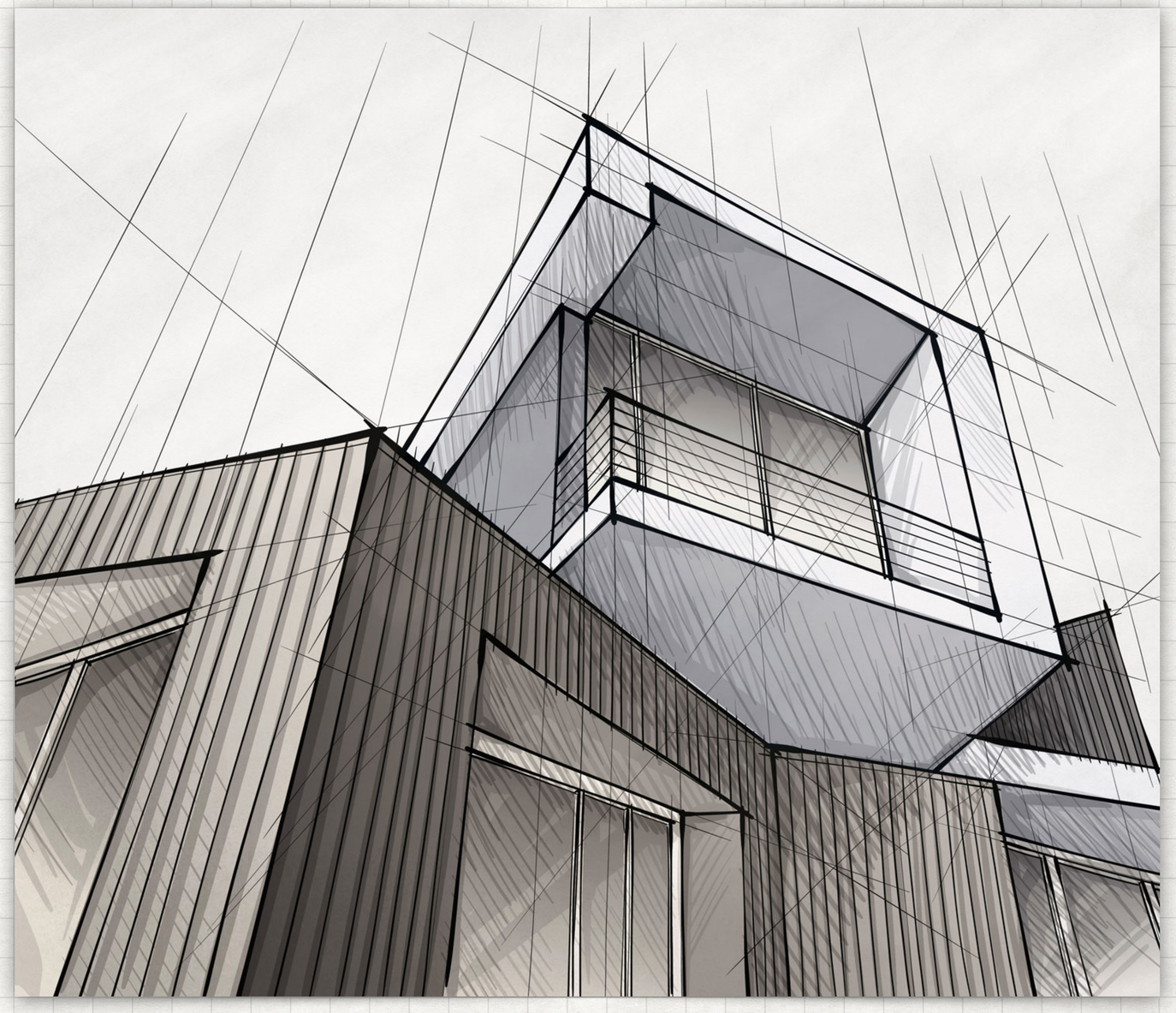
CS 007: SESSION 4

PERSONAL FINANCE FOR ENGINEERS



EVALUATING OFFERS

Final Thoughts

LAST WORD: NEGOTIATION

- The market is fairly efficient, but companies vary significantly in their approach.
- Some reward negotiation. Others explicitly work against it. Lack of negotiation is one of the contributing causes to pay disparity. Polite but firm is often the right approach.
- High quality companies do a lot of work on fair compensation, but startups can vary widely. Know the market data.
- Some terms are more flexible than others. Base comp is often more difficult to move than signing bonus or equity. If you are going to a private company, it's almost always a bet on equity anyway.
- Don't be afraid to approach the topic of fair compensation with your manager. Understand the difference in roles between a recruiter & a manager.
- Be emotionally honest with yourself on what is a deal breaker. Lines in the sand can be hard to erase.



