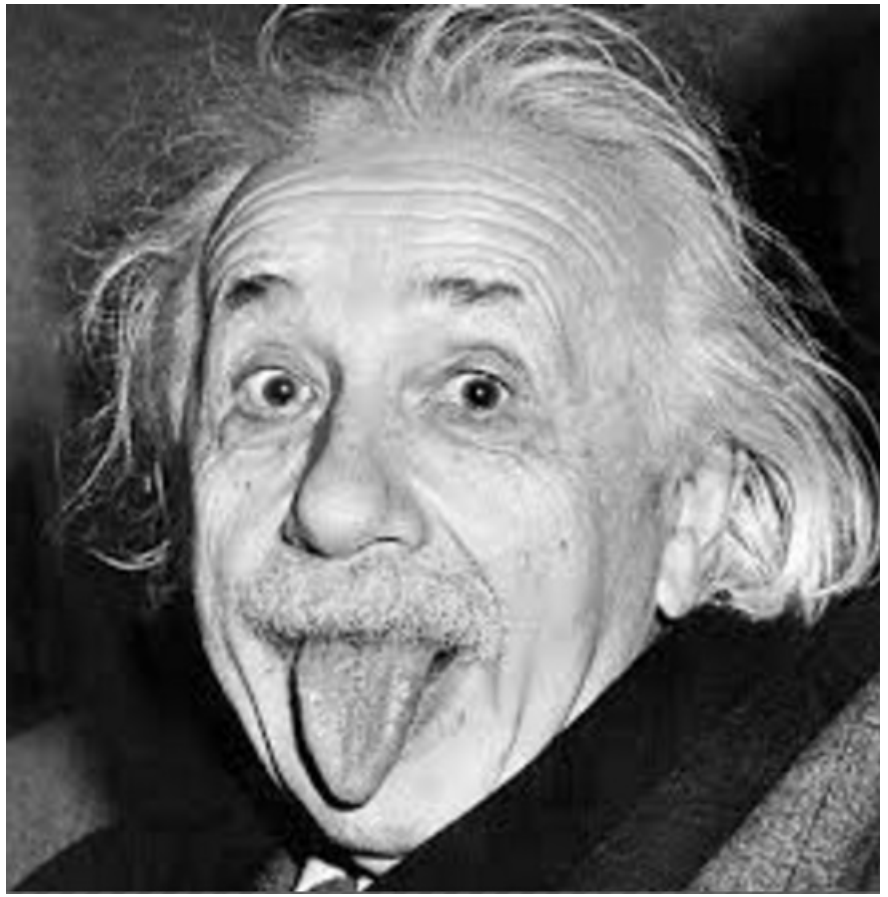
So with the power of compound interest, we are able to achieve our Retirement Number



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2. Figure out how much you need to save now to get "The Number"

We need about 7 times this amount per year , so multiply the table by 7 → $1,824 x 2.5 = $12,768 per month=153,432 per month

Table 12-2. Monthly Savings Required to Retire on $50,000 per Year. (See text)

	Portfolio Real Return					
Years	2%	3%	4%	5%	6%	7%
5	$39,670	$25,808	$18,888	$14,747	$11,992	$10,032
10	$18,854	$11,952	$8,521	$6,478	$5,129	$4,176
15	$11,938	$7,367	$5,109	$3,776	$2,905	$2,296
20	$8,497	$5,099	$3,436	$2,464	$1,838	$1,407
25	$6,445	$3,758	$2,457	$1,707	$1,232	$912
30	$5,089	$2,880	$1,824	$1,226	$855	$611
35	$4,129	$2,266	$1,389	$902	$607	$417
40	$3,418	$1,817	$1,077	$675	$437	$289

William Bernstein -The Four Pillars of Investing

EZ calculator app

- Download and see how much the variables impact the final amount
- Calculator comes to slightly different (lower) result than previous page.
- Number is $11,500 per month = $138,000 per year.
- We’ll use that :)

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Can you save $138,000 per year?

- Remember from earlier, after taxes you'll have $316,000 remaining
- If you save the full $138,000 you will have $178,000 to living expenses
- Answer: Certainly possible, but you wont come close unless you start early and live within (or below) your means

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Lets say you wait 10 years after residency to start saving so you can spend some “Doctor money”, you’ve earned it right?

- The Number increases to $259,000 per year. That doesn’t seem possible after taxes
- Its even worse if the market doesn’t perform at 4% “real returns”

Table 12-2. Monthly Savings Required to Retire on $50,000 per Year. (See text)

	Portfolio Real Return					
Years	2%	3%	4%	5%	6%	7%
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40	$3,418	$1,817	$1,077	$675	$437	$289

Bottom line

- Start early, save a lot, and live like a resident for 3-5 years after residency

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WHERE DO I PUT THE MONEY?

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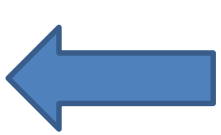
Investment accounts vs Investments

Investment accounts

- Think of these as luggage, many types for different purposes
- They aren't themselves investments, but the hold your investments

Investments

- Think of these as clothes
- These are the actual investments
- Ex: Stocks, Bonds, Mutual Funds



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Pop quiz

International Journal of Medical Education. 2017;8:192-204
ISSN: 2042-6372
DOI: 10.5116/ijme.5918.ad11

- What account allows for tax-free withdrawals in retirement?
  A. Traditional IRA
  B. Roth IRA
  C. 401(k)
  D. 457
  E. 403(b)

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  D. 457
  E. 403(b)

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Types of Investement Accounts

TABLE 10.1 CHARACTERISTICS OF ACCOUNT TYPES USED IN RETIREMENT SAVINGS

Account Type	Tax-Deductible Contribution	Contribution Limits	Tax-Deferred Growth	Tax-Free Withdrawals	Income Limits	Employer Sponsored	Unlimited Investment Options
Taxable account	No	No	No	Partial	No	No	Yes
Traditional IRA	Yes	Yes	Yes	No	Yes	No	Yes
After-tax IRA	No	Yes	Yes	Partial	No	No	Yes
Roth IRA	No	Yes	Yes	Yes	Yes	No	Yes
Roth 401(k)	No	Yes	Yes	Yes	No	Yes	No

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Taxable account - The simplest account

- Can open at any bank, brokerage firm or mutual fund company
- Examples: Local bank, Fidelity, Charles Schwab, Vanguard
- Funded with *Aftertax* dollars – basically this is your money to do with what you want.
- All interest and dividends are subject to tax. Capital gains (more on this later) are also subject to tax

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Taxable account	No	No	No	Partial	No	No	Yes
Traditional IRA	Yes	Yes	Yes	No	Yes	No	Yes
After-tax IRA	No	Yes	Yes	Partial	No	No	Yes
Qualified Annuity	Yes	Yes	Yes	No	No	No	No
Non-qualified Annuity	No	No	Yes	Partial	No	No	No
Small business plans	Yes	Yes	Yes	No	No	Yes	No
Roth IRA	No	Yes	Yes	Yes	Yes	No	Yes
Roth 401(k)	No	Yes	Yes	Yes	No	Yes	No

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IRA = Individual Retirement Arrangement

- Anyone with US taxable income can open an IRA, cannot contribute more than you make
- You may be able to open for a spouse even if he/she doesn't work
- Depending on your income, these are funded with pre OR post-tax dollars. You guessed it, higher income gets funded after-taxes so there is no upfront tax savings.
- If you make > $203,000 married filing taxes jointly you cannot deduct IRA contributions, so these will be funded with after-tax dollars
- $6,000 annual limit per person 2019, $7,000 if over 50
- Required to start taking distributions at 70.5 years, (Required Minimum Distribution)

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So why do an IRA if taxable and IRA are both after-tax dollars?

