FINANCIAL LITERACY 101

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VER.2021.08.01

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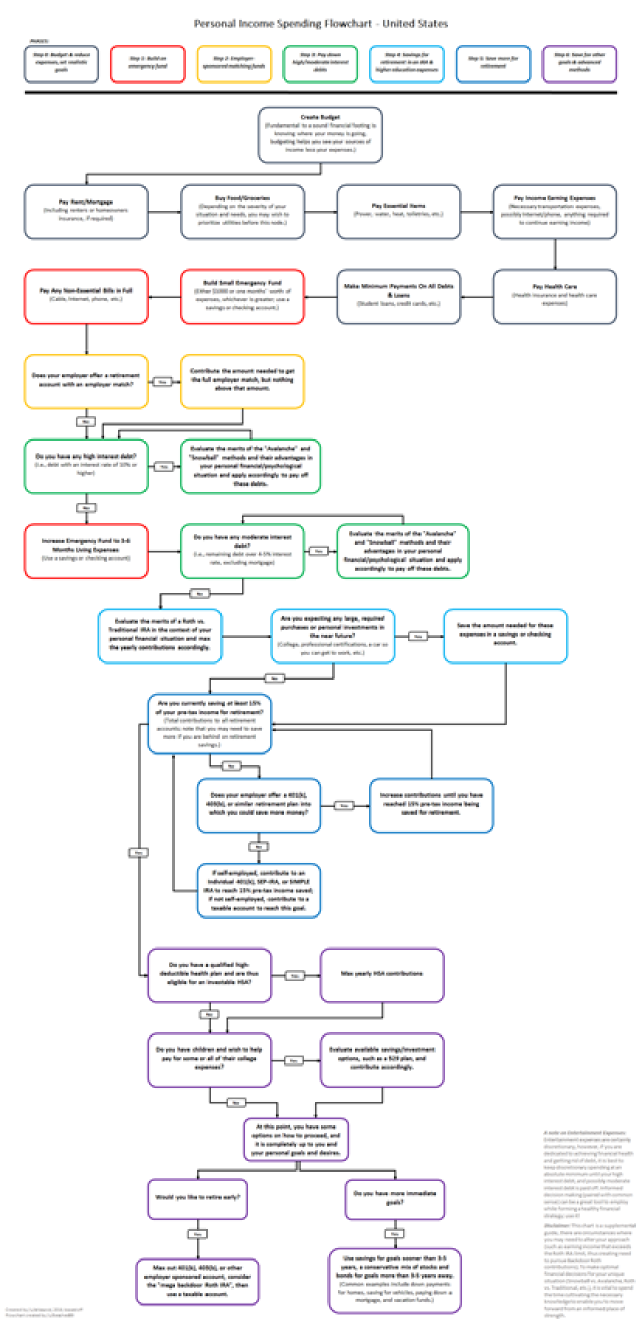
"NOT-SO-FUN" FACTS

- Based on the 50/30/20 budgeting rule:
  - 50% to "needs", 30% to "wants", 20% to saving
  - Median necessary living wage in US is $67,690 (2021) [1]
- Median US Household income: $68,703 (2019) [2]
  - At least half of the population makes enough money to save 20% annually
- But 69% of American adults do not have $1,000 in their saving accounts (2019) [3]
- Where did the money go?

R/PERSONALFINANCE THE FLOWCHART

- A subreddit community created a flowchart on how to handle money
- "I have $X, what should I do with it?"



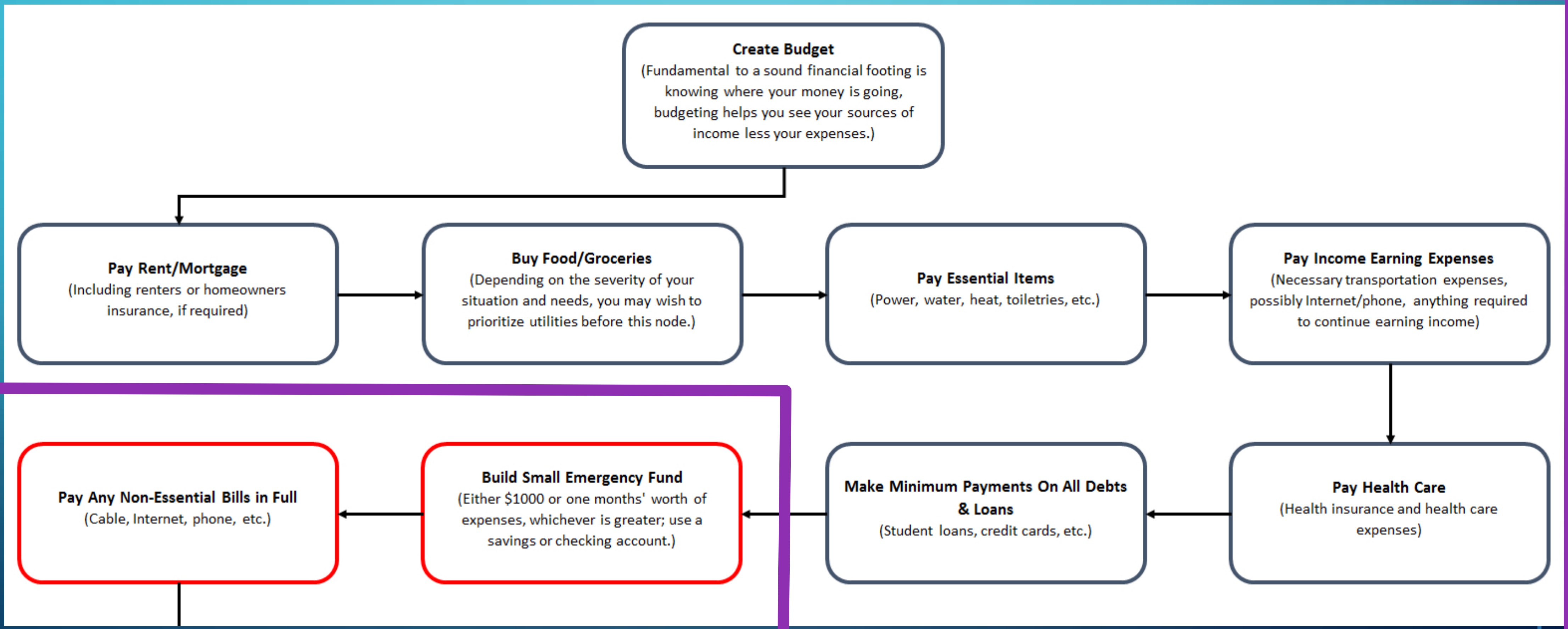
OVERALL PHASES

PHASES:

- *Step 0: Budget & reduce expenses, set realistic goals*
- *Step 1: Build an emergency fund*
- *Step 2: Employer-sponsored matching funds*
- *Step 3: Pay down high/moderate interest debts*
- *Step 4: Savings for retirement in an IRA & higher education expenses*
- *Step 5: Save more for retirement*
- *Step 6: Save for other goals & advanced methods*

Step 0: Budget & reduce expenses, set realistic goals

PHASE 0: BUDGETING AND SURVIVE



Step 0: Budget & reduce expenses, set realistic goals

BUDGET RULE #1: SPEND LESS THAN YOU EARN

Net Income after taxes and other deductions

		Estimate Monthly Budget	December 20	January	February	March	April
Income	Paycheck into pocket	$2,000.00	$2,250.86	$2,148.56	$2,265.02	$2,265.02	$2,330.86
Monthly Deducted Expenses	Rent	-$689.00	-$666.00	-$666.00	-$682.43	-$689.00	-$689.00
	TEP (Electricity)	-$100.00	-$65.53	-$93.36	-$130.56	-$110.03	-$83.70
	Cox (Internet)	-$110.00	-$108.59	-$108.60	-$108.60	-$108.60	-$108.60
	Water/Sewer & Trash	-$70.00	-$56.38	-$52.71	-$54.81	-$48.57	$0.00
	Verizon (Phone)	-$60.00	-$58.22	-$58.24	-$58.33	-$58.33	-$58.33
	GEICO (Auto Insurance)	-$120.00	-$117.64	-$117.64	-$117.61	-$109.96	[illegible]
	Spotify	-$10.60	-$10.60	-$10.60	-$10.60	-$10.60	[illegible]
Food	Grocery/Gas	-$350.00	-$314.54	-$278.67	-$341.35	-$340.72	[illegible]
	Eat Out/Snacks	-$250.00	$0.00	$0.00	$0.00	$0.00	[illegible]
Misc	Laundary	-$25.00	-$14.75	-$19.50	-$8.25	-$21.00	[illegible]
	Essential Misc (Cash, Car Checkup, Haircut, Amazon, etc)	-$100.00	-$82.16	-$66.72	-$38.74	-$61.67	[illegible]
	Travel, Non-Essential Misc (Nintendo Online, Gaming, etc)	-$200.00	$0.00	-$8.65	$0.00	$0.00	[illegible]
Annual Items	Subscriptions (Renter Insurance, Amazon Prime)	$0.00	$0.00	$0.00	-$283.26	-$240.68	[illegible]
	Timebank Payout, Tax Return, Profit Sharing	$0.00	$0.00	$1,183.00	$1,145.00	$1,667.00	[illegible]
Investment	ESPP Withdrawal	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	ITOT	-$500.00	-$700.00	-$1,000.00	-$1,000.00	-$1,000.00	$0.00
	Roth IRA	$0.00	$0.00	$0.00	$0.00	-$1,000.00	-$1,000.00
Total Expenses		-$2,584.60	-$2,194.41	-$1,297.69	-$1,689.54	-$2,132.16	-$2,549.00
Monthly Total		-$584.60	$56.45	$850.87	$575.48	$132.86	-$218.14
		*Non-Essential Items					