CS 007

SAVING & BUDGETS



INCOME & EXPENSES

Spend less than you make

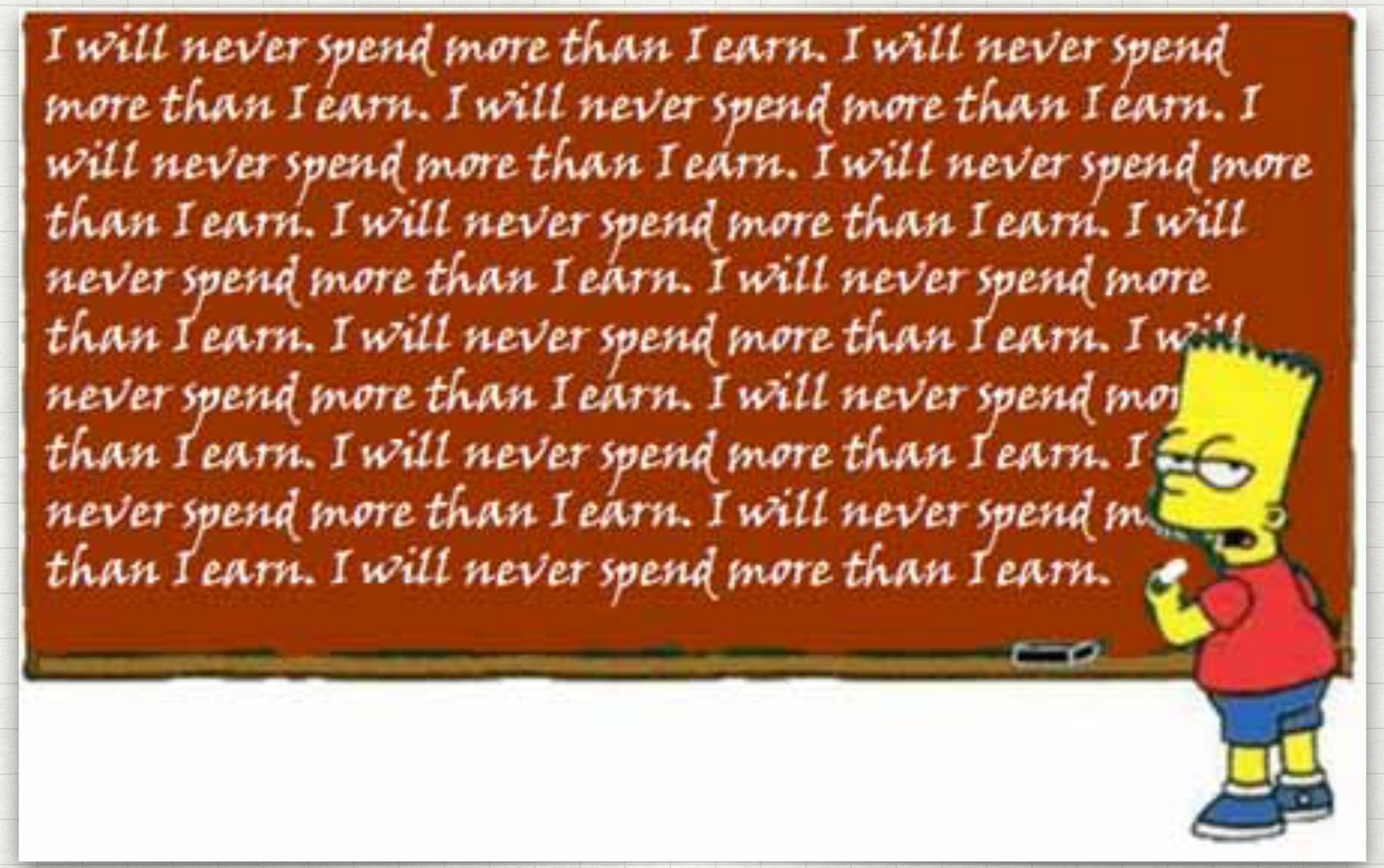
DON’T BUY STUFF YOU CANNOT AFFORD



https://www.nbc.com/saturday-night-live/video/dont-buy-stuff/n12020

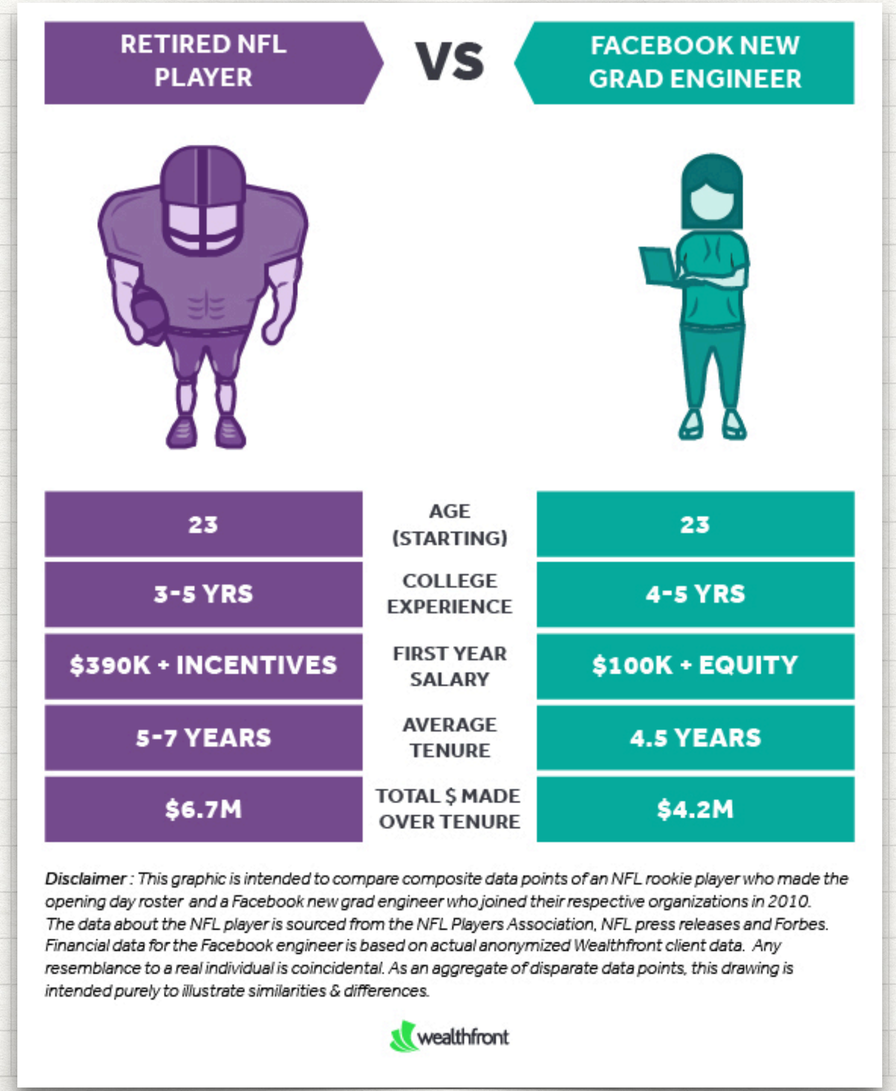
SPEND LESS THAN YOU MAKE

- This is the **ultimate secret** to personal financial success.
- Important at almost every level of income & wealth.
- Important for all levels of success & intelligence.
- There is no amount of money that you can't spend. There are reasons why multi-millionaires go broke.
- Very easy to measure, few people do.



WHY IS THIS DIFFICULT?

- Not all expenses happen in the same time frame as income. Paycheck every two weeks vs. monthly or annual bills.
- Not all expenses are predictable
- Endowment effect can be counter-productive. A budget of $300 for clothing per month turns into a license to spend more than you need.
- Credit cards make it trivial to overspend
- Incomes fluctuate but lifestyle & expenses are sticky. Very difficult when you make a lot of money in a short amount of time (Hollywood, Pro Sports, Silicon Valley)
- Taxes are complicated.



STOP KEEPING UP WITH THE JONESES

- Why do we do it?
  - Desire to show off our success
  - Need to have what other people have. Even worse when it’s an aggregation across a wide variety of lifestyles.
- They are broke.
- You have to set your own priorities.

