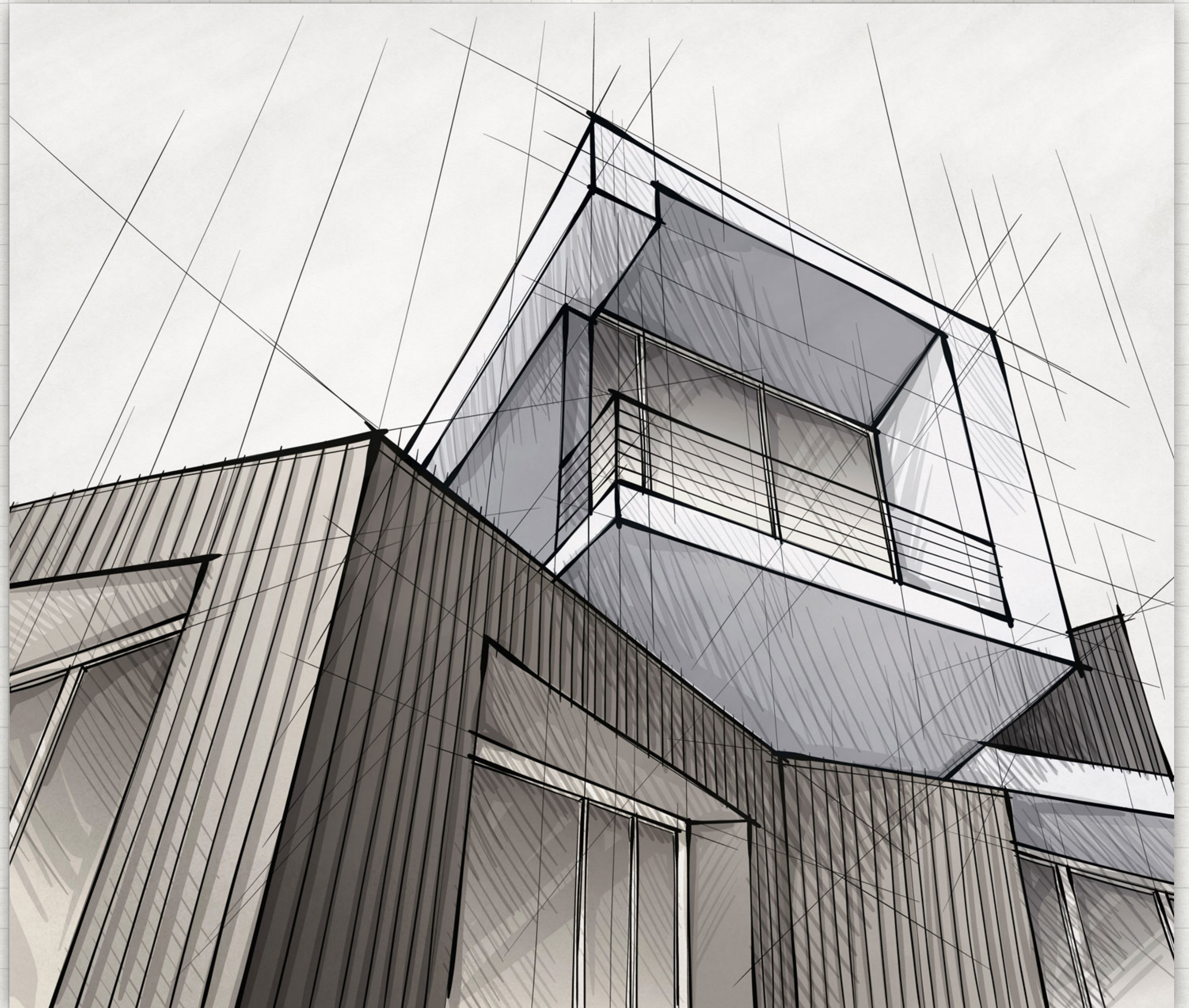


CS 007: SESSION 4

# 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

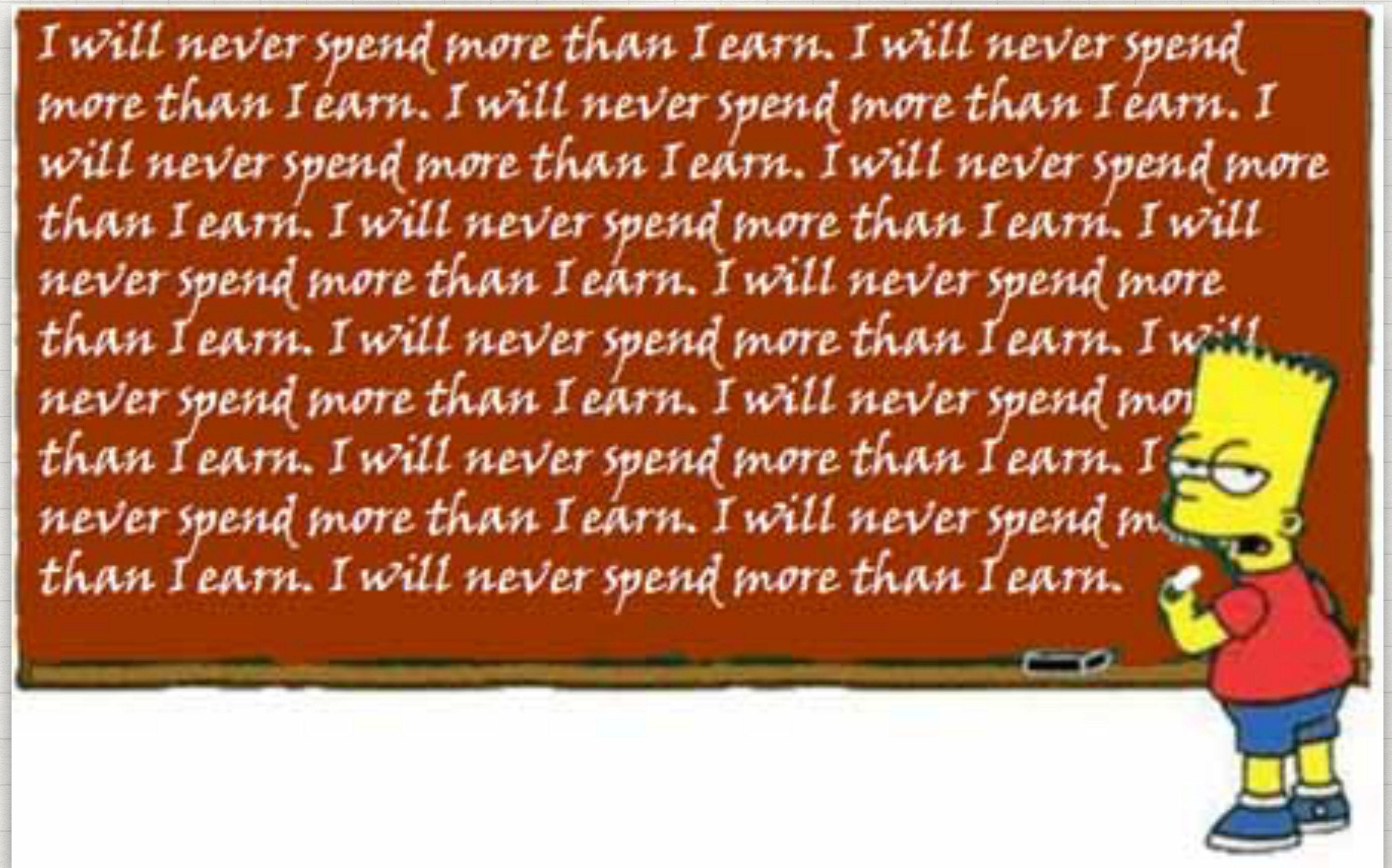


<https://www.nbc.com/saturday-night-live/video/dont-buy-stuff/n12020>



# SPEND LESS THAN YOU MAKE

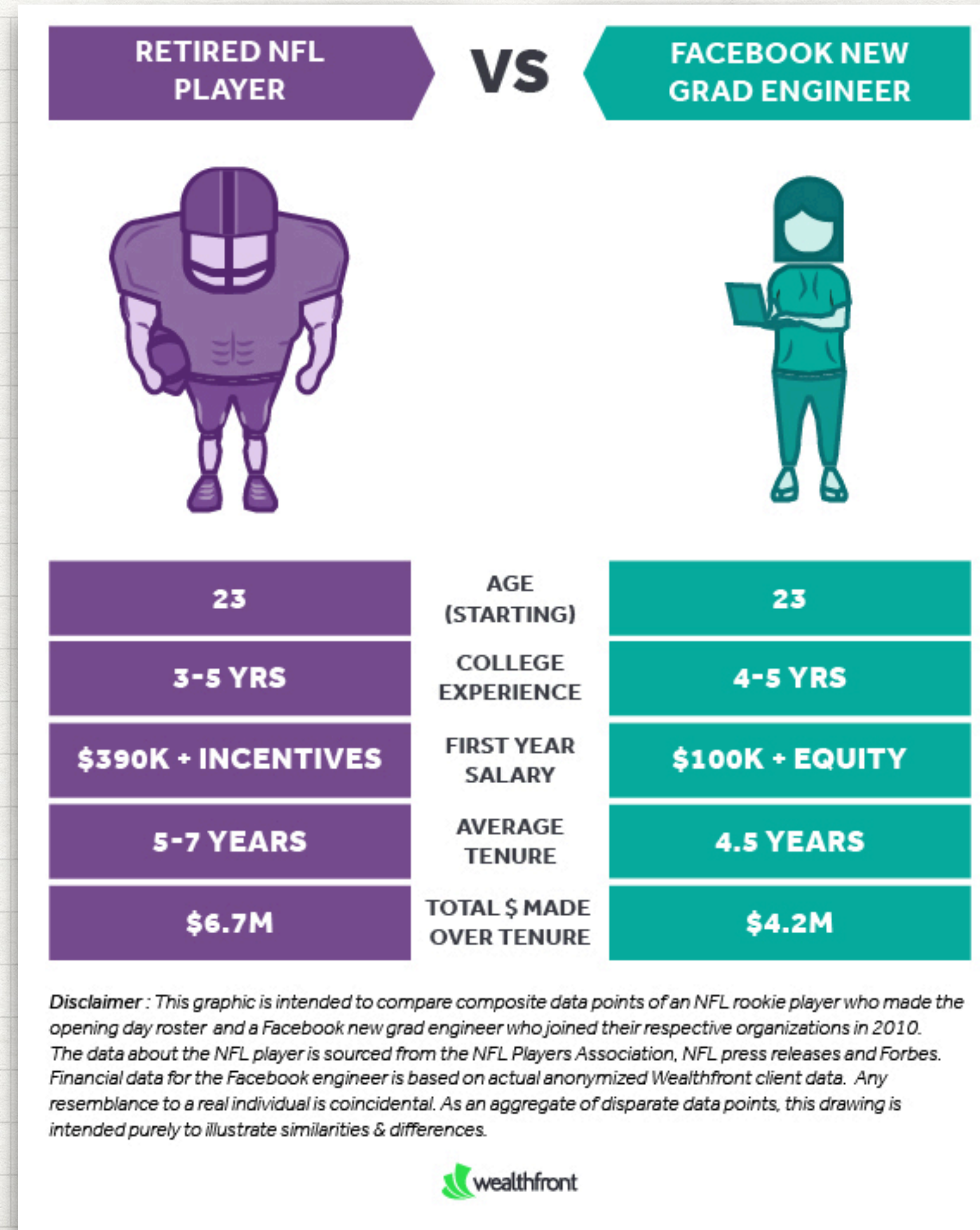
- This is the **ultimate secret** to personal financial success.
- Important at almost every level of income & wealth.
- Important for all levels of success & intelligence.
- There is no amount of money that you can't spend. There are reasons why multi-millionaires go broke.
- Very easy to measure, few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