Split by types

Keep track of receipts/credit card records and compile the total at the end of the month

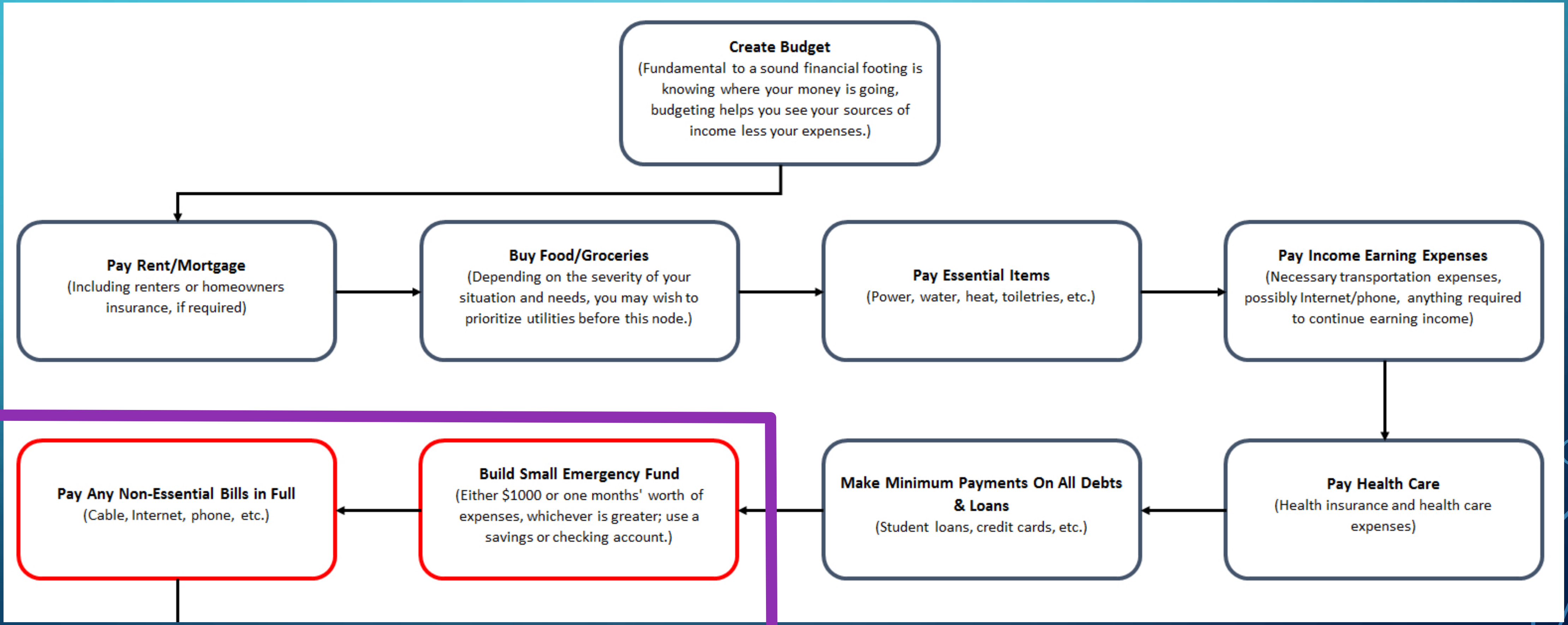
Separate out large annual items to not throw the monthly budget off balance

HOUSING COST

- For most people, housing is the biggest monthly expense
- General rule: try to spend no more than 30% of gross income on housing [4]
  - Gross income = income before taxes and other deductions
  - Housing cost includes utilities; for owner, includes property taxes and maintenance
- At some cities it might be difficult to follow, i.e. NYC, LA, and SF
- Be cautious that the higher the gross income, a higher percentage goes to taxes
  - Effective tax rate goes up as your gross income goes up
  - If your effective tax rate is 35% and you put another 30% to housing, you will only have 35% for everything else
    - High-Income earners should consider budgeting with after-tax income instead

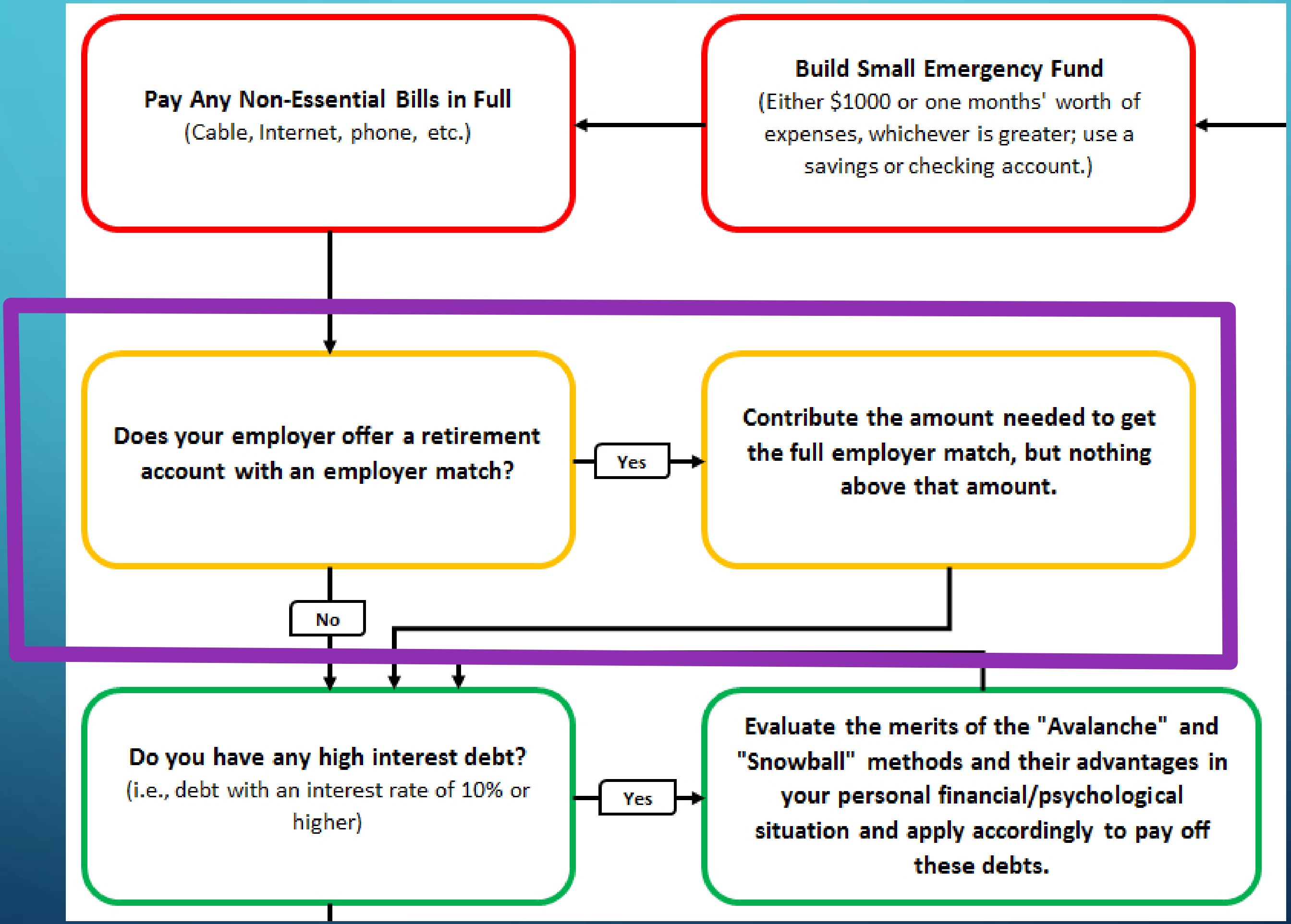
Step 1: Build an emergency fund

PHASE 1: SMALL EMERGENCY FUND



Step 2: Employer-sponsored matching funds

PHASE 2: RETIREMENT MATCHING



Step 2: Employer-sponsored matching funds

RETIREMENT MATCH IS FREE MONEY!

- Employer match is typically under a 401(k) account
  - Other plans include 403(b) and 457(b) plans (usually for government employees)
- What does matching mean?
  - Example: An entry electrical engineer John makes $68,000 annually and his company matches 50% of what he puts into his 401(k) account, up to 6% of his pre-tax salary.
    - If John wants the full match amount, he has to put in $68,000 × 6% = $4,080
    - Employer matches 50%: $4,080 × 50% = $2,040 free money

Step 2: Employer-sponsored matching funds

BUT WHAT IF…?