- Because IRA allows Tax-Free Growth. This means that any interest and dividends generated as the investment grows are not be subject to tax
- However, when you withdraw in retirement, you will pay income tax on all distributions. This income tax rate is currently higher than the capital gains rate paid on taxable accounts. So a non-deductible IRA may not be appropriate for high income earners.

TABLE 10.1 CHARACTERISTICS OF ACCOUNT TYPES USED IN RETIREMENT SAVINGS

Account Type	Tax-Deductible Contribution	Contribution Limits	Tax-Deferred Growth	Tax-Free Withdrawals	Income Limits	Employer Sponsored	Unlimited Investment Options
Taxable account	No	No	No	Partial	No	No	Yes
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Non-qualified Annuity	No	No	Yes	Partial	No	No	No
Small business plans	Yes	Yes	Yes	No	No	Yes	No
Roth IRA	No	Yes	Yes	Yes	Yes	No	Yes
Roth 401(k)	No	Yes	Yes	Yes	No	Yes	No

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Defined Contribution Plans

- These are arranged through employer, or yourself if you are self-employed
- Examples: 401k, 403b, 457
- Maximum annual contribution 2019 = $19,000
- Your employer may have more than one type, but the maximum total annual limit across all types is $56,000 in 2019
- These are funded with *Pre-Tax* dollars
- All interest and dividends grow tax-free
- In retirement, distributions are taxed at ordinary income tax rates. So uncle Sam gets his share later rather than now.

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Defined contribution plans – 401k, 403b, etc

- The Match = An amount, usually up to 4% of your salary, that your employer will contribute on your behalf to the account
- Represents an immediate 100% return on your investment
- Never turn down free money!

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Roth Option

- Roth IRA – These are funded with *After-tax* dollars, whereas traditional IRA is *Pre-tax*
- Therefore, you wont get a tax deduction for the Roth option
- However, in addition to tax-free growth of dividends and interest, all distributions in retirement are tax-free. Don't underestimate this benefit.
- Uncle Sam gets his now rather than later
- Additional benefits = no RMD, stepped up basis at death, ability to withdraw from the account at any time without penalty (some exceptions apply)
- The Roth option now exists for most 401k and 403b plans, strongly consider it!

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PART 4: INVESTMENTS – THE BASICS

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What is investing?

- Basically, you have extra money that you don’t need to live that day
- You can do a few things with it:
  - Spend it
  - Save it under you mattress
  - Lend it
- Investing is basically lending your money to someone in exchange for something else

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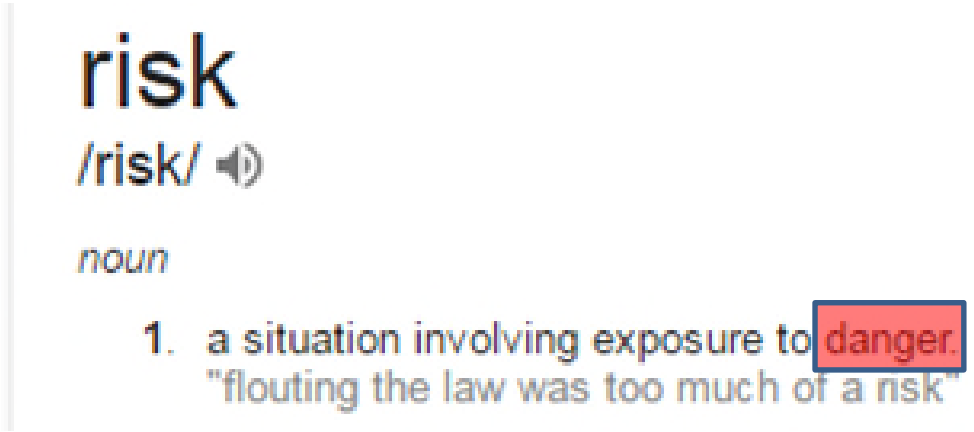
Risk

- Risk is at the heart of investing – investing is dangerous by definition



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Bottomry Loan

- Ancient Greece was a maritime power
- Most trade was by sea
- Lets say you owned a ship
- Broken sail, uh oh. You need to repair the ship for $1,000 before sailing for Athens
- So you take out a Bottomry loan for $1,000 from the Bank of Sparta
- Well, sea travel was *risky* in those days, with about 10% of ships sinking on voyage, and Bank of Sparta knows that if they ship sinks, it gets nothing (ie the loan is forfeit)
- Therefore, the bank of Sparta knew it could lose all of it's $1,000 quite easily, so it will charge you 25% interest that will be due upon arrival to Athens
- During wartime, interest rates went to 30%!
- Therefore, Bank of Sparta needed to be compensated for *Risk* by charging you *Interest*.
- Bank of Sparta's reward (ie interest payment) is directly link to the risk

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This bears repeating

- Bank of Sparta’s reward is directly link to the risk
- Risk and Reward are inextricably linked

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Risk through time

- When times are bad, ie new country, war, starvation, disease, etc, interest rates are high.
- This is as it should be because the risk that you wont get repaid is high, ie the person you lend the money to could die in war, starve to death, die of the plague, etc
- When times are good, ie developed older countries at peace with plenty food and good medical systems, interest rates are low. This is as is should be