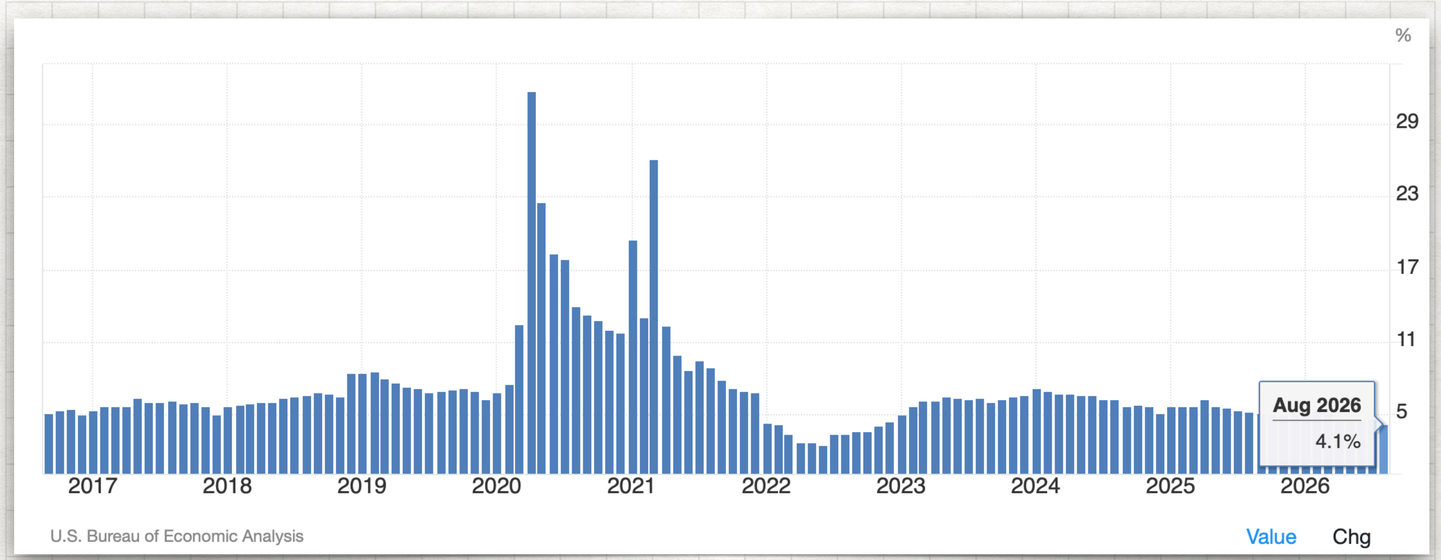


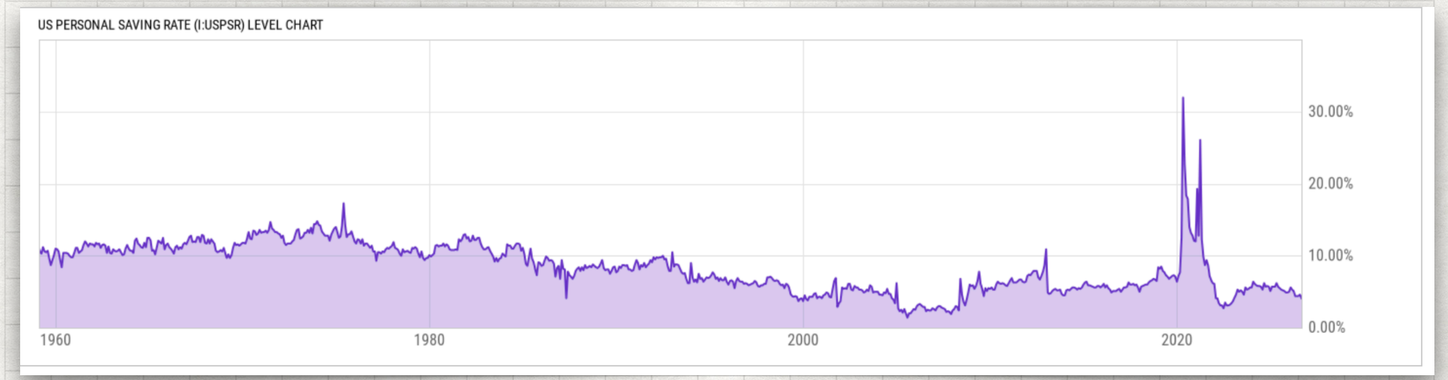
SAVINGS RATES

How Much Should You Save?

US SAVINGS RATE

- Actually a number that governments track as an important macroeconomic statistic.
- US Personal Savings Rate was 3.6% in August 2017, but 8.1% in August 2019. Peaked at 32% in 2020, but as of August 2026, is at 4.1%.