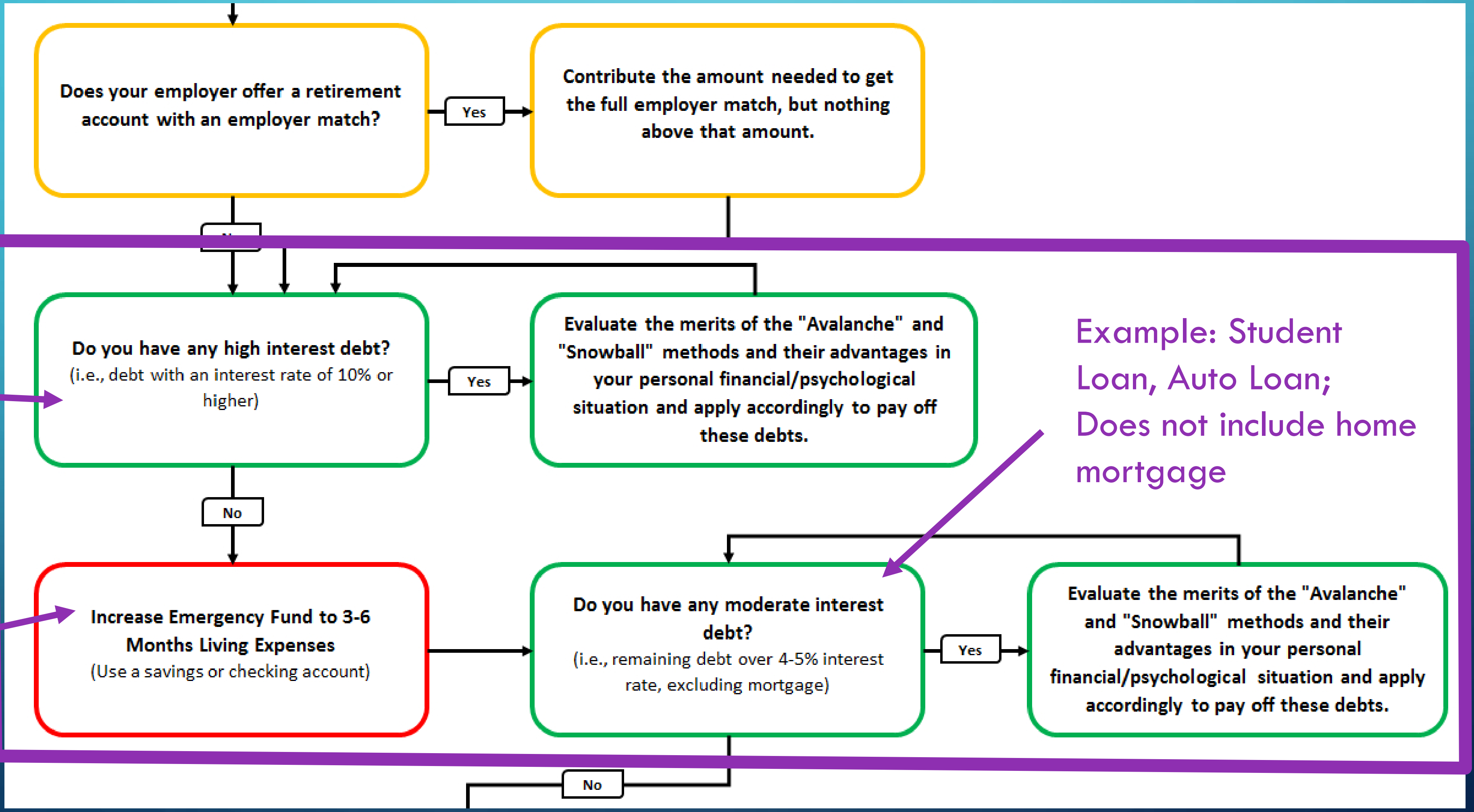
- Why should I worry about retirement now? Spend now and not lock money inside 401(k).
  - Stock market grows exponentially in long-term. Let time work in your favor and invest early.
  - Spend responsibly and enjoy life now. But also plan ahead. You are likely to reach retirement age.
- My 401(k) plan does not have good investment options?
  - Take it! It is free money! Free money is better than no money!
- My 401(k) provider has high management fee?
  - It is free money!
- I still have debts to pay off. Shouldn't I target them first?
  - It is free money! Contribute just enough to get the free money first.
- It cannot be right! Why would my company give me free money?
  - Government provides tax breaks to offset the cost of the matching
  - Companies repackage it as "benefits" to attract potential employees

Step 3: Pay down high/moderate interest debts

PHASE 3: PAY DOWN DEBTS

Example: Credit Card

Do not want to accumulate new debts if emergency happens



Example: Student Loan, Auto Loan; Does not include home mortgage

Step 3: Pay down high/moderate interest debts

AVALANCHE VS SNOWBALL METHODS

- After making minimum payments on all debts and loans (Phase 0), …
- Avalanche Method:
  - Extra money going to the debt with the highest interest rate
  - Mathematically superior
- Debt Consolidation
  - Combine multiple debts into one, and sometimes it comes with a higher weighted interest rate
  - You might not get approved with a bad credit score and a high debt utilization ratio
- Snowball Method:
  - Dave Ramsey: Extra money to the debt with the smallest balance
  - Psychological reward/motivation for those who lack of self discipline

Step 3: Pay down high/moderate interest debts

COMMON NEW GRAD MISTAKE: CAR

- #1: Lease a new car
  - Average $467 monthly car lease payment (2020) [5] even when the driver never own the vehicle
  - Basically a never-ending loan to exchange for driving a new car every couple years
- #2: Finance a new car
  - What about 0% down, 0% APR car loan for 60-72 months?
  - Trap#1: Your vehicle might depreciate faster than your loan balance
  - Trap#2: Average lifespan of a vehicle is about 12 years or 200,000 miles [6]; but
  - Average length of car ownership is about 80 months [7]
  - Average $568 monthly loan payment (2020) [5]

Step 3: Pay down high/moderate interest debts

COMMON NEW GRAD MISTAKE: FINANCING

- Ground Rules on financing a new/used vehicle [8]: 20/3/8
  - Put at least 20% to protect from depreciation
  - Monthly payment should be less than 8% of your monthly gross income; 3 years max
  - You should invest more for retirement than spending on your car payment
- Some car brands/models depreciate slower and have lower maintenance cost
- 0% down, 0% APR loan encourages lifestyle creep
  - Not just vehicles, but also: cell phones, personal electronics, furniture, …
  - “Buy Now, Pay later”: “Broke Now, Broke Later” [9]

CASE STUDY: BUYING NEW LUXURY CAR WITH CASH

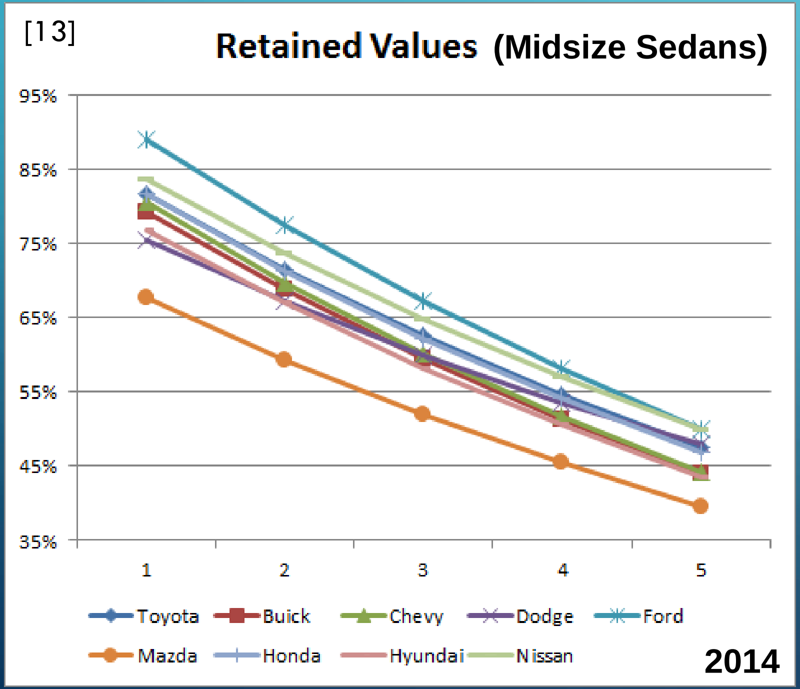
Step 3: Pay down high/moderate interest debts

- Now what if you have the mean to buy a luxury car in cash? Should you do it?
- Let say you are set to buy a new car, and you are comparing the following:
    - 2021 Toyota Corolla: $20,000 [10]
    - 2021 Tesla Model 3: $39,000 [11]
- For simplification, this does not include the cost of taxes, insurance, maintenance
- What is the harm?
    - Average US stock market annual return is about 10% [12]
    - 7% adjusted for inflation
- If you put the difference $19,000 invested into the US stock market, you will have:
    - $144,633 in 30 years, today's dollars (adjusted with inflation)
    - $331,539 in 30 years, future's dollars