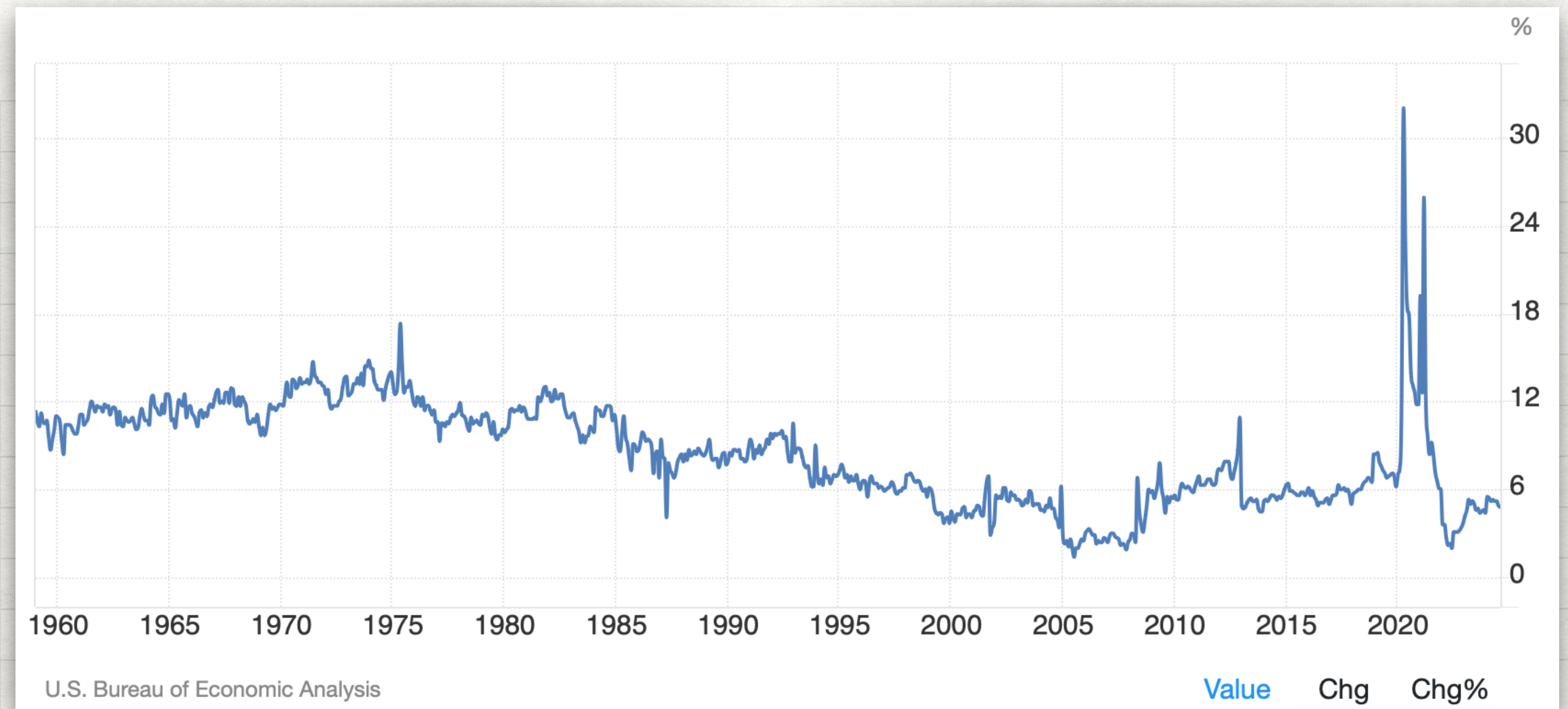


# US SAVINGS RATE

- 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 2025, is at 4.6%.
- $\text{Savings} = \text{Income} - \text{Spending}$
- Does not account for non-income value generation or for future liabilities

