The Life of a Dollar

A guide to personal finance

“The Life of a Dollar”

Where does my money come from? Where does it all go? What can I do to have more?

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Introduction

Part 1

Presentation background & finance fundamentals

Background

What is this?

What this is NOT

- A lesson in macroeconomics
- A lesson in microeconomics
- A “one size fits all” finances lesson

What this is

- A guide to personal finance
- Suitable for some of the upper middle class

Why?

The objective

- To illuminate the realities of making, saving, investing, and spending money
- To proactively answer/address financial questions/issues I get/see
    - Bonus: to reduce the number of stomachaches I get from witnessing terrible financial decisions

Who is the target audience?

Theoretically

- Some of the upper middle class

In reality

- My friends
  - Some of whom actually asked for this
- My family
  - Life lessons from me to you
  - (Also, at the end of this presentation, I’ll give out your Christmas cash gifts)

Why sit through this?

Well...

- I’m a great storyteller
- I make and have the most money in this family
- I overthink everything, including personal finance

Testimonials

- “This was one of the best tech talks I’ve seen in a long time.” - a coworker, after a presentation I gave to my team
- My bank account balance
    - More accurately, my net worth

Fundamentals

Underlying assumptions

- Having financial security is essential to psychological stability, and thus happiness
- Any “happiness” from material objects is fleeting and fickle, and thus shiny toys are less important than savings, investments, and meaningful purchases
- You can either act rich, or you can be rich
  - Very few people can afford to do both
- Understanding the life cycle of a dollar, from end to end, is essential to internalizing and making good financial decisions

Compound interest > anything in the world

There is nothing more powerful—and dangerous—than compound interest

Compound interest is the snowballing effect where interest yields more interest

It is greater than any force in the universe

A simple compound interest example

What happens when you accrue an interest of 10% over time?

- Start balance: $100.00
- After 1 year: 10% -> $110.00
- After 2 years: 10% -> $121.00
- After 3 years: 10% -> $133.10
- After 10 years: 10% -> $259.37
- After 20 years: 10% -> $672.75
- After 30 years: 10% -> $1,744.94
- After 40 years: 10% -> $4,525.93

This is without additional contributions after the initial balance

Compound interest example 2

This one is more realistic to savings amounts and market return rate

- Start balance: $10,000
- After 1 year: 7% -> $10,700.00
- After 2 years: 7% -> $11,449.00
- After 3 years: 7% -> $12,250.43
- After 10 years: 7% -> $19,671.51
- After 20 years: 7% -> $38,696.84
- After 30 years: 7% -> $76,122.55
- After 40 years: 7% -> $149,744.58

Again, this is WITHOUT any additional contributions after the first $10k!

Implications of compound interest

Broadly speaking

- NEVER get into debt
  - The interest will feel like it’s spiraling out of control
- Do NOT spend money you do not have
  - It’s not worth it
- Do save
  - More money
  - Earlier
  - For cash, use options with high interest
  - For investments, it’s more complicated; we’ll get to this

I want this power. How?

Yes, you do

Great question—the answer is in the rest of these slides

Cash flow

Part 2

Money comes in, money goes out

Your paycheck

- As far as your life is concerned, this is where “the life of a dollar” starts
  - When you first receive money
- Unfortunately, you will never go home with the full amount that you “earn”
- Because of deductions

Deductions

- Taxes, on the federal, state, and local level
  - These are horrible and there is nothing you can do about it
  - Just accept it
- Insurance, at the rate of whichever option you choose
  - Medical, dental, vision, life insurance, etc.
  - These are good for you (and hopefully your employer gives you good options)
  - We’ll come back to one aspect of this, the HSA, later
- Retirement, at whichever rate you set
  - Your employer will offer matches on retirement contributions
  - Always take this free money
  - We’ll circle back to retirement later

Take-home pay & expenses

- So you get a paycheck, and after those deductions, you end up with some amount of take-home pay
- Then you spend a lot of it. Common types of expenses include
  - Rent and utilities
  - Food and groceries
  - Gas
  - Misc. bills
  - Entertainment
  - Travel
- Life is expensive!
- How do you know where all your money is going? Budgeting

Budgeting

What budgeting is NOT

- A time to set unrealistic restrictions on yourself
  - Save that for your inevitable failures of New Year’s resolutions
- An ideal, best case view of your finances

What budgeting is

- A written down, on the record description of your spending habits and needs
- A way to sanity check that your money is on track
- And only then is it an opportunity to modify, cut, and optimize expenses

The 60/40 rule

For middle class families/individuals, the following rule seems to hold

- Consider your base salary
- 60% of it will go to taxes, retirement savings, insurance, and medical expenses
- 40% of it will go to rent, bills, food, fun, etc.