Step 3: Pay down high/moderate interest debts

CASE STUDY: BUYING A USED CAR

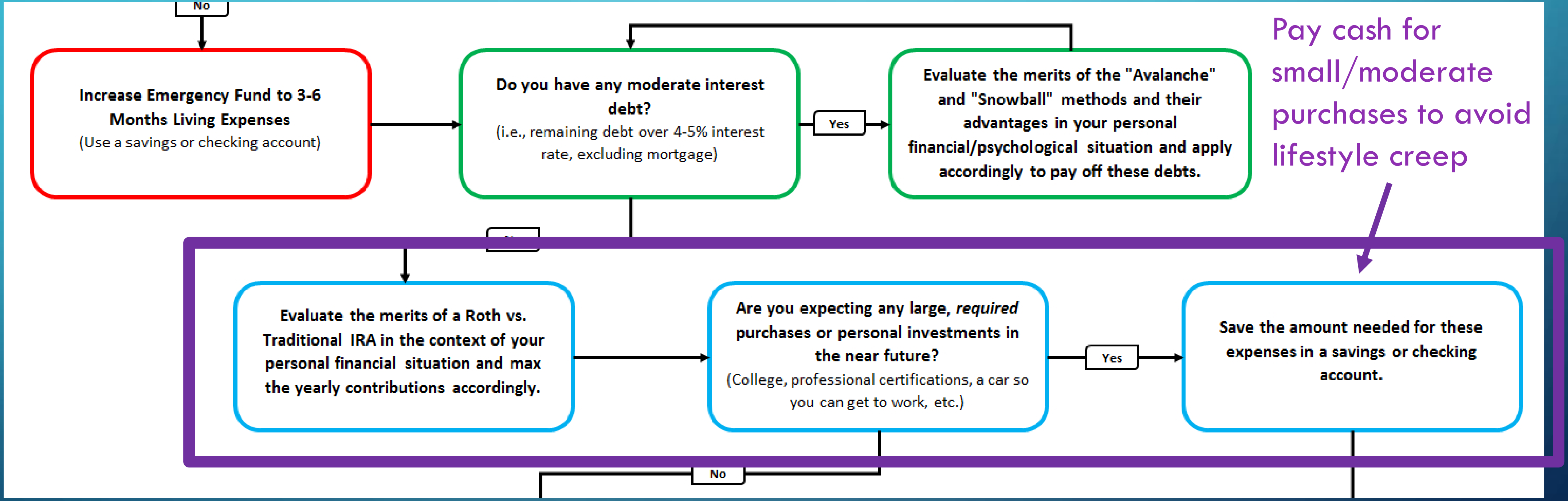
- Some people go the opposite way and buy a low-mileage, reliable, used car
- Most new cars lose 50% of its value after 5 years (avg 15k miles driven per year):



- Remember, with 10% market annual return,
  - For every extra $1,000 invested, you will have an addition of $17,449 in 30 years
- However, used car comes with disadvantages:
  - Risks if purchasing from a private party (not dealership)
  - Repair/Maintenance cost goes up as the vehicle ages

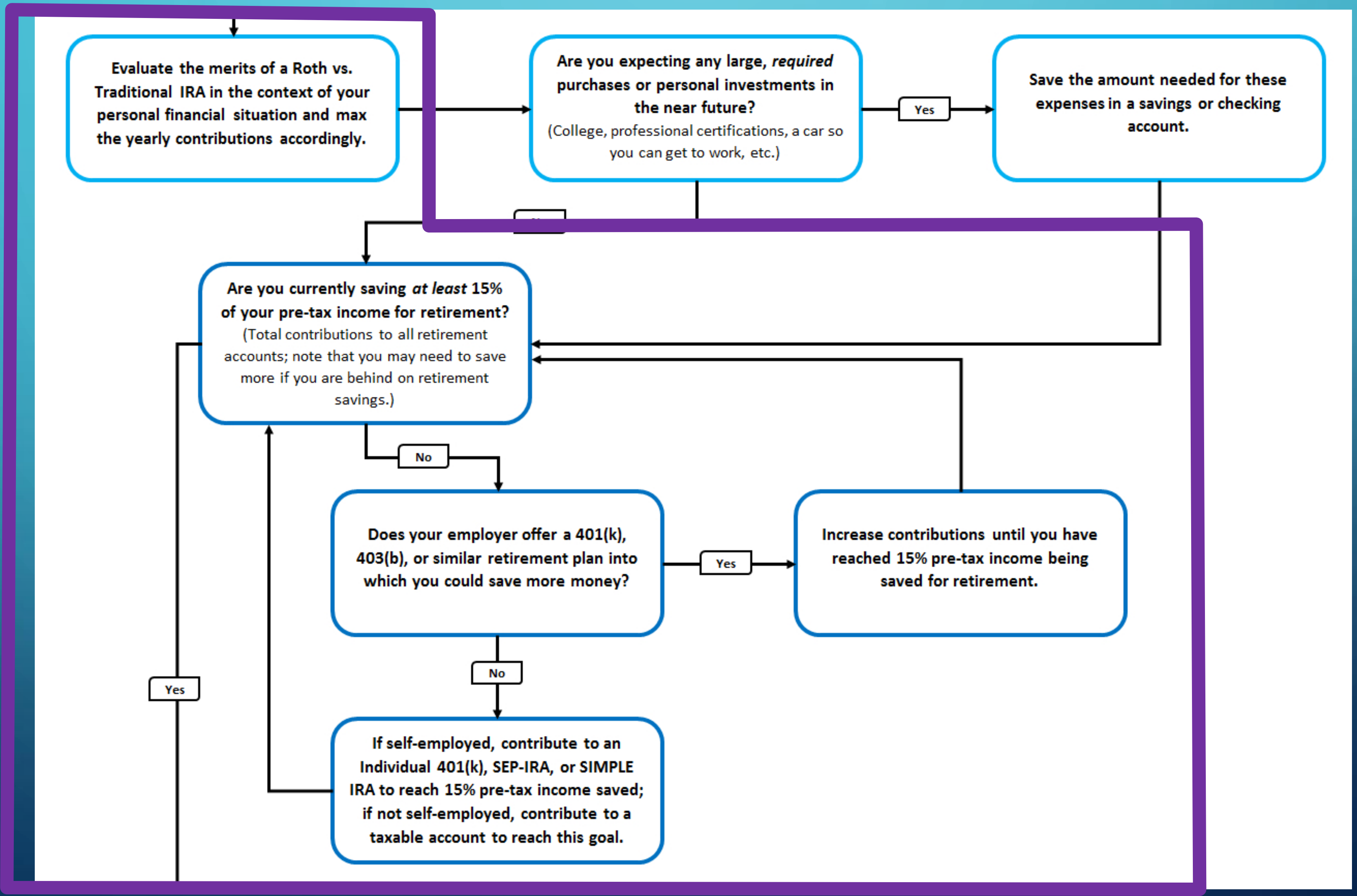
Step 4: Savings for retirement in an IRA & higher education expenses

PHASE 4: SAVING FOR IMMEDIATE GOALS



Step 5: Save more for retirement

PHASE 5: RETIREMENT SAVING



Step 5: Save more for retirement

GENERAL RETIREMENT QUESTIONS

- Recall from Phase 2:
  - You have already put in the minimum amount needed to get the full employer match on the employer retirement account [typically a 401(k)]
- What is the difference between Roth and Traditional contributions?
- What to look out for between an IRA and 401(k)?
- What to invest inside these accounts?
- How much do I need to save for retirement?

Step 5: Save more for retirement

ROTH VS TRADITIONAL

- Roth:
  - Pay income taxes now before you contribute into retirement accounts
  - Tax-free withdrawal after retirement age*
- Traditional:
  - Tax deductions when you contribute into retirement accounts
  - Will need to pay income taxes when you withdraw the money after retirement age*
- Do you expect a higher tax bracket/higher income tax rate when you retire?

*Retirement age depends on the types of accounts

*Withdrawing early will typically trigger a 10% penalty

Step 5: Save more for retirement

ROTH VS TRADITIONAL

- For single tax filing status (2021): [14]
  - Modified AGI < $125,000 can put in $6000 ($7000 if age 50+) into Roth IRA
  - Modified AGI between $125,000 and $140,000 can put in a reduced amount into Roth IRA
  - Modified AGI >$140,000 cannot contribute directly into Roth IRA
- For single tax filing status and if your employer provided 401(k) (2021): [15]
  - Modified AGI < $66,000 can have a full tax deduction on Traditional IRA
  - Modified AGI between $66,000 and $76,000 can have a partial tax deduction on Traditional IRA
  - Modified AGI >$76,000 have no tax deduction on Traditional IRA
- No Income limit for Roth 401(k) and Traditional 401(k)