- Savings = Income - Spending
- Does not account for non-income value generation or for future liabilities

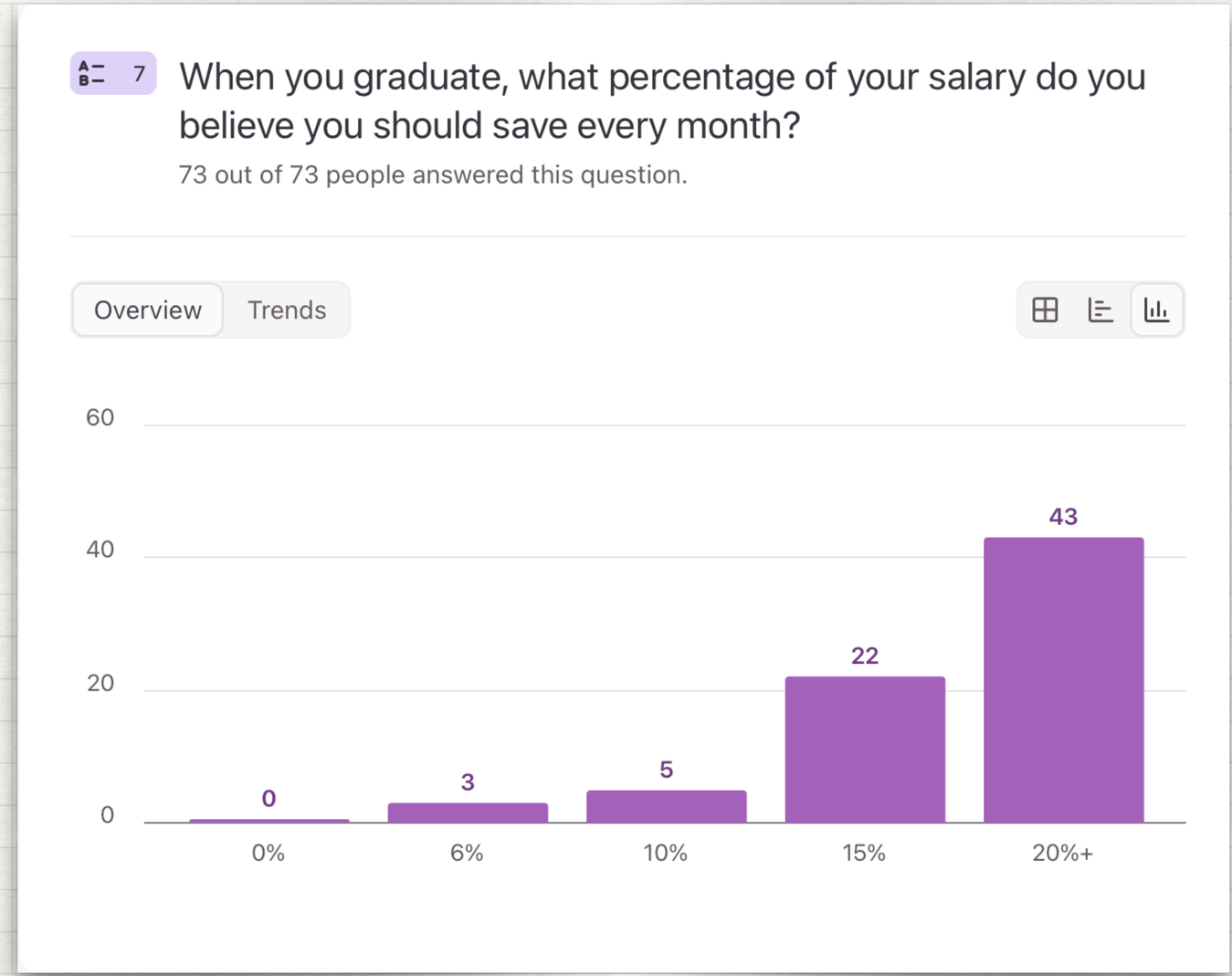




* https://tradingeconomics.com/united-states/personal-savings
* https://ycharts.com/indicators/personal_saving_rate