Notice

- This framework neatly divides paycheck deductions and take-home pay
    - It's the simplest, basically instant way to think about your overall budget
- Any padding leftover comprises your extra savings

The accounts involved

Your “regular” bank account has two important components

- The checking account
  - Where your paycheck gets deposited
- The credit card
  - Which you use to pay for most of your expenses
- The relationship between them. Your checking account is where
  - Your credit card gets paid from
  - Some of your bills are auto-paid from

So keep enough money in your checking account to handle this flow

A note on credit cards

Keep in mind that credit cards have rewards programs

- Even the worst credit card should give a minimum of 1% cash back
- Good credit cards offer additional awards, like
  - 5% cash back on some categories
  - Travel rewards/miles

So don’t go crazy over optimizing rewards, but do use them if you have them

Action items 1

- Make a budget
- Cross-check your pay statements with your expected deductions
- Take a look at your checking account and credit card, sanity check them
- Dust off those credit card rewards

Cash, grow

Part 3

After cash flow/expenses, where do you put your money to save and grow?

Cash savings

Savings for emergencies

- In case of emergency, keep enough cold hard cash* that will last for 3-9 months** of expenses
- Hint hint... that budget you just made will tell you exactly how much money this is

* cash as opposed to stocks or bonds, coming up later

** most advice online says 3-6 months, and some will go up to 9; personally I think 6-7 is safe

Savings accounts

- Remember your bank account, which offered checking and credit?
- Do NOT use them for your savings
  - Most bank accounts offer laughably tiny interest on savings accounts, even when you store large amounts of cash (e.g., $50k+)
- Instead, use a high-yield savings account
  - Remember compound interest? We want a piece of that
  - Look for an APY of at least 2%
    - APY = annual percentage yield, i.e., the rate of return for that account
    - (At the time of writing this, a 2% APY was good. Only several months before, 1.8% was considered good. So keep in mind this number should grow over time.)

More on high-yield savings

- Since 3-9 months of expenses is a decent amount of cash...
  - You might as well earn some money for free, via interest, while it's parked
- "Disadvantages" of most high-yield savings accounts
  - Online only and have no ATMs
    - You'll often see them referred to as "high-yield online savings accounts"
  - Limits, with fees, on the number of withdrawals/deposits you can make in a month
- But! You don't want to touch this money anyway, unless it's a true emergency
  - So those are not issues
- How to get started
  - http://www.nerdwallet.com/blog/banking/best-high-yield-online-savings-accounts/

Action items 2

- Save up that emergency fund
- Park it somewhere smart, where you can get at least a competitive APY

Retirement

Retirement accounts

You don't want to work forever, do you? Save for retirement!

Employers offer retirement plans, with at minimum these choices

- Pre-tax 401k
  - Put money in, without being taxed now, then withdraw in retirement, at which point you pay taxes
  - The best option for most people, since you will almost certainly be in a lower tax bracket during retirement
- After-tax 401k
  - Pay taxes on your money now, put the money in, withdraw tax-free in retirement
  - A worse option for most people, but still exists (for reasons explained later)

Retirement savings limits

- The IRS sets limits on how much you can save for retirement each year
- Pre-tax 401k limit for 2019
  - $19,000
- Remember, your employer will match some of your contributions
  - This is outside of your individual $19,000 limit
- The total contribution limit for 2019
  - $56,000
  - This is a hard cap for the sum of your individual pre-tax 401k contributions, your employer match, and any contributions to the after-tax 401k

Retirement strategy

What funds to invest in?

- Just pick a fund based on your target retirement date
- And your retirement fund provider will handle the rest

How much to save? Two rules

- Max out your employer’s match. Take that free money!
- Note that all retirement accounts have withdrawal limitations: you cannot withdraw, without paying penalties, before the age of 59.5
  - So save for retirement, but also save money for growth elsewhere, for use before age 60

[Optional] Other retirement accounts

So why does the after-tax 401k exist? And some employers offer a Roth 401k? What about those IRAs, both Roth and traditional?

It helps to start with the terminology

- 401k means it’s in an employer-provided retirement plan
- IRA is a non-employer retirement plan that you can open on your own
- Roth indicates a type of retirement fund that offers particular tax advantages

[Optional] Backdoor maneuvers

- An example scenario
  - The after-tax 401k allows for additional savings into the 401k
  - By itself, that is not very useful. However, you can then transfer those savings into the Roth 401k, and then even transfer again to a Roth IRA if you want
  - Why? To get around IRS contribution limits of those Roth accounts
  - Okay, but why? To get those special Roth tax-advantaged savings
- You should only seriously consider backdoor maneuvers if
  - You have so much money that this makes sense to do
  - You do not need to save now for milestones before retirement (car payments, a mortgage, sending kids to college, etc.)
- Further reading
  - Look up the “mega backdoor Roth” (described on this slide), or the “backdoor Roth” (another option, for people who don’t have access to a Roth 401k plan)

Action items 3

- Find out how your employer does matching
- Set your paycheck contribution to max out that free money
- Check your retirement plan’s funds; choose a target date fund

Investments

Congratulations!

If you can invest, it means

- You manage to pay all your day to day expenses,
- you have a ~6 month emergency fund in cash,
- you've maxed out your pre-tax 401k retirement savings,
- and you still have money leftover to invest

The goals of investing

- To turn money into more money
- You basically have to do this, given the inflation rate, lengthening life expectancies, and, y'know, how expensive life is

Investing don’ts (or is it “don’t’s”?)

Here’s the worst case scenario

- You think you, an amateur, can magically pick the right stocks that will soar in value and give you wild profits
- Even though the most ludicrous industry and the richest people in the world are doing the same thing
- And most of them fail

Don’