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Risk through time

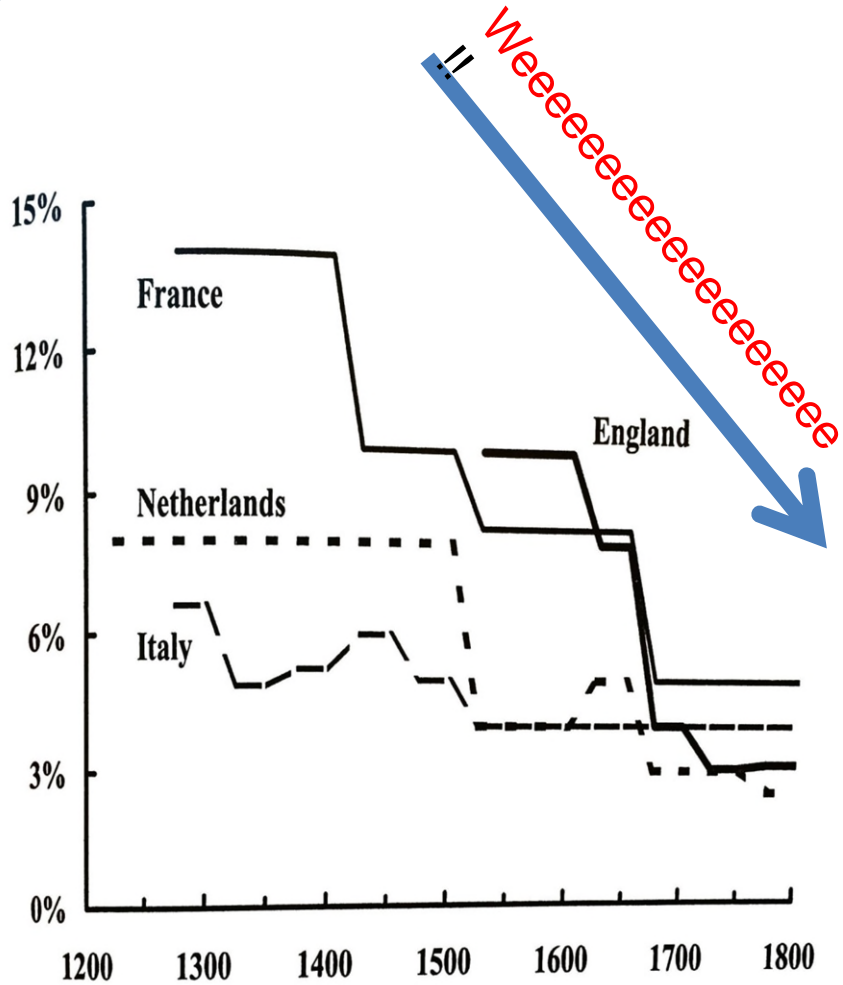

Figure 1-2. European interest rates, 1200–1800. (*Source:* Homer and Sylla, *A History of Interest Rates.*)

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Pop quiz

International Journal of Medical Education. 2017;8:192-204
ISSN: 2042-6372
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- If interest rates rise, what typically happens to a bonds price?
  A. Rise
  B. Fall
  C. Remains the same
  D. No relationship
  E. I have no idea

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Pop quiz

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- If interest rates rise, what typically happens to a bonds price?
  A. Rise
  B. Fall
  C. Remains the same
  D. No relationship
  E. I have no idea

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Bonds and Risk

- Bond – Literally a “Bond” between 2 people
- Person A gives person B money
- Person B will pay a set amount of money every year (interest rate) for X years.
- At the end of X years, person B will pay all of the money back (the principal)

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Bond example

- I buy a $100 government savings bond
- It is a 20 year saving bond yielding 2.5% interest per year
- Therefore, I will get $2.50 every year for 20 years = $50
- In 20 years I will also get back the original $100

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Why do I get money for a bond?

- Answer, because bonds have *RISK*
- What risk? There are several, but here is one using federal (ie government) bonds to make the point.
- Credit risk – The risk that the issuer (US govt) will not be able to pay the money. This is called default and the US govt has never defaulted.
- Why has the US not defaulted? We are a mature country, with a large relatively wealthy tax base, a huge advanced military and our fates are intertwined with commerce with nearly every nation.
- That is why the world keeps its money in US bonds. They are safe, ie Not very risky.
- However, because of the safety, the reward, ie interest payment, is very low
- Junk Bonds – Bonds issued by companies that may be doing badly, ie they need the money. The risk that they wont pay is higher, so they must pay more *Interest* to attract lenders

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Stocks

- You give a corporation money and it gives you a claim on future earnings
- You buy “Shares”
- You now have part ownership “Share” in a corporation
- There a several types of stock: A, B, etc, common, preferred
- Some types give voting rights for board of directors, CEO, CFO etc.

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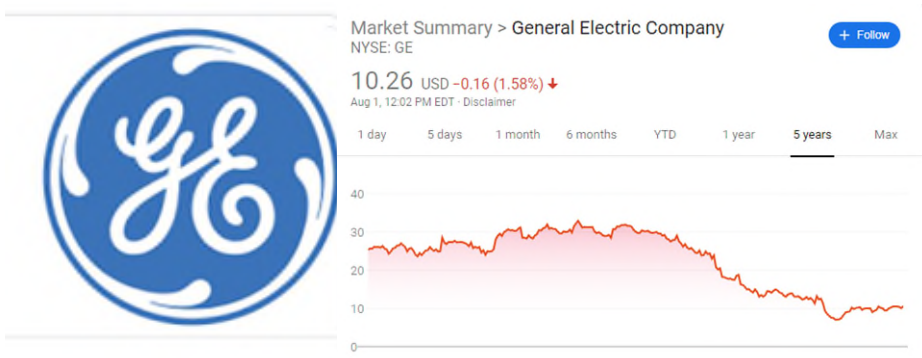
Stocks are risky

- The company could go bankrupt for several reasons
  - Fraud (Enron)
  - Bad management
  - Bad luck
  - Obsolescence
- Profits could be low for decades
- Dividends can be cut
- Company could merge
- Etc, etc, etc….



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How do stocks compensate investors for risk?

- Dividends – A sum of money paid regularly (usually quarterly) by a company to its shareholders
  - Currently 1.8% per year S&P 500 2019 (this is low)
- Capital Gain – A profit from the sale of the stock
  - Potentially, the capital gains of a company are infinite because company growth could be infinite