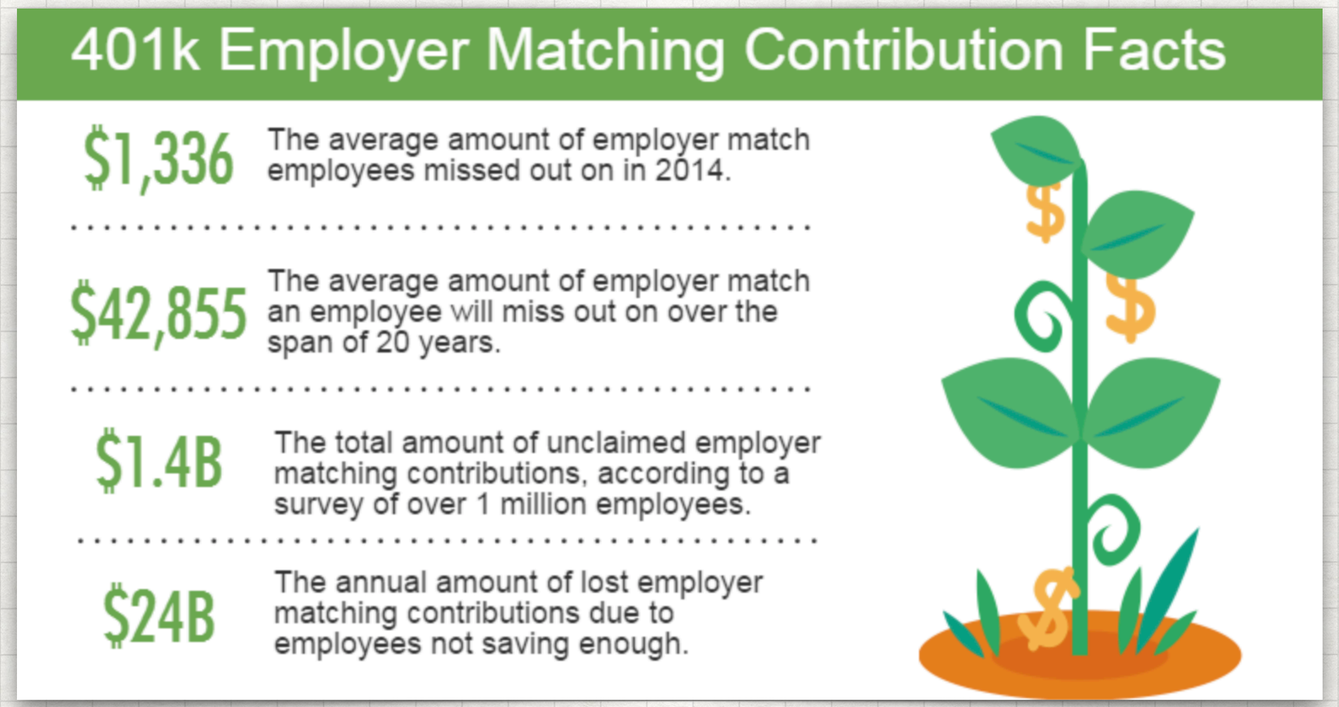
WHAT'S THE IDEAL TARGET?

- Most common recommendations:
  10% & 15%
- No mathematical basis for 10%. Humans just like the number 10.
- 15% is based on historical assumptions of length of time working, rate of return, wage inflation, and 80% retirement income goal.
- Real answer: every % matters.
  - You lower the amount you need to live on / lifestyle.
  - You increase the pool of capital to hit that goal.