\* <https://tradingeconomics.com/united-states/personal-savings>

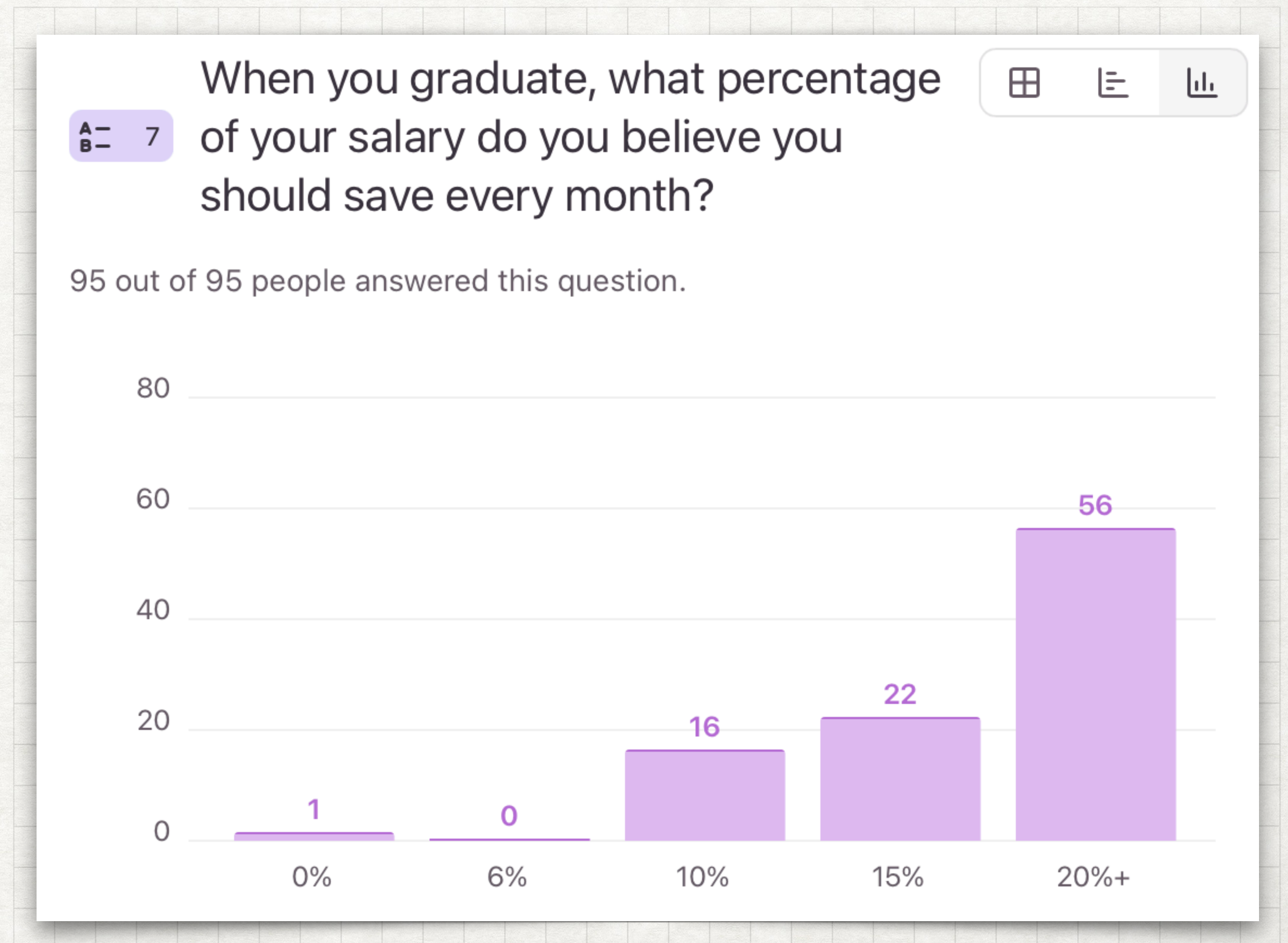
\* [https://ycharts.com/indicators/personal\\_saving\\_rate](https://ycharts.com/indicators/personal_saving_rate)





# 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.

## 401k Employer Matching Contribution Facts

**\$1,336**

The average amount of employer match employees missed out on in 2014.

**\$42,855**

The average amount of employer match an employee will miss out on over the span of 20 years.