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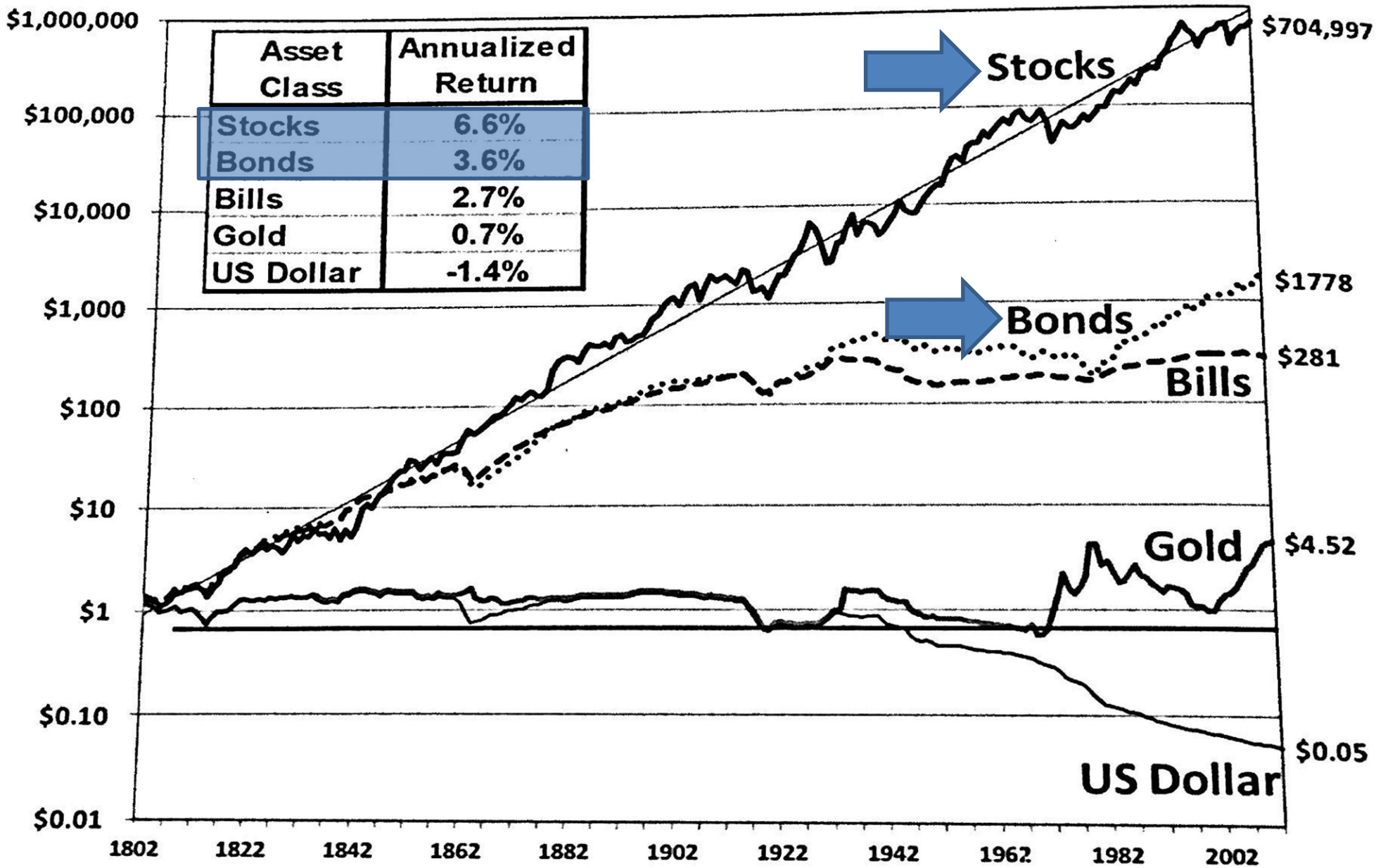
FIGURE 1–1

Total Real Returns on U.S. Stocks, Bonds, Bills, Gold, and the Dollar, 1802–2012



Stocks

- So stocks return more than bonds, why is that?
- Because they are More Risky!
- Let see what this means.

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Risk in Stocks defined – They can perform good OR bad. The key is the OR.

Let's unpack this graph

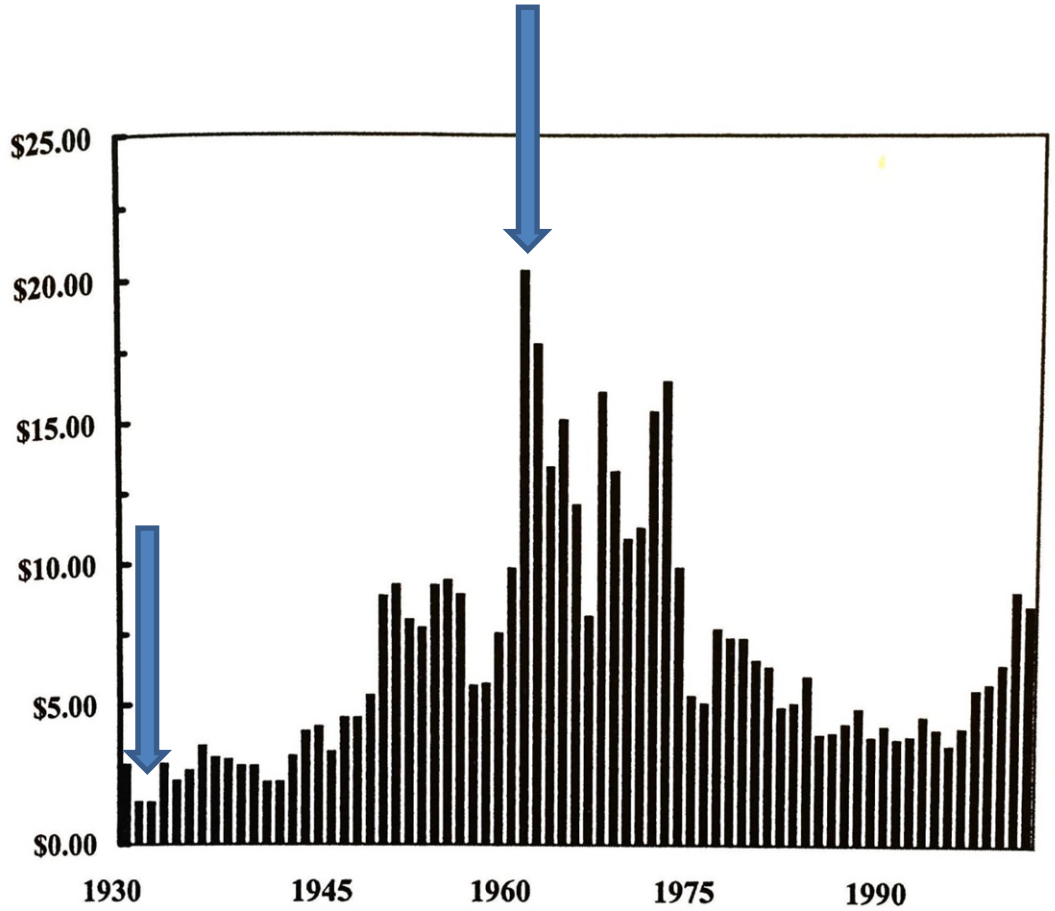

Figure 1-14. Thirty-year real end wealth of $1.00 invested in U.S. stock, 1901–2000. (*Source:* Jeremy Siegel.)