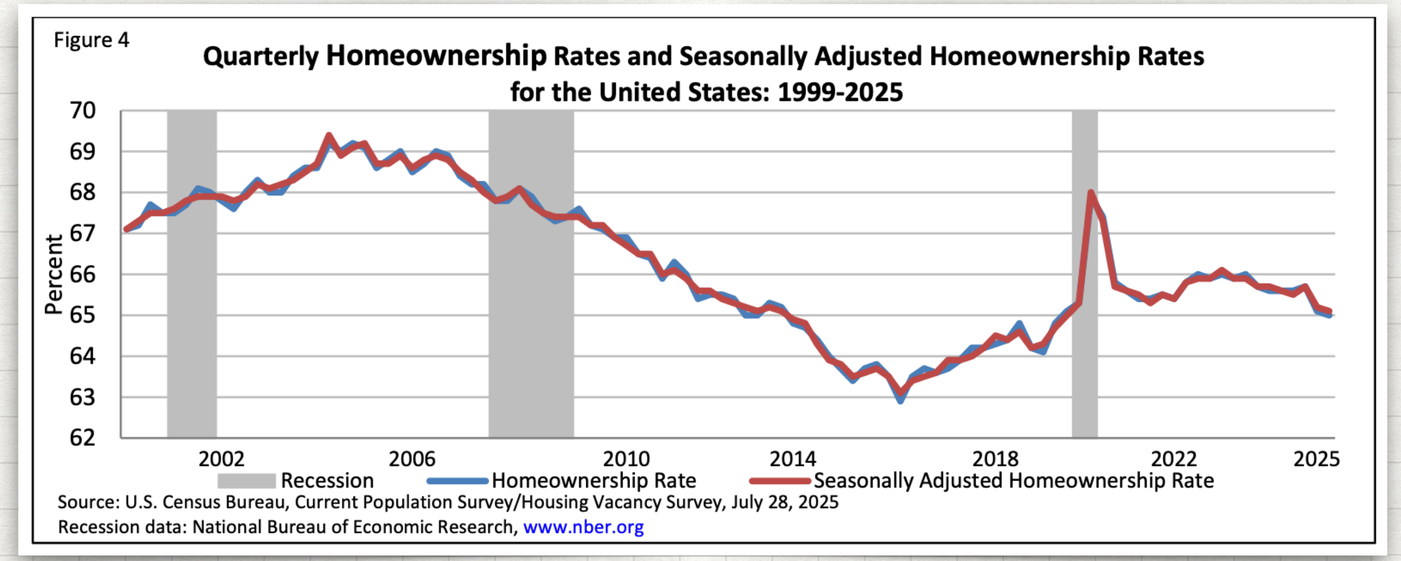
EMPLOYER BENEFITS TO SAVING

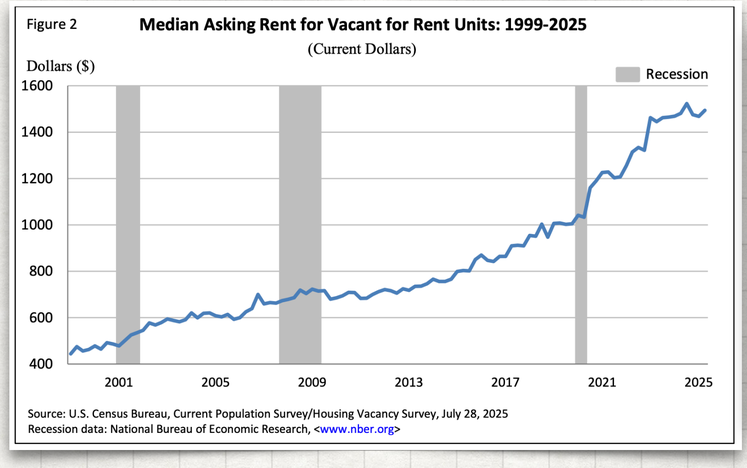
- Compensation structure can affect savings rates.
- If you receive a 10% bonus and don't spend it, that boosts your savings rate.
- Unfortunately, most people spend **more than their expected bonus** before they receive it.
- Three systemic ways to boost savings rates:
  - Forced savings (e.g. Australia) makes it a requirement to save a % of your pay.
  - Employer match (e.g. 401k) can contribute significantly to overall savings rates. (It's free money. Take it.)
  - Health savings accounts (HSA) may contribute to savings as well, although empirical evidence is limited.

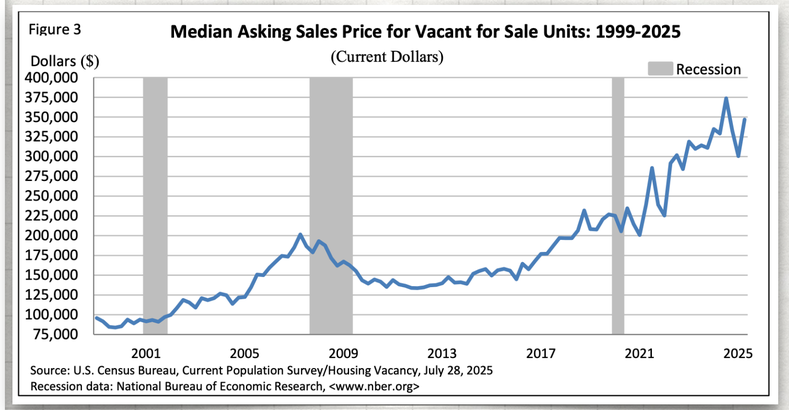


MORTGAGE AS FORCED SAVING

- 65.6% of Americans are homeowners (as of Q2 2024)
- Mortgage payments are made of two components: interest & principal.
- Paying off debt wipes a liability off your books, leaving the asset. This boosts your net worth, just like savings does.
- For many Americans, the forcing function of monthly principal payments effectively leads them to build significant value in their homes over long time periods (decades).







* https://www.census.gov/housing/hvs/files/currenthvspress.pdf

THE BENEFITS OF AUTOMATION

- Pay Yourself First
- Build a budget, calculate your savings, automate the withdrawal, just like taxes.
- Opt-out enrollment in 401(k) plans is far more effective than Opt-in.
- Automatic increases in 401(k) contributions is far more effective than Opt-in.
- When your salary increases, try to save that percentage. You can boost your savings rate over time.
- Money not seen is less likely to be spent.