**\$1.4B**

The total amount of unclaimed employer matching contributions, according to a survey of over 1 million employees.

**\$24B**

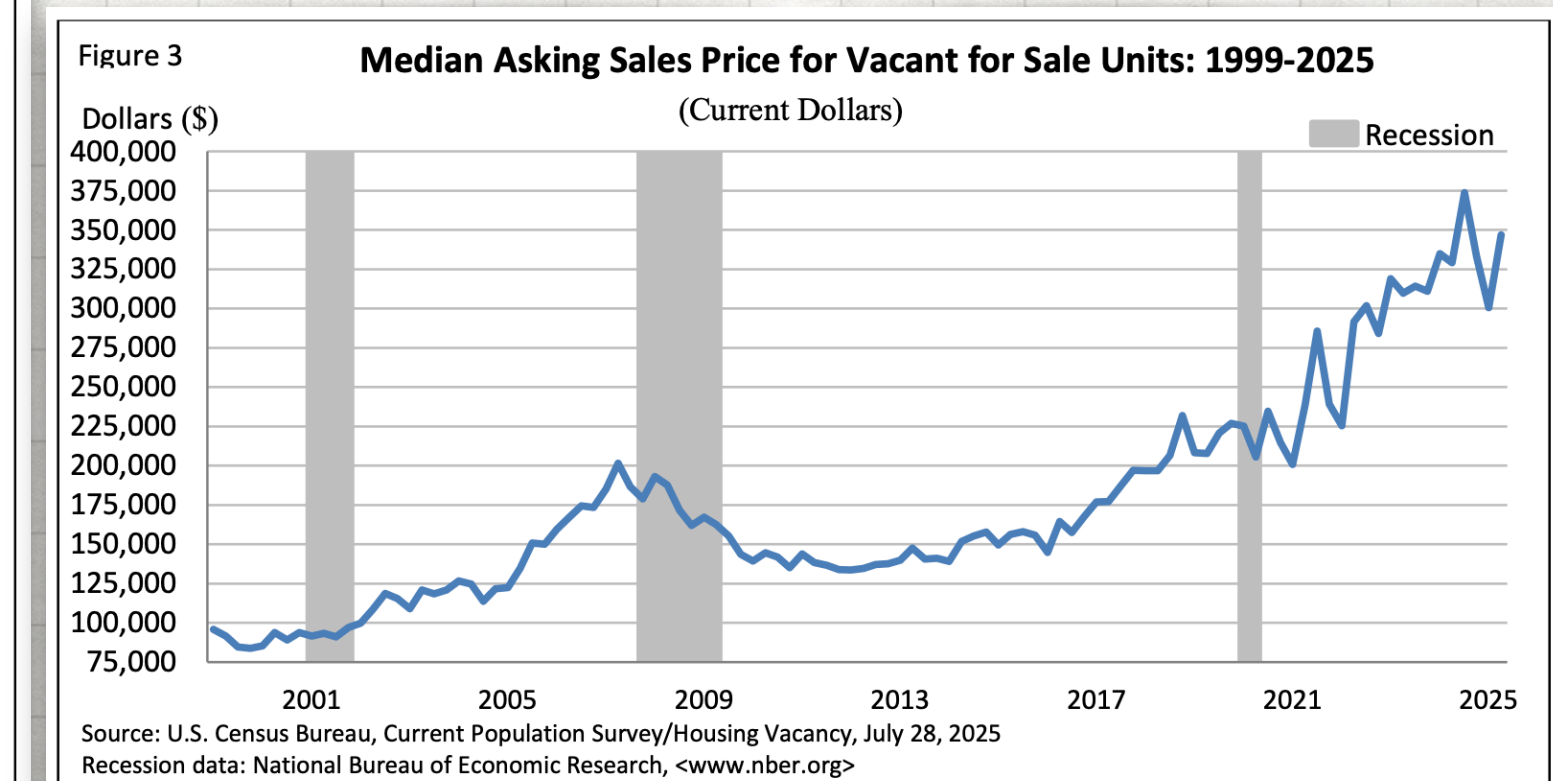