That's a 20 fold difference! That's a trailer park retirement vs your own yacht! AKA, risk :)

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Safe (Bonds) vs Risky (Stocks)

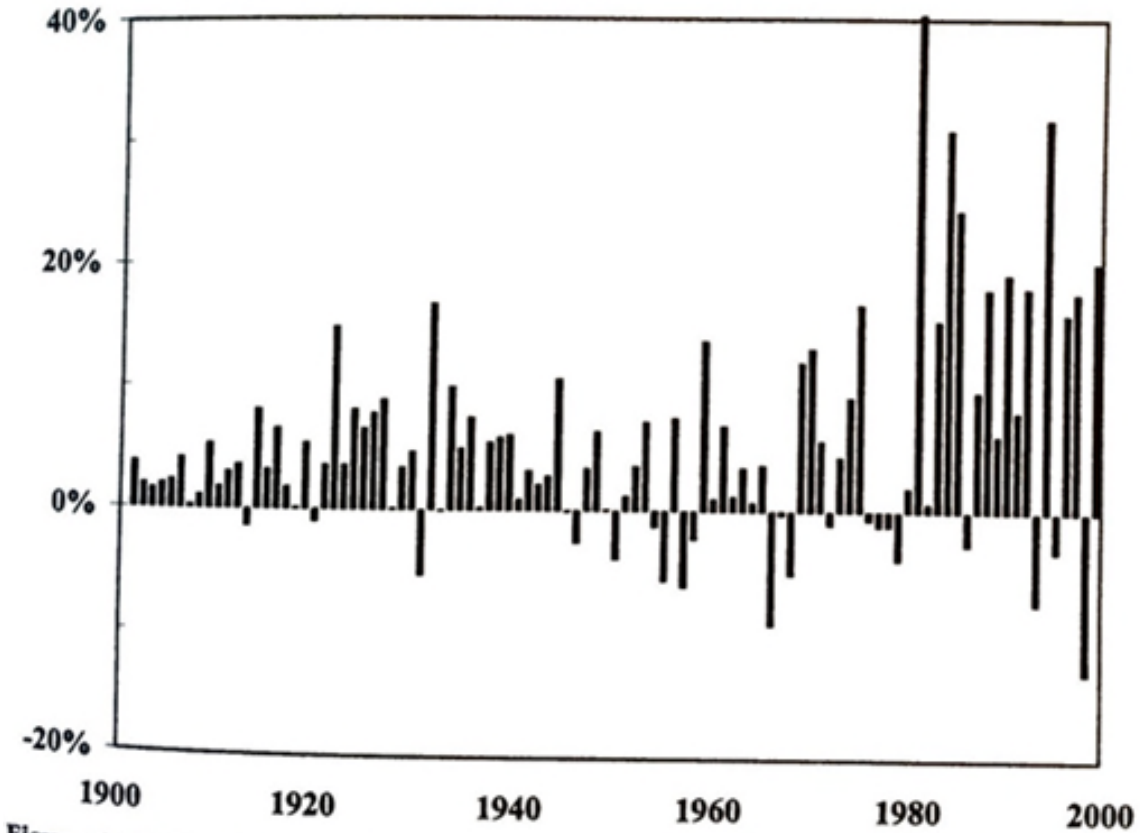

Figure 1-10. U.S. Treasury bond returns, 1901–2000. (*Source:* Jeremy Siegel.)

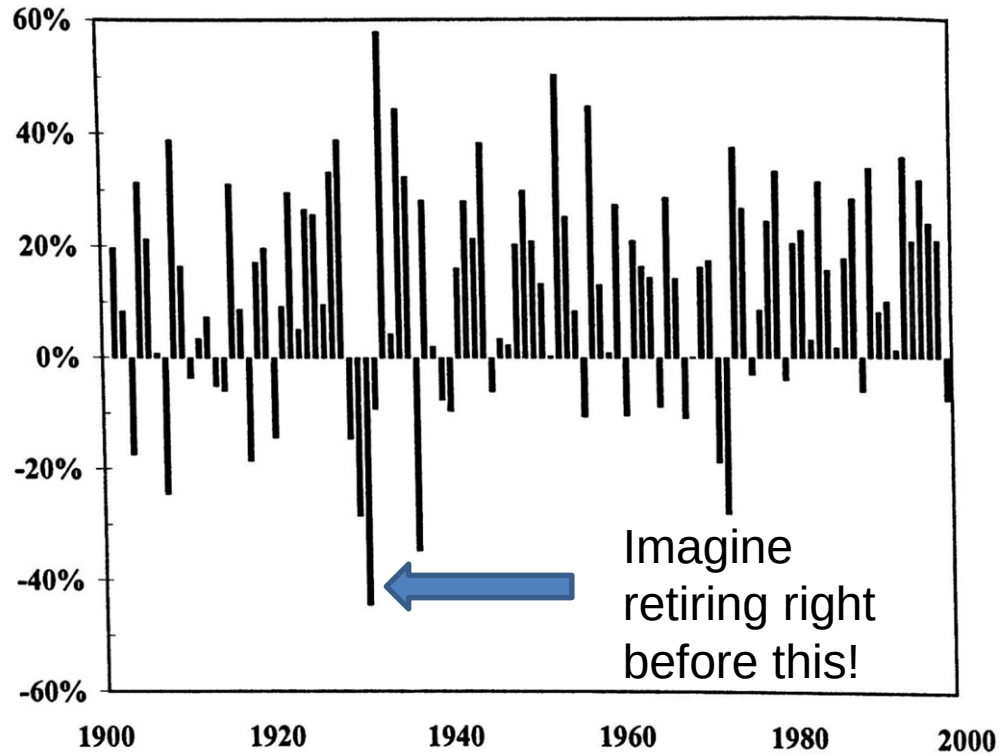

Figure 1-11. U.S. stock returns, 1901–2000. (*Source:* Jeremy Siegel.)

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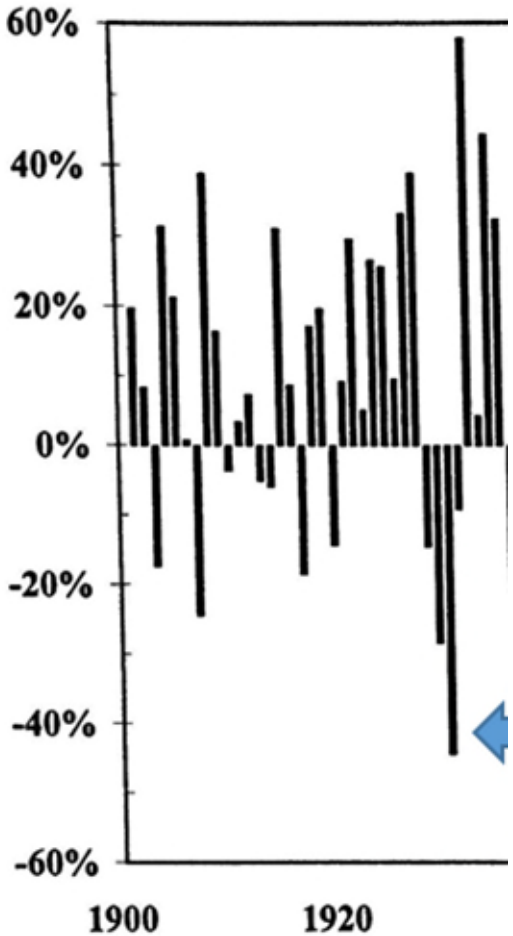

- The 4 year sequence of returns of the Stock market crash of 1929 (Black Tuesday)
- -15%→-30%→-45%→-10%
- 70% loss!