Step 5: Save more for retirement

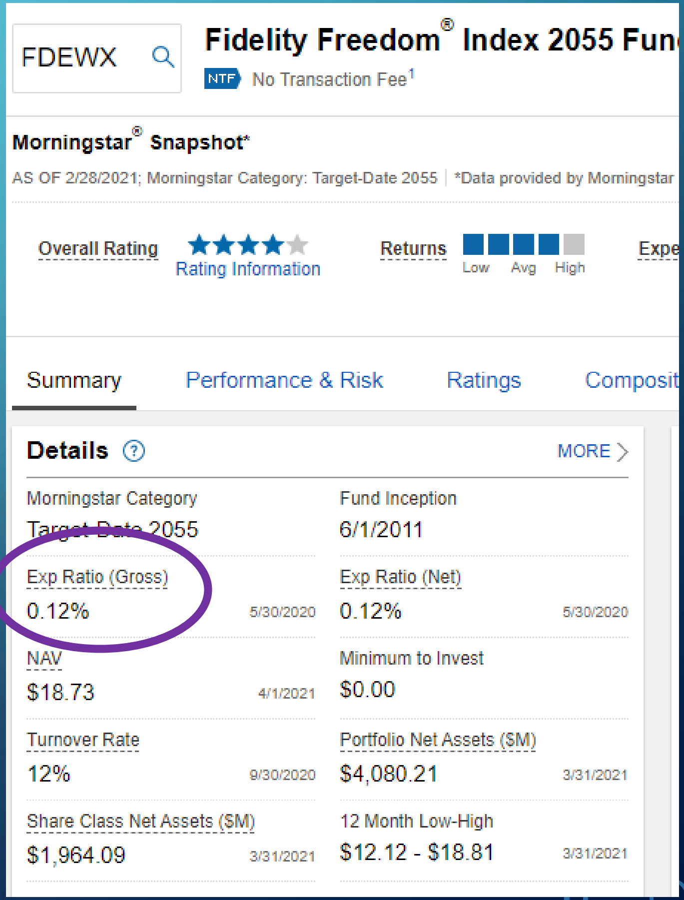
ROTH VS TRADITIONAL

- Do you expect a higher tax bracket/higher income tax rate when you retire?
- Some people do a mix of Roth and traditional
- Remember:
  - #1: Employer's match is always traditional
  - #2: Social Security (if it still exists when you retire) is taxable

Step 5: Save more for retirement

IRA VS 401(K): WHICH ONE TO FILL UP FIRST?

- 401(k) typically has a fewer investment options and funds come typically with higher expense ratios
- Some 401(k) plans have a asset-based plan administration fee (on top of expense ratio): read your plan document!
- Common IRA providers: Fidelity, Vanguard, Charles Schwab



Step 5: Save more for retirement

CONTRIBUTION LIMITS (SINGLE, AGE <50)

- Typical maximum contribution limit in 2021: [16]
  - 401(k): $19,500, not including employer's match
  - Roth IRA: $6,000 if Modified AGI < $125,000
- Backdoor Roth IRA: [17]
  - No income limit on traditional IRA contribution (just no tax deduction)
  - Put money into traditional IRA, and then transfer it to Roth IRA, up to $6,000
- Mega Backdoor Roth IRA:
  - If your 401(k) plan allows after-tax contributions and allow you to move after-tax money
  - Your Employer and you can contribution up to $58,000 into 401(k) in 2021 [16]
  - After-tax Contribution to 401(k), and then rollover to a IRA [18]
- You should always check with a tax professional before making any decisions!

Step 5: Save more for retirement

RETIREMENT ACCOUNTS VS BROKERAGE

- Retirement accounts (Roth and Traditional):
  - Tax-free on interest and investment earnings (i.e. dividends)
- Taxable brokerage accounts:
  - Pay interest and dividend tax every year as income
  - Pay capital gain/loss from the sale of the investment
  - Can withdraw money at any time
- Hidden Gem: HSA (Health Saving Account):
  - If you have a qualified HDHP health plan, you and employer can contribute up to $3,600 in 2021 [19]
  - Pre-tax contribution that is *also* not subjected to FICA tax
  - Tax-free on interest and investment earnings (i.e. dividends)
  - Tax-free withdrawal for qualified medical expenses
  - Can be treated like a traditional IRA after age 65

WHAT TO INVEST IN?

Step 5: Save more for retirement

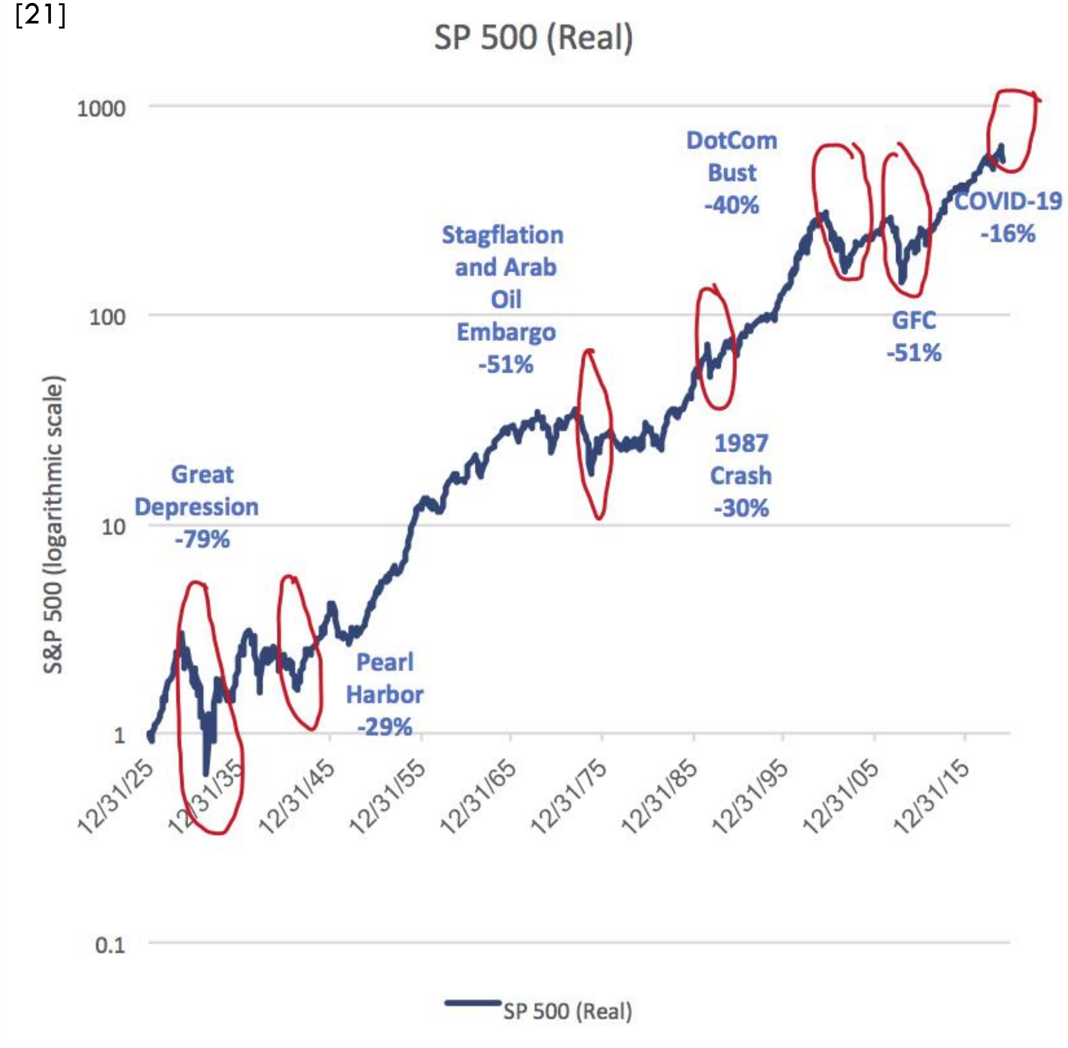
- Some stocks grow faster than others
- Investment in one single stock is risky:
  - If the company bankruptcies, your investment goes to zero
- Average US stock market annual return is about 10% [12]
  - 7% adjusted for inflation
- Almost impossible pick good stocks to beat the market in a long run
  - Only 18% of active mutual fund managers beat the market over a 15-year period [20]
- Mutual funds: funds that invest in a basket of different stocks or assets, sometimes a particular financial sector
- Index funds: low-cost funds that track a specific mutual funds
  - S&P Total Market ETF (ITOT), Total US Bond Market ETF (AGG), US Global Jets ETF (JETS)

Step 5: Save more for retirement

WHAT TO INVEST IN?

- Index funds does not protect you from recessions
- 100% assets into stocks still come with risks
- You don't want your investment balance drop 30-50% during retirement

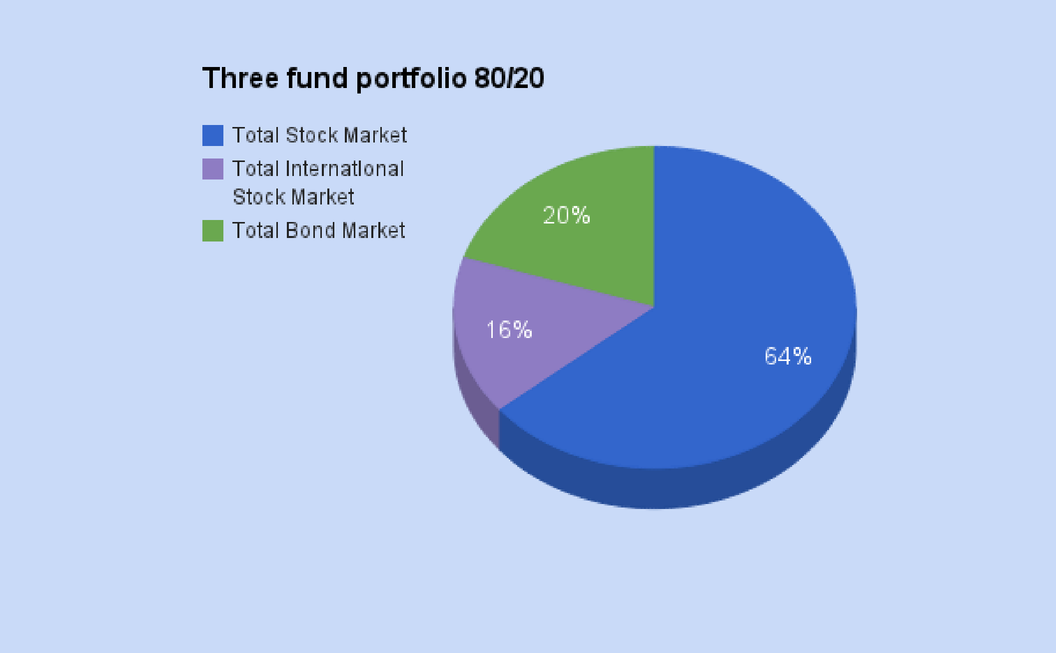
[21]



Step 5: Save more for retirement

WHAT TO INVEST IN?