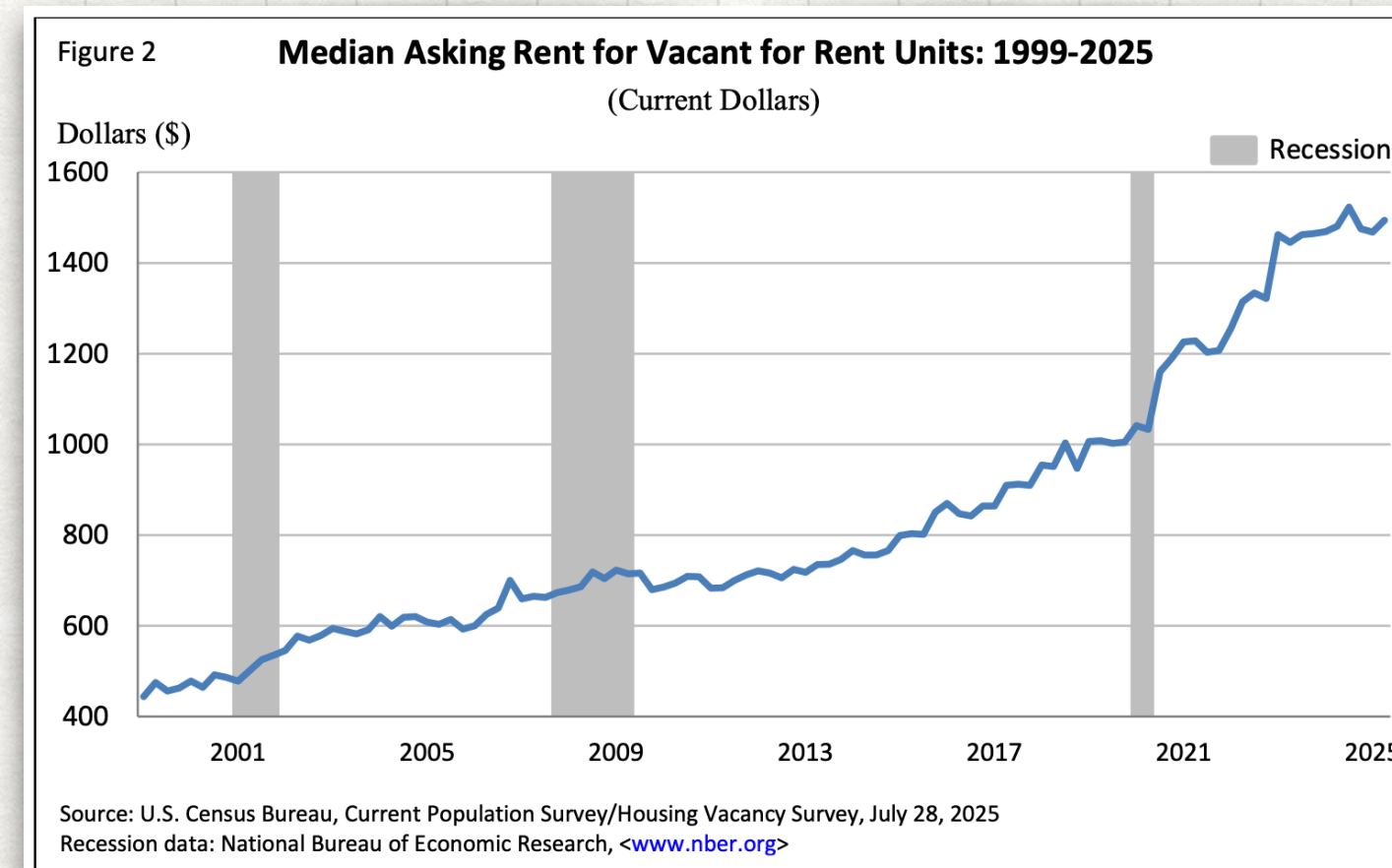
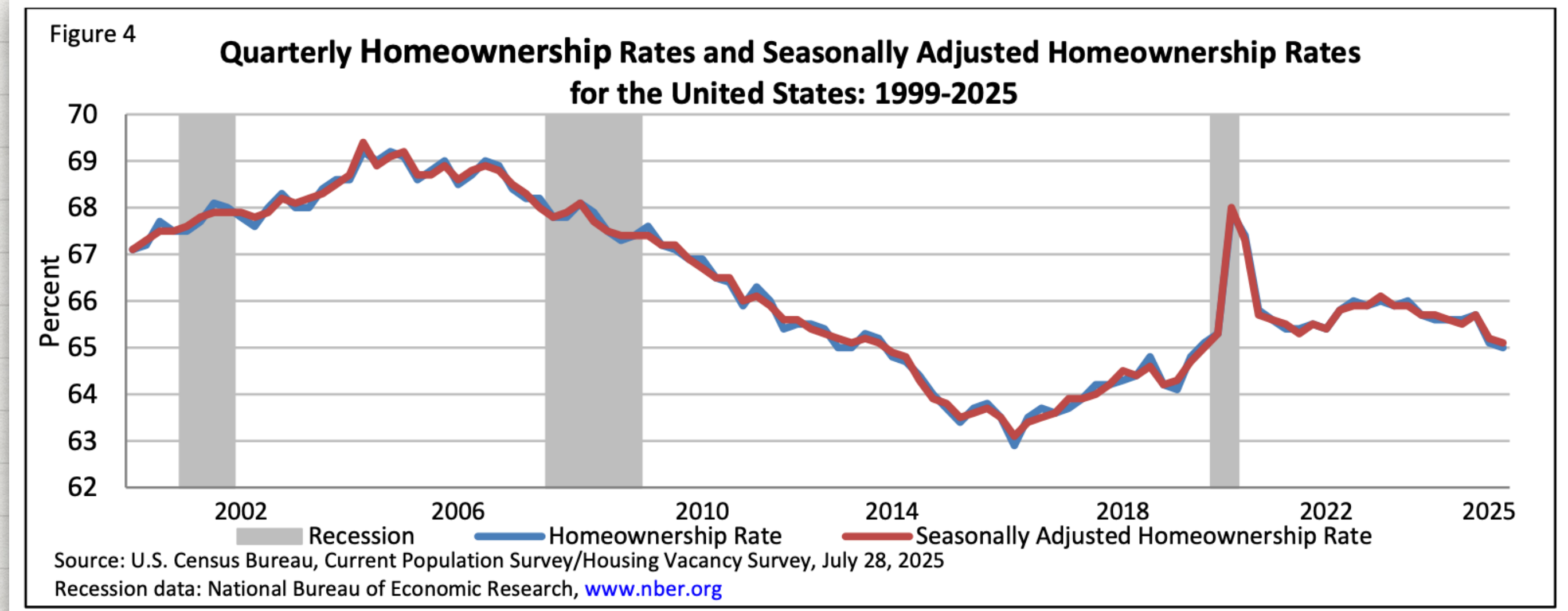
The annual amount of lost employer matching contributions due to employees not saving enough.





# 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).





# 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

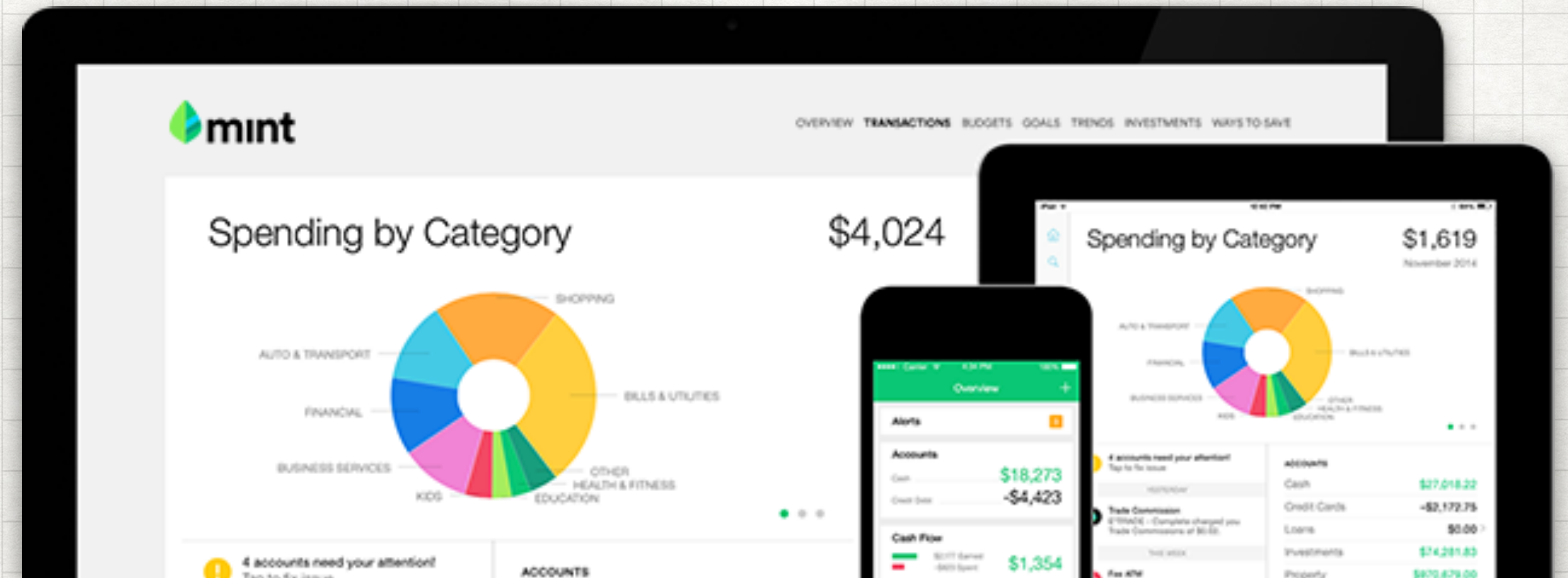
- Breakdown of spending, by category
- If you are settled, you can build a surprisingly accurate budget by looking at your spending for the last 3 months and averaging.
- Don't forget annual expenses
- Emergency fund is meant to handle truly unusual expenses, not overspending on holiday gifts.





# 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

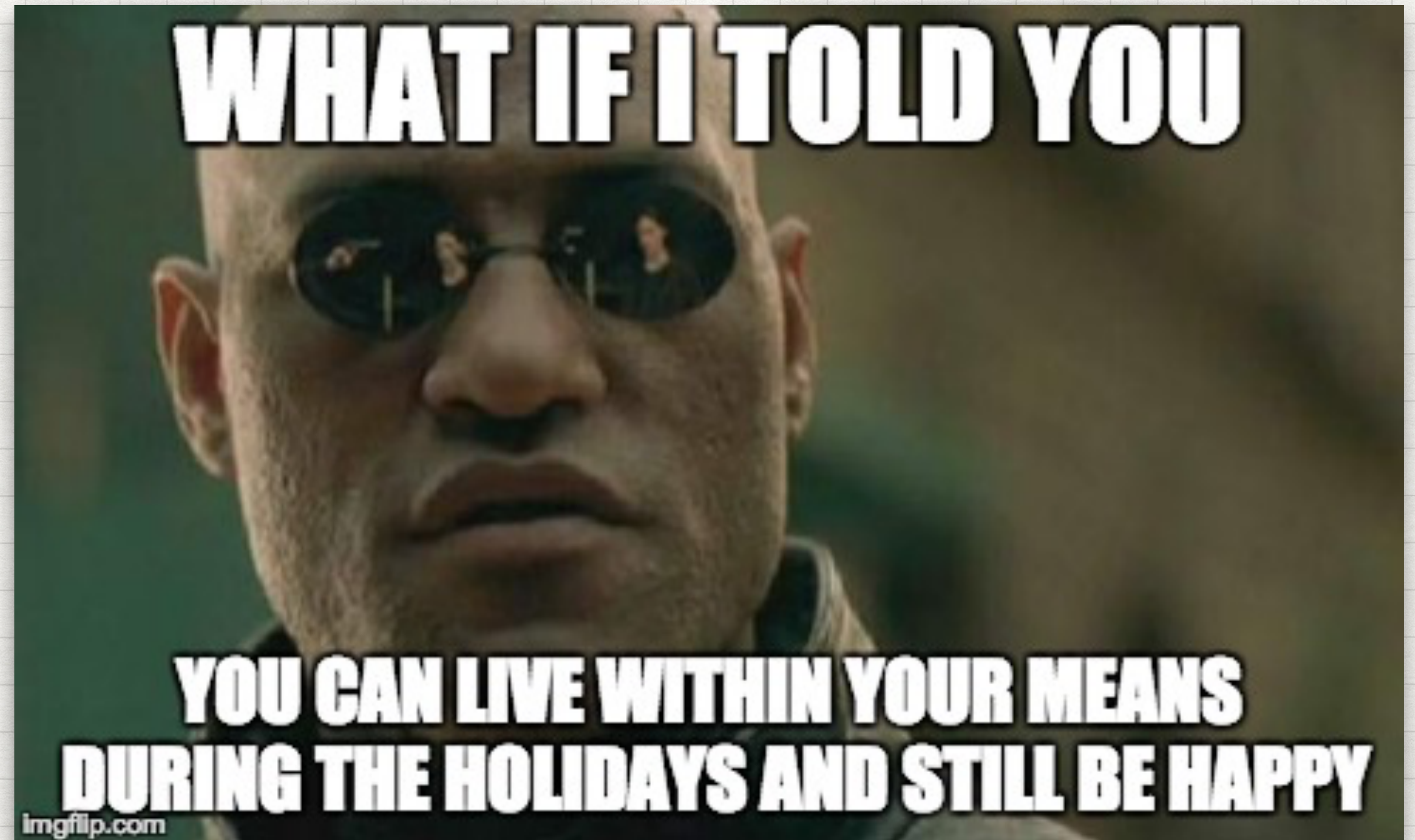
- “All Your Worth” - Elizabeth Warren (D) co-authored with her daughter
- 50 / 30 / 20 in the book, but those are unlikely to be your #'s.
- **Needs:** Keep roof over your head, safe, healthy and able to work.
- **Wants:** Any other consumption
- **Savings / Debt:** Paying down debt, building emergency 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			
<b>Revenues</b>			
Merchandise Sales	\$	24,800	
Music Lesson Income		<u>3,000</u>	
Total Revenues:			\$ 27,800
<b>Expenses</b>			
Cost of Goods Sold		10,200	
Depreciation expense		2,000	
Wage expense		750	
Rent expense		500	
Interest expense		500	
Supplies expense		500	
Utilities expense		<u>400</u>	
Total Expenses:			<u>14,850</u>
<b>Net Income</b>			<u><u>\$ 12,950</u></u>



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

Annual Expenses			
	Life Insurance	\$ 800.00	
	Property Tax	\$ 7,800.00	
	<b>Total Annual Expenses</b>	<b>\$ 8,600.00</b>	

Expenses			
<b>Housing</b>			
	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%
	Maintenance	\$ 200.00	1.7%
	<b>Total Housing</b>	<b>\$ 926.50</b>	<b>7.7%</b>
<b>Auto</b>			
	Toyota Prius	\$ 323.50	2.7%
	Auto Insurance	\$ 132.29	1.1%
	Gas	\$ 100.00	0.8%
	Repairs/License	\$ 0.00	0.0%
	<b>End Auto</b>	<b>\$ 555.79</b>	<b>4.6%</b>
<b>Household Expenses</b>			
	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%
	<b>Total Household Expenses</b>	<b>\$ 2,358.00</b>	<b>19.7%</b>
	<b>Annualized Expenses</b>	<b>\$ 716.67</b>	<b>6.0%</b>
	<b>End Expenses</b>	<b>\$ 4,556.96</b>	<b>38.0%</b>
	<b>Cash Flow Buffer</b>	<b>\$ 772.66</b>	<b>6.4%</b>



# 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