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Mathematics of percentage loss

- Question: What gain is needed to offset a 10% loss?
- A 10% loss example:
- Start $100
- 10% loss = $90
- You now need $10 to get back to $100
- So the question is, what % of $90 is $10?
- A: 11.1% ($90 x 111% = $100)
- Therefore, you need an 11.1% return to get back to $100

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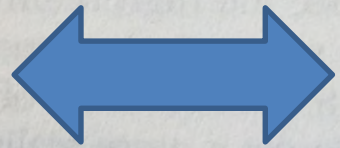
The harder they fall…

- A bigger loss mean an even bigger gain needed to offset
- 25% loss = 33% gain
- 50% loss = 100% gain
- 80% loss = 500% gain!

Table 1-1. Historical Returns and Risks of U.S. Stocks and Bonds in the Twentieth Century

Asset	Annualized Return	Worst Real Three-Year Loss
Treasury Bills	4%	0%
Treasury Bonds	5%	−25%
Large Company Stocks	10%	−60%
Small Company Stocks	12%	−70%

(*Source:* Jeremy Siegel and Ibbotson Associates.)



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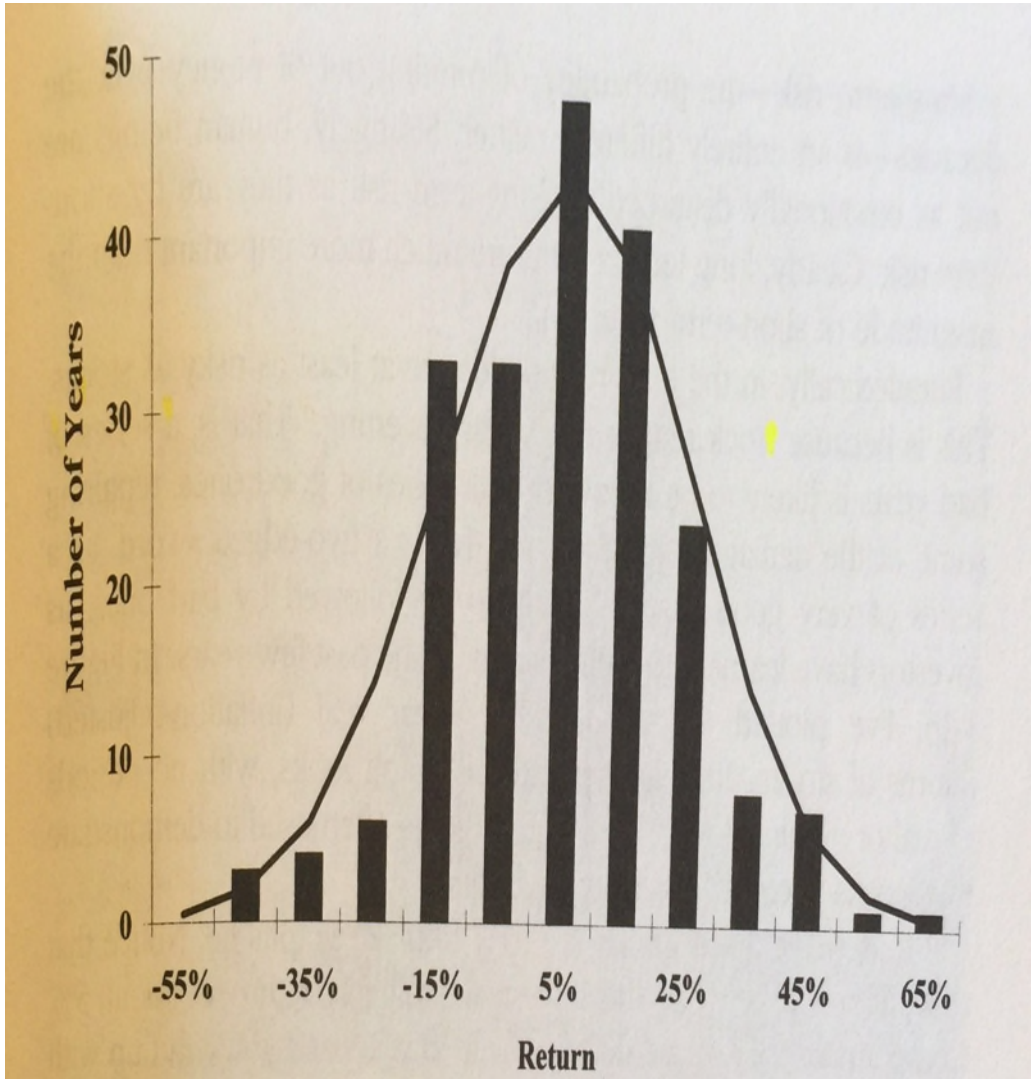
Random stock market? Normal distribution.



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Mutual Funds

- Collections of stocks
- There are more mutual funds than stocks (much more in fact)
- They charge you money to collect these stocks
- However, the diversification given by mutual funds is unbeatable
- Types of funds are beyond this talk, however, it is a good idea to hold only a few, ie 1-4, well diversified funds
- These funds are typically *Index Funds* in that they follow some index of the market like the S and P 500, NASDAQ, Dow Jones Industrial Average (DJIA), Stoxx (Europe), etc
- Keep costs down!!