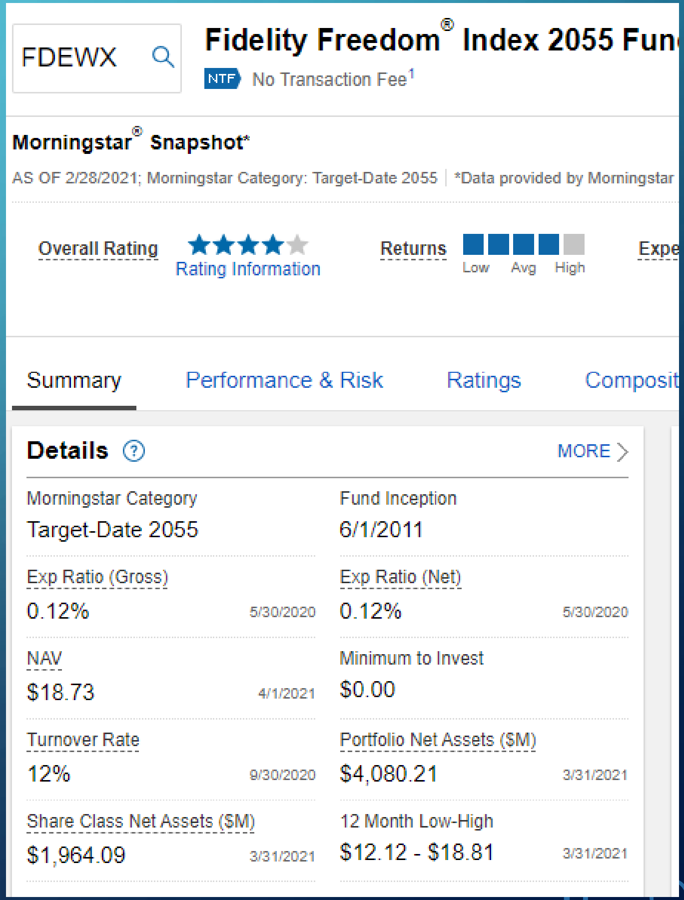
- Three-fund portfolio: diversified asset allocation to lower risks [22]
- As you age, your portfolio needs to be rebalanced to be more conservative
    - More bonds, less stocks



Step 5: Save more for retirement

WHAT TO INVEST IN?

- Target date funds: All-in-one funds that automatically rebalance the asset mix based on retirement date
- Typically available in your 401(k) plan, IRA and HSA
- Pro:
  - Contribute and forget about it
  - Prevent investors from making mistakes
- Con:
  - Higher expense ratios (fee)
  - Some investors might find it too aggressive/conservative

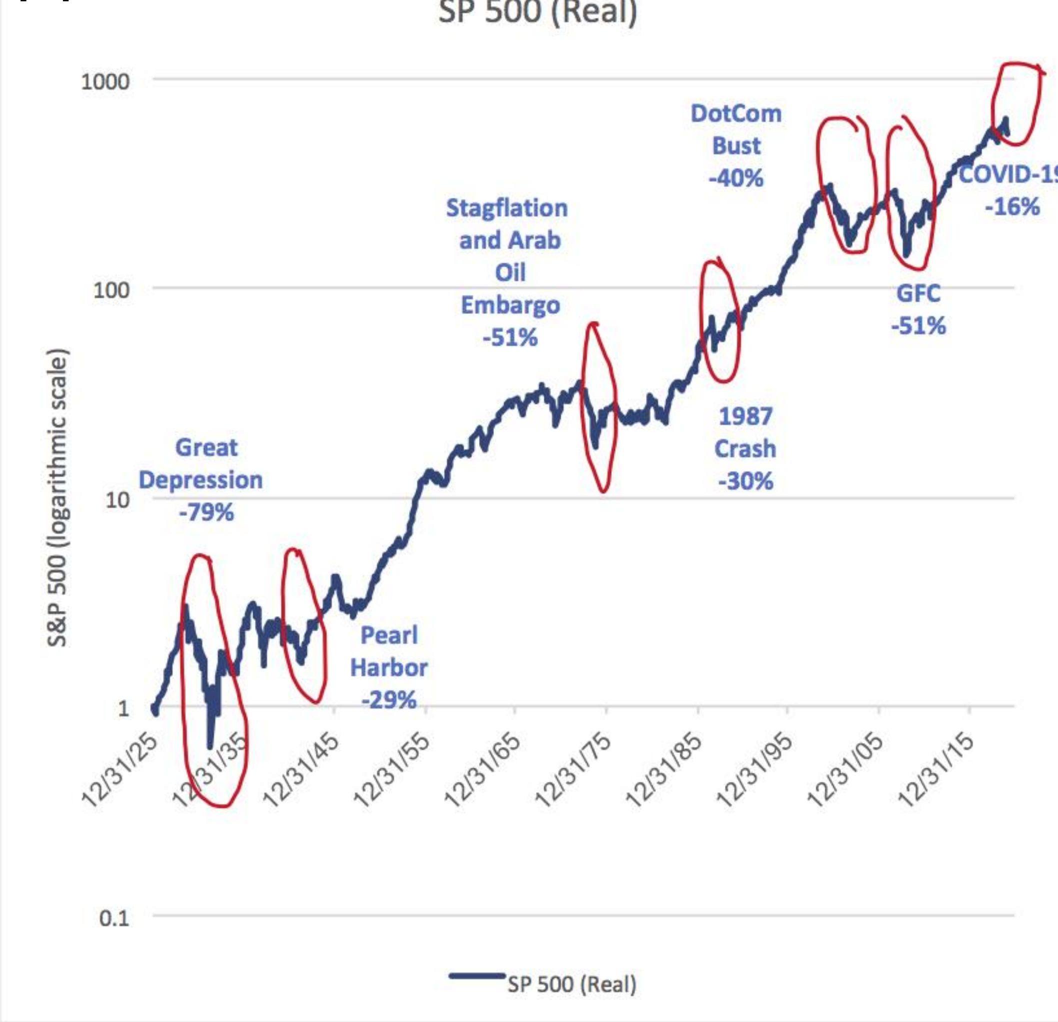


Step 5: Save more for retirement

CASE STUDY: "WAIT FOR THE DIP"

- What if I am the best market timer?
- Let's say you saved $260.7 per month from January 1980 to September 2020 [23]:
  - 25% of the average income in 1980
  - Saved in saving account and earn 2% interest
  - During each stock market crash, you invested all the cash when S&P 500 was at the very bottom
  - You would have $1,431,546
- Don't time the market and invest every month:
  - You would have $1,676,881

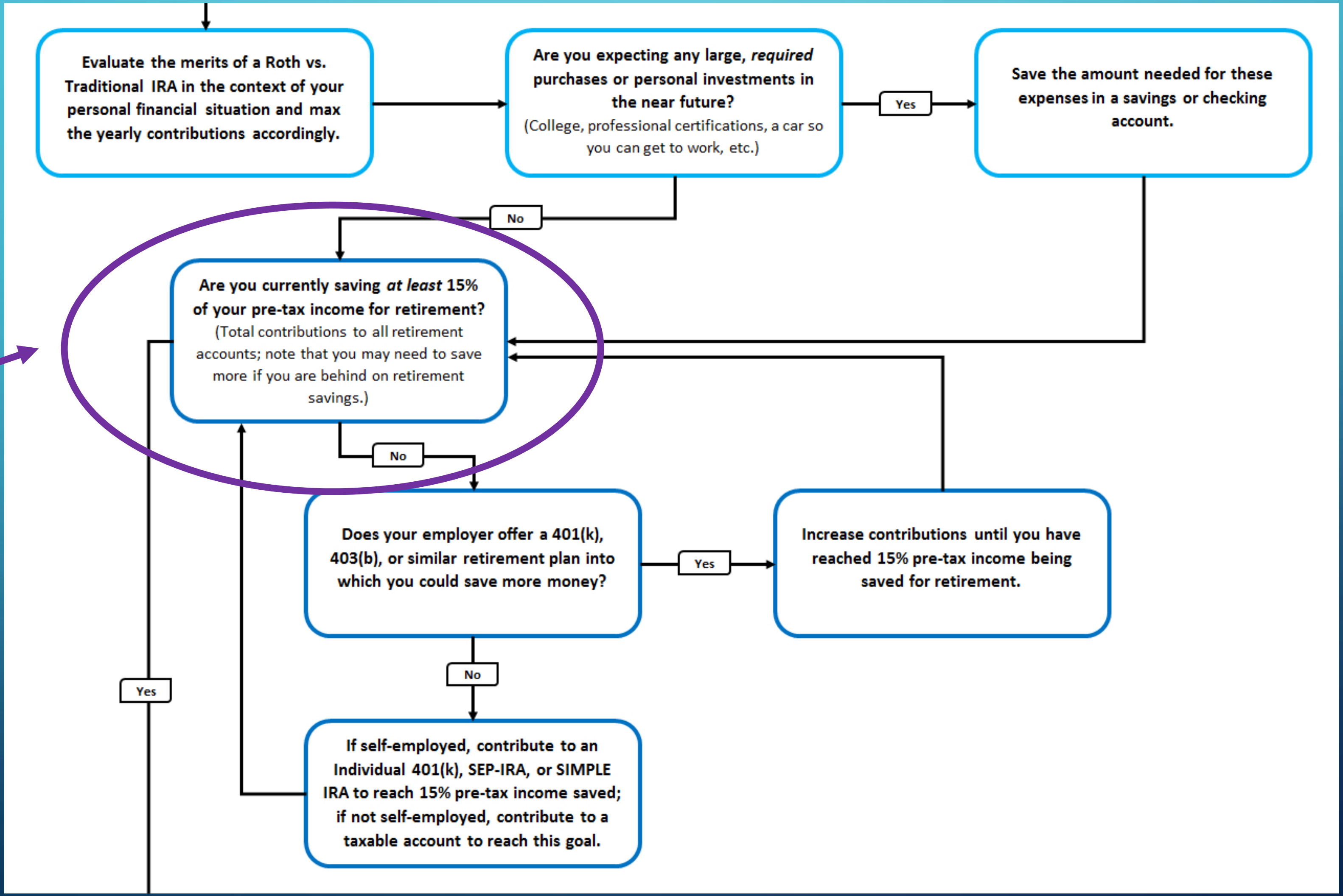
[21]