BUDGETING

Where Does Your Money Go

WHAT IS A BUDGET

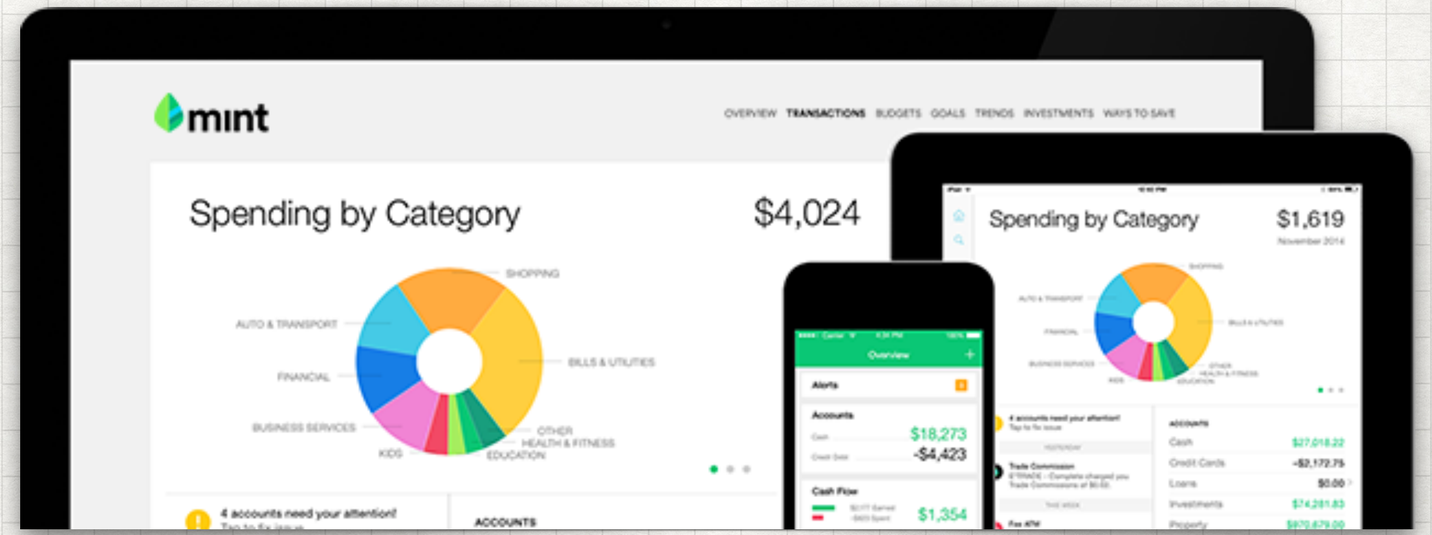
- Breakdown of spending, by category
- If you are settled, you can build a surprisingly accurate budget by looking at your spending for the last 3 months and averaging.
- Don’t forget annual expenses
- Emergency fund is meant to handle truly unusual expenses, not overspending on holiday gifts.



* https://ycharts.com/indicators/personal_saving_rate

TRACKING EMPIRICAL VS. IDEAL RESULTS

- Big difference between what you are spending in a category & what you need to spend in a category
- Comparables from colleagues / friends are valuable, but need to be taken in context
- Track your ideal vs. empirical results on a regular basis.
- The key metric for a budget is whether or not it is realistic