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Individual Stocks

- Individual stock are extremely risky for the reasons mentioned before
- Yes, they can make you rich, but they are much more likely to make you poor
- Think you can pick stocks? People that do this all day can't even do it, and you have a medical practice to worry about
- Since the goal of this talk is preservation of wealth for a comfortable retirement and NOT how to get rich, I don't hold individual stock
- I also don't think its possible to hold enough different companies to be diversified enough (and therefore safe) as a well diversified mutual fund

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Your Portfolio

- You portfolio should contain mutual funds
- Stocks and bonds can be purchased through mutual funds
- Asset Allocation: Using the proportion of Stocks to Bonds to control risk

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Controlling risk through Asset Allocation

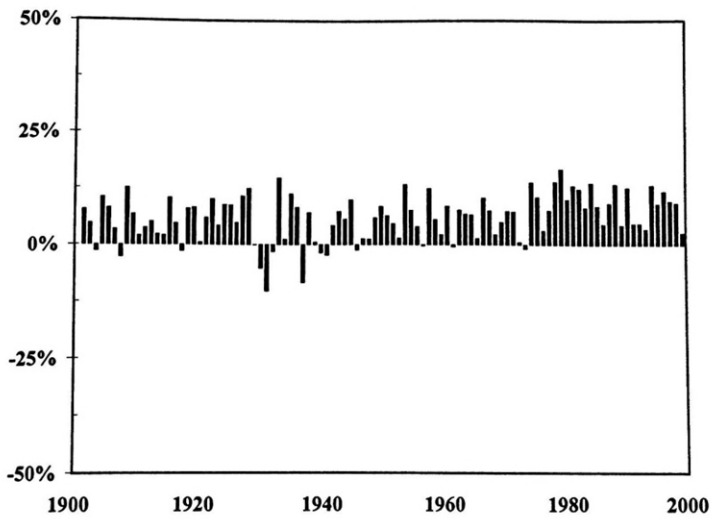

Figure 4-2. Mix of 25% stock/75% Treasury bill annual returns, 1901–2000. (*Source* Jeremy Siegel.)

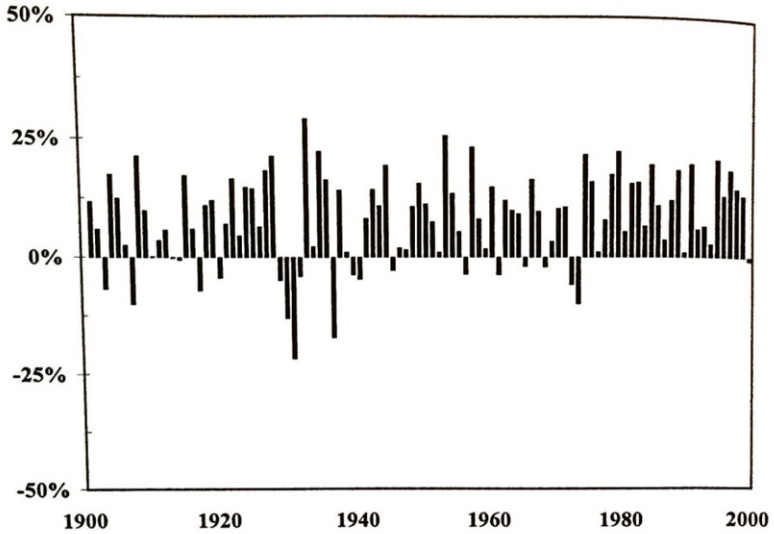

Figure 4-3. Mix of 50% stock/50% Treasury bill annual returns, 1901–2000. (*Source:* Jeremy Siegel.)

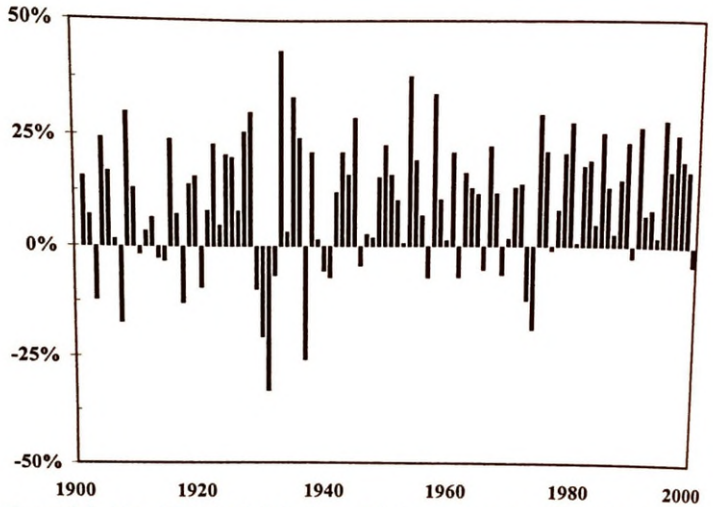

Figure 4-4. Mix of 75% Stock/25% Treasury bill annual returns, 1901–2000. (*Source:* Jeremy Siegel.)

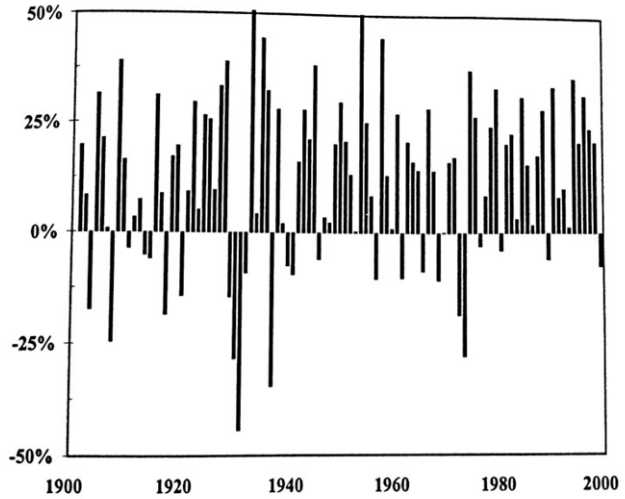

Figure 4-5. All-stock annual returns, 1901–2000. (*Source:* Jeremy Siegel.)