HOW MUCH DO I NEED TO SAVE FOR RETIREMENT?

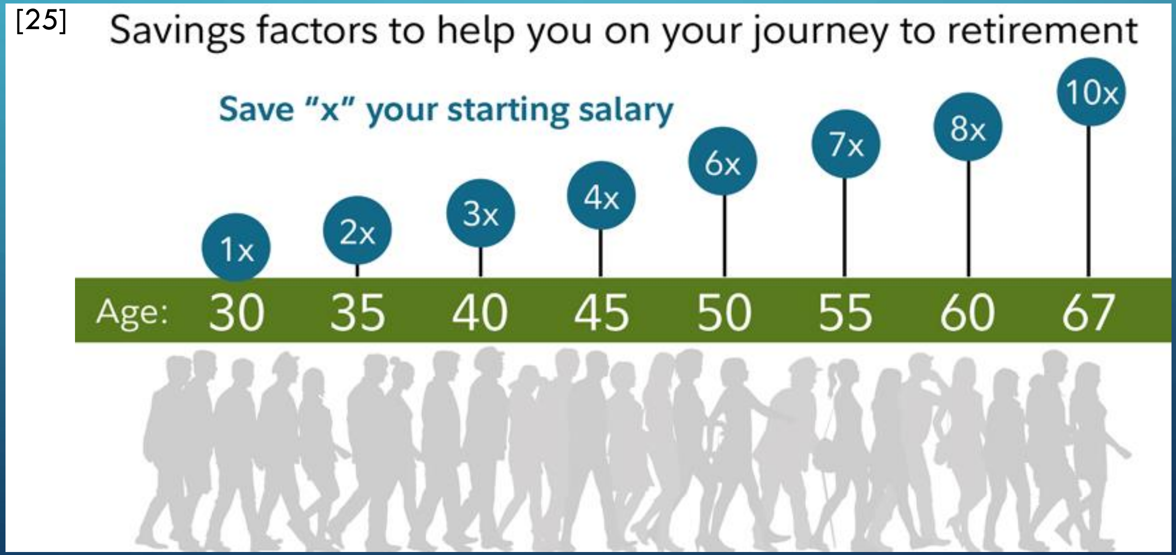
Step 5: Save more for retirement

One rule of thumb: at least 15% of pre-tax income



15% ASSUMPTIONS [24]

- #1: You are saving for retirement from age 25 to 67
- #2: You will need between 55% and 80% of income to maintain lifestyle
- #3: Some money will come from Social Security



Step 5: Save more for retirement

FOUR PERCENT RULE

- Historical data shows that you can withdraw 4% of a retirement portfolio annually without running out of money in less than 33 years [26]
- You can back calculate the required retirement portfolio size by:
  - Portfolio Size = Annual withdrawal amount x 25
- Note: inflation matters. $1 in 1981 is worth $2.89 in 2021 [27]
- Some go more conservative and use a 3% Safety Withdrawal Rate
  - Portfolio Size = Annual withdrawal amount x 33

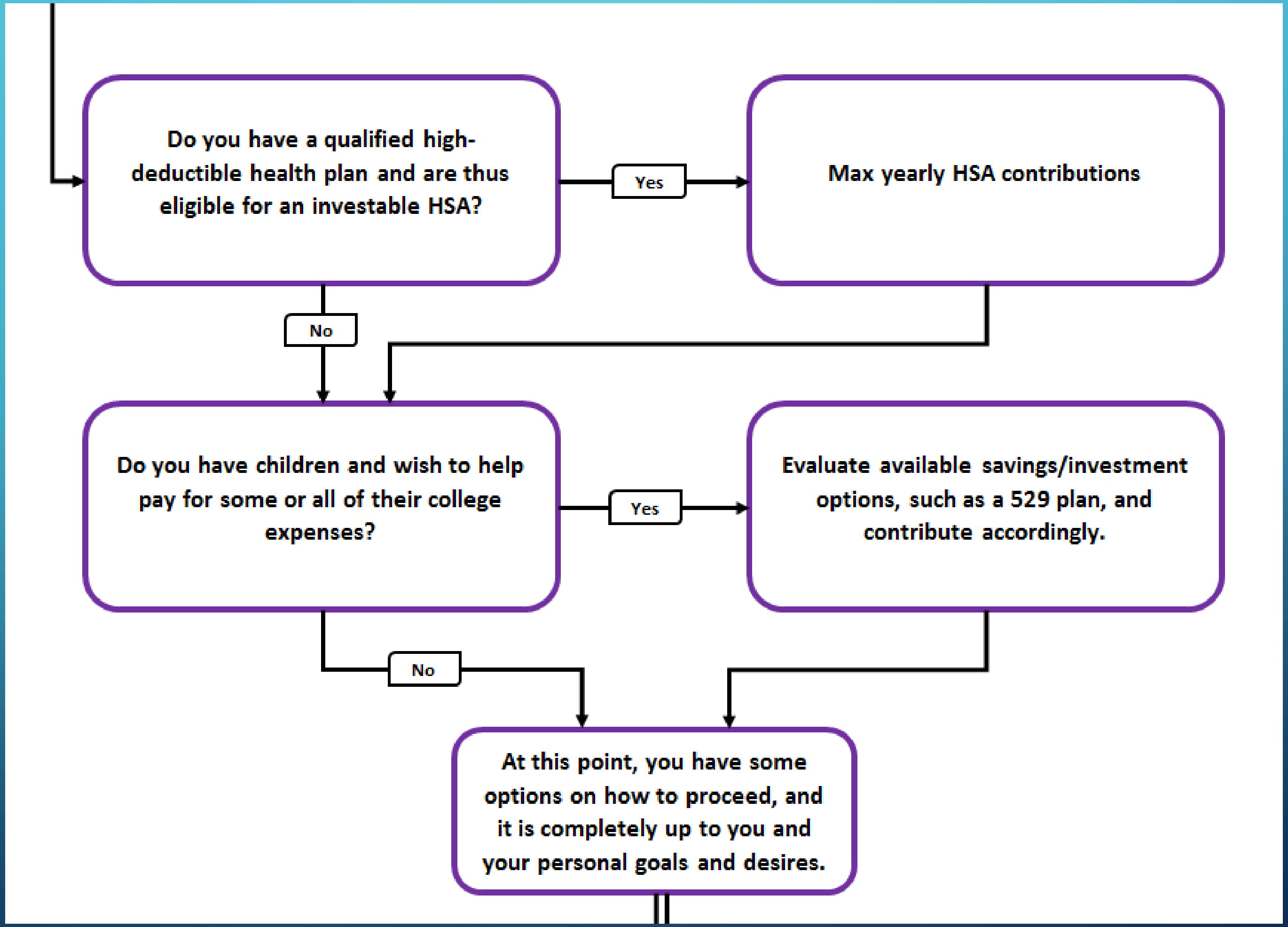
Step 5: Save more for retirement

SOCIAL SECURITY

- Need to have at least worked in the US for 10 years
- Payout calculation based on the higher 35 years of indexed earnings
  - 22 + 35 = 57
- Current rule as of 2021: [28]
  - Reduced benefit as early as age 62
  - Full benefit at age 67 (full retirement age)
  - 132% of Full benefit at age 70
- Social Security reserve is expected to run out by 2035 [29]
  - Can maintain balance if only pay out about 79% of promised benefits
  - Can increase FICA tax to cover the gap