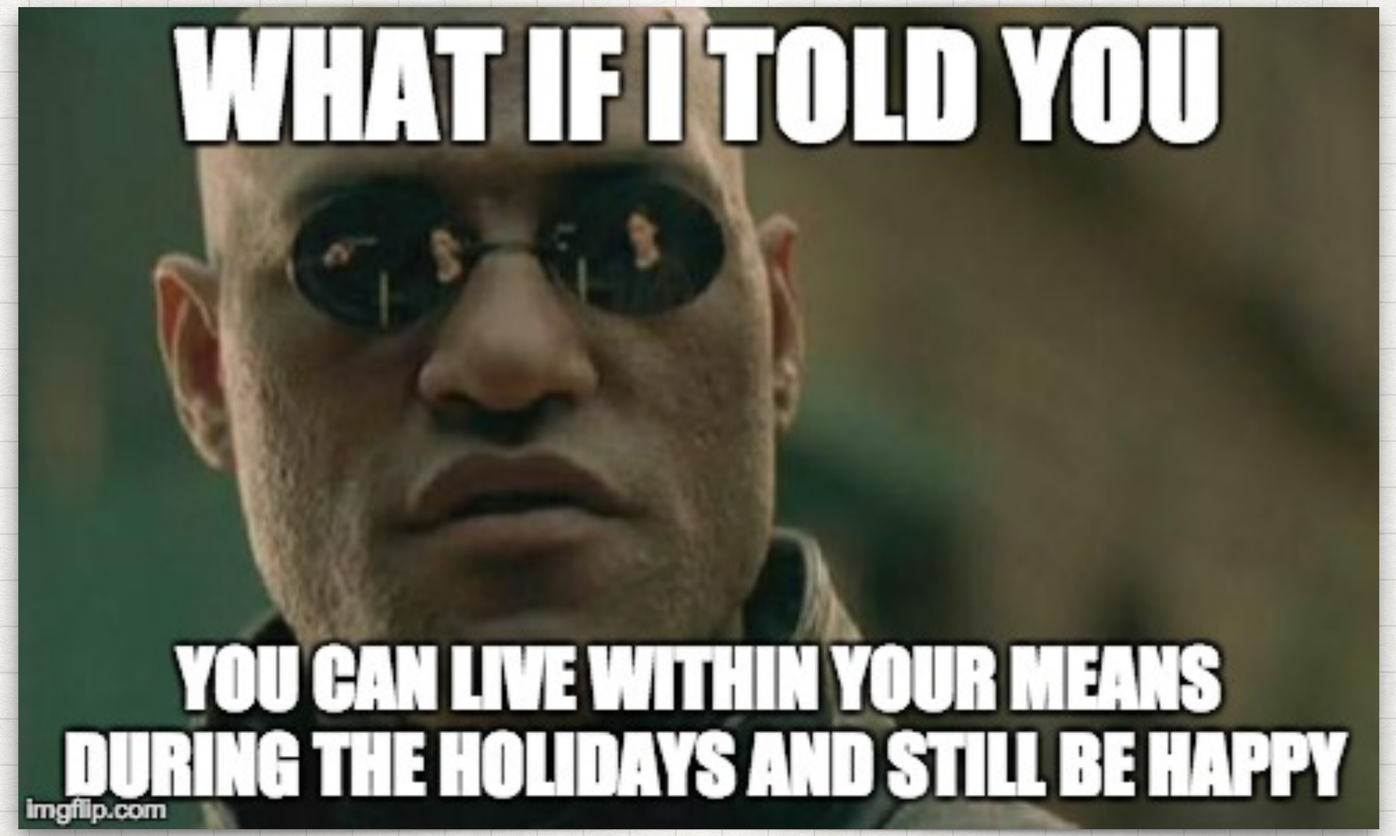
NEEDS / WANTS / SAVINGS & DEBT

- “All Your Worth” - Elizabeth Warren (D) co-authored with her daughter
- 50 / 30 / 20 in the book, but those are unlikely to be your #’s.
- **Needs**: Keep roof over your head, safe, healthy and able to work.
- **Wants**: Any other consumption
- **Savings / Debt**: Paying down debt, building emergency fund, saving for long term goals



YOU CAN MAKE IT WORK

- There are people who make less than you who manage to save 💰
- There are people who make more than you who go bankrupt.
- Beware of emotional justification: language like “I’ve earned this” or “I deserve this” or “why not me?”
- It has been demonstrated that just the act of making a budget reduces the amount that people spend.
- Do not be surprised if you go over your budget. Leave a buffer estimating income & allocating spending.



INCOME STATEMENT

Pulling It All Together

WHAT IS AN INCOME STATEMENT

- An **income statement** is a financial statement that reports a company's financial performance over a specific accounting period.
- A **personal income statement** reviews a time period including income, expenses, and savings.

Paul's Guitar Shop, Inc. Income Statement For the Year Ended December 31, 2015		
Revenues		
Merchandise Sales	$ 24,800	
Music Lesson Income	3,000	
Total Revenues:		$ 27,800
Expenses		
Cost of Goods Sold	10,200	
Depreciation expense	2,000	
Wage expense	750	
Rent expense	500	
Interest expense	500	
Supplies expense	500	
Utilities expense	400	
Total Expenses:		14,850
Net Income		$ 12,950

EXAMPLE: INCOME STATEMENT

- **Best source for income data:**
  Pay Stub
- **Best source for expenses?**
  Last 3 months of spending
- **Best source for comparables?**
  Colleagues / Friends / Family

Income			
	Salary		
		UnicornTech	$ 12,000.00	100.0%
		- Taxes	($ 2,430.40)	20.3%
		- Insurance	($ 739.98)	6.2%
	Total Salary		**$ 8,829.62**	**73.6%**
Total Income			**$ 8,829.62**	**73.6%**
Savings				
	Retirement			
		Roth 401K	$ 500.00	4.2%
		IRA	$ 0.00	0.0%
	Total Retirement		**$ 500.00**	**4.2%**
	College			
		Pride & Joy 529	$ 250.00	2.1%
	Total College		**$ 250.00**	**2.1%**
Total Savings			**$ 750.00**	**6.3%**
Debt Repayment				
	Housing			
		Mortgage	$ 2,500.00	20.8%
	Total Housing		**$ 2,500.00**	**20.8%**
	College			
		Stanford Loans Consolidated	$ 250.00	2.1%
	Total College		**$ 250.00**	**2.1%**
Total Debt Repayment			**$ 2,750.00**	**22.9%**

Annual Expenses		
	Life Insurance	$ 800.00
	Property Tax	$ 7,800.00
Total Annual Expenses		**$ 8,600.00**

Expenses				
	Housing			
		Utilities	$ 300.00	2.5%
		Water/Garbage	$ 120.00	1.0%
		AT&T Wireless	$ 120.00	1.0%
		TV / Netflix / Hulu	$ 110.00	0.9%
		Home Insurance	$ 76.50	0.6%
		Maintanence	$ 200.00	1.7%
	Total Housing		**$ 926.50**	**7.7%**
	Auto			
		Toyota Prius	$ 323.50	2.7%
		Auto Insurance	$ 132.29	1.1%
		Gas	$ 100.00	0.8%
		Repairs/License	$ 0.00	0.0%
	End Auto		**$ 555.79**	**4.6%**
	Household Expenses			
		Groceries/Costco	$ 800.00	6.7%
		Dining Out	$ 400.00	3.3%
		Entertainment	$ 50.00	0.4%
		Clothing	$ 150.00	1.3%
		Periodicals	$ 38.00	0.3%
		Personal Spending	$ 100.00	0.8%
		Pets	$ 50.00	0.4%
		Computers/Gadgets	$ 200.00	1.7%
		Gym	$ 70.00	0.6%
		Gifts	$ 100.00	0.8%
		Charity	$ 300.00	2.5%
		Medical	$ 100.00	0.8%
	Total Household Expenses		**$ 2,358.00**	**19.7%**
	Annualized Expenses		**$ 716.67**	**6.0%**
End Expenses			**$ 4,556.96**	**38.0%**
Cash Flow Buffer			**$ 772.66**	**6.4%**

ONGOING MAINTENANCE

- **Quarterly**
    - Check your progress, real vs. expected
- **Annual**
    - Model in changes & learnings from real behavior.
- **Automate**
    - The more you automate your savings & spending, the less room for error.



CS 007

QUESTIONS



NEXT WEEK: YOUR FINANCIAL PROFILE

- Liquidity
- Emergency Funds
- Assets & Liabilities
- Net Worth
- Personal Balance Sheet