Asset Allocation

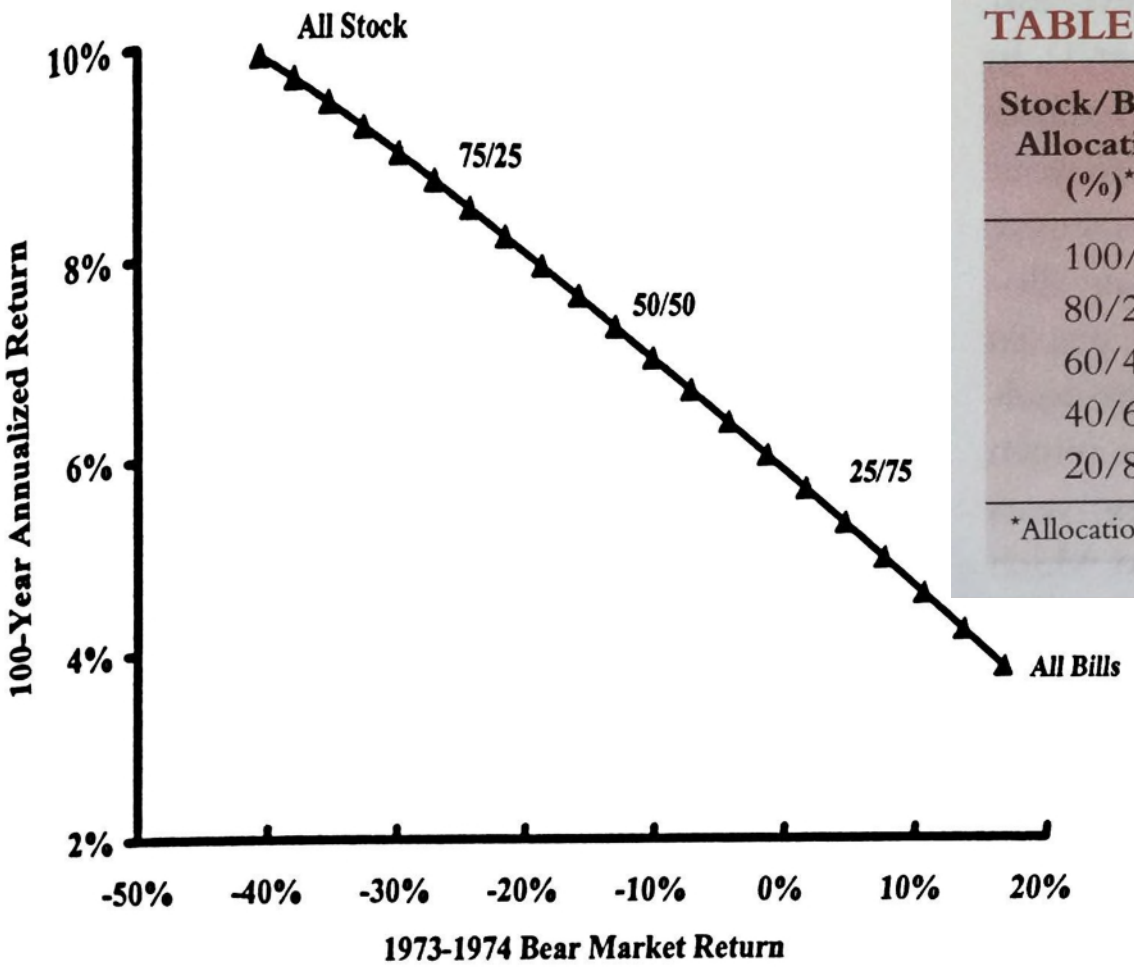

Figure 4-6. Portfolio risk versus return of bill/stock mixes, 1901–2000.

TEN YEARS LATER

TABLE 3.1 Risk and Allocation (1926–2009)

Stock/Bond Allocation (%)*	Number of Years with a Loss	Average One-Year Loss	Three-Year Loss 1930–1932	Two-Year Loss 1973–1974	Two-Year Loss 2008–2009
100/0	24	–13.6%	–60.9%	–37.3%	–24.9%
80/20	23	–10.7	–45.6	–29.2	–19.9
60/40	19	–8.2	–30.2	–21.1	–14.9
40/60	17	–5.2	–14.9	–13.0	–9.9
20/80	15	–3.6	+0.5	–4.9	–4.9

*Allocations are not rebalanced annually.

Do it yourself investing (DIY) vs Hiring a Financial Advisor (FA)

- I don’t believe that most financial advisors can beat the market
- In fact, the best they can do is get you the return on the market
- But you can do this yourself with indexed mutual funds
- Well, what’s the difference? You may say “I don’t have time to DIY, so I’ll hire someone.”
- Really? Let’s take a look at costs.
- We will use our $11,500 per month needed to retire comfortably “Number” that we came up with earlier

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Real end wealth comparing DIY vs Advisor

- Advisors often charge a percent of accounts under management (AUM) to manage your money
- Usually this is around 1%, but can be higher. This 1% fee *comes directly from your investment return!!!*
- DIY = 0% fee, therefore costs time only
- Lets see what that difference equates to over time.

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Total End Wealth of DIY vs FA

DIY

- Save $11,500 per month for 30 years
- Real return 4%
- Total end wealth = $7,900,000

FA

- Save $11,500 per month for 30 years
- Real return 4%
- Subtract 1% for FA fee, therefore real return = 3%
- Total end wealth = $6,670,000

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$1,123,000 difference! Do you have time now?

- That translates to an extra $2,000 per month that you need to save ($13,50) to get to the $7.8 million Number we assumed earlier.
- Is your FA worth that much to you?
- Not to mention the FA may suggest risky investments that benefit the FA more than you
- Also, it doesn’t take more work to manage $1,000,000 or $10,000,000 but the % fee system pays a lot more!
- There are good FA out there. If you choose to use a FA, find one that charges you a flat fee rather than %. Or even better, fee for service that you can use only if needed or maybe once every few years to keep you on tract with your goals.

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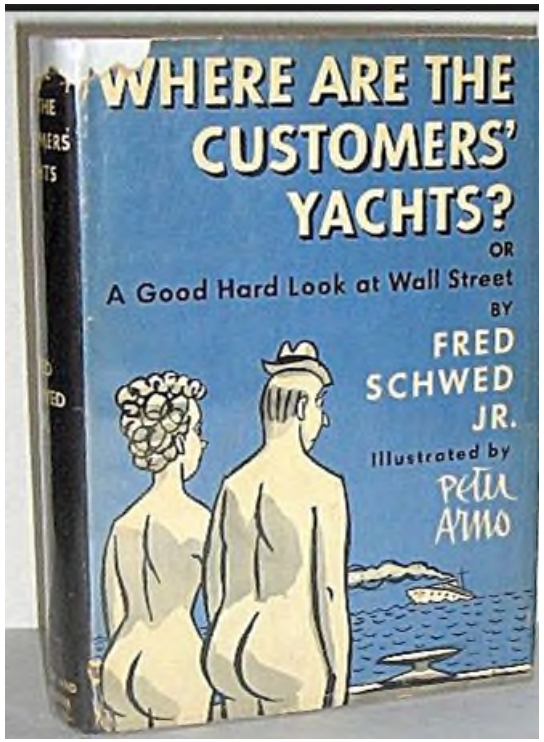
Don’t believe me about the financial industry? Start with this hilarious book, from the 1920s.



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References (in suggested reading order)

- Four Pillars of Investing – William Bernstein, MD PhD
- Random Walk Down Wallstreet – Burton Malkiel, PhD
- Common Sense on Mutual Funds – John Bogle
- The Bogleheads Guide to Retirement Planning
- Stock for the Long Run, Jeremy Siegel, PhD
- The Affluent Investor – Phil DeMuth PdD

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Thank you ARRO

- Kyle Russo, MD
- jakyru1981@gmail.com
- Questions, suggested topics, corrections and general comments are welcome
- I’m happy to schedule a talk with a group of residents at your institution

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