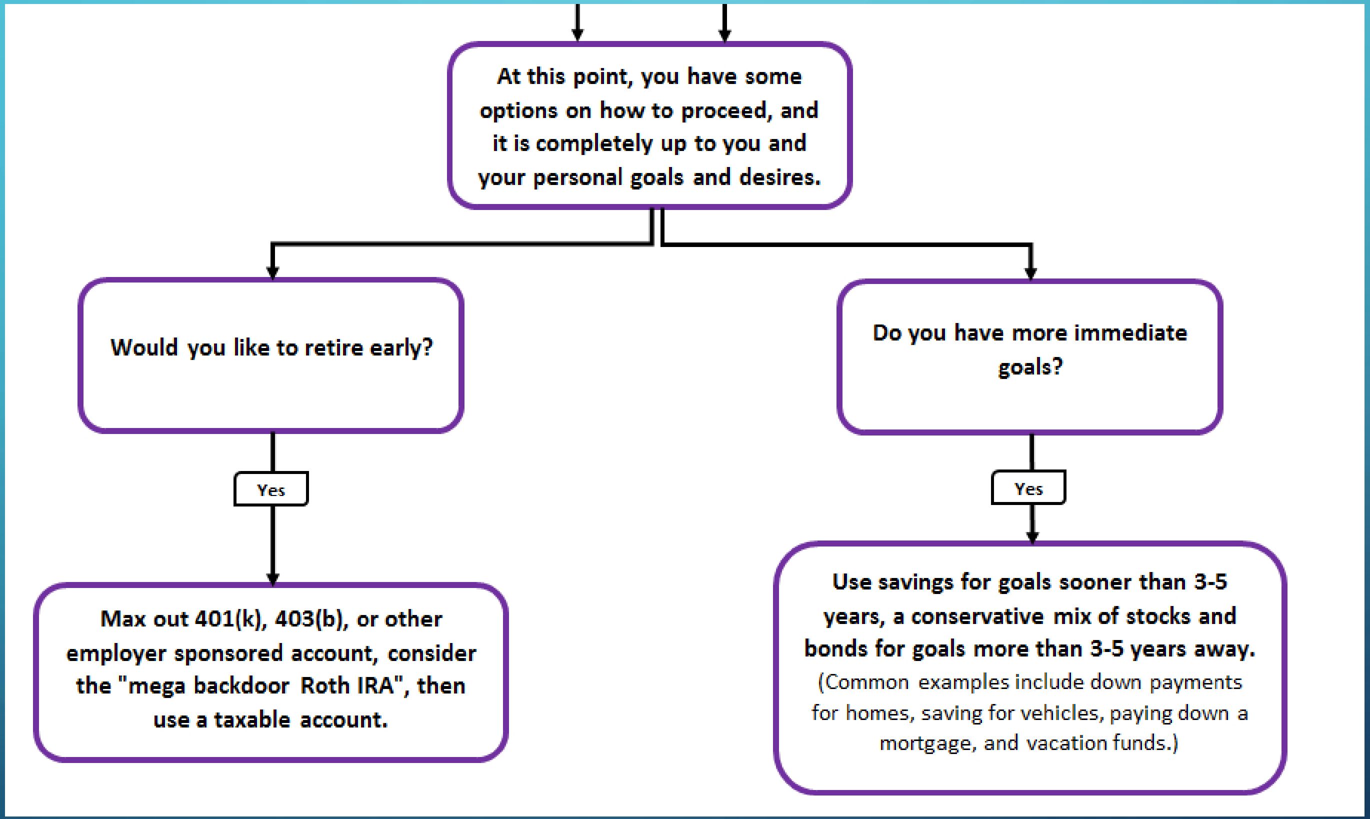
PHASE 6: OTHER GOALS

Step 6: Save for other goals & advanced methods



Step 6: Save for other goals & advanced methods

PHASE 6: OTHER GOALS



Step 6: Save for other goals & advanced methods

INVEST FOR BIG PURCHASES?

- You should have 9-12 months of emergency saving first
  - Think about COVID-19 and unemployment
- Stock market is risky in short-term, but also high return in long-term
  - Stock Market historically doubled every 7-10 years [30]
- Immediate goals should use a HYSA (High-Yield Saving Account)
- Long-Term goals (5 years+) can use a asset mix of stocks and cash
  - Use a taxable brokerage account

Step 6: Save for other goals & advanced methods

HOUSING: BUY VS RENT

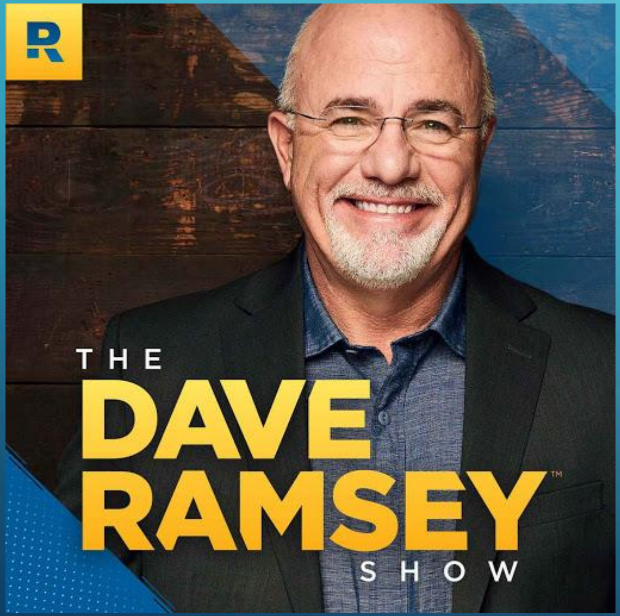
- Rent:
  - Monthly Payment on Rent is the maximum you pay
    - If your roof/AC is broken, your landlord is responsible for fix it
  - Typically renting a one-bedroom or two-bedroom apartment, not a house
- Homeownership:
  - Build equity over time
  - Hidden fee: Property taxes, homeowner insurance, HOA fee, higher utility bills
- Investing the extra money into the stock market might have a higher rate of return than the local house market
  - There are Rent vs Buy Calculators [31 & 32] online you can play around with the numbers

SUMMARY

- Step 0: Setup budget and reduce expenses
- Step 1: Build an emergency fund
- Step 2: Employer-sponsored matching funds (for retirement)
- Step 3: Pay down high/moderate interest debts
- Step 4: Save for large, *required* purchases in the near future
- Step 5: Save more for retirement
- Step 6: Save for other advanced goals (i.e. retiring early, house down payment)

EXTRA PODCAST RESOURCES

THE DAVE RAMSEY SHOW [33]
(DEBT MANAGEMENT)

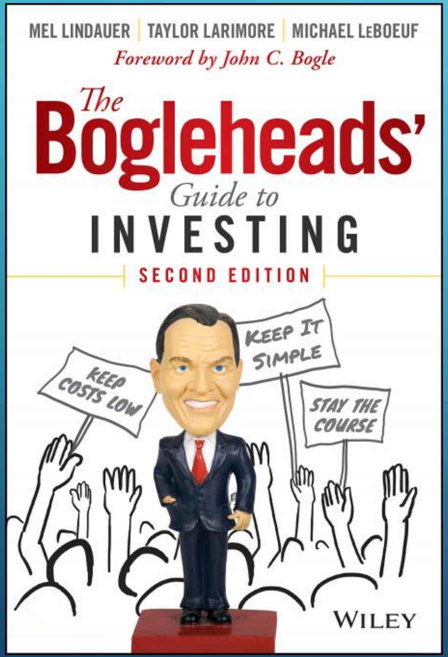


MINORITY MINDSET [34]

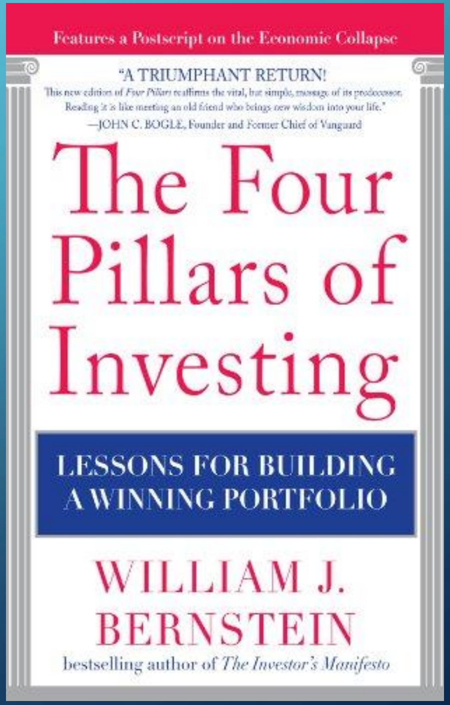
THE MONEY GUY SHOW [35]

EXTRA READING MATERIALS FOR INVESTING

The Bogleheads' Guide to Investing [36]



The Four Pillars of Investing: Lessons for Building a Winning Portfolio [37]



CITATIONS

1. https://www.businessinsider.com/personal-finance/living-wage-income-to-live-comfortably-in-every-us-state#the-living-wage-in-alabama-is-60016-1
2. https://www.census.gov/library/publications/2020/demo/p60-270.html#:~:text=Median%20household%20income%20was%20%2468%2C703,and%20Table%20A%2D1
3. https://www.gobankingrates.com/saving-money/savings-advice/americans-have-less-than-1000-in-savings/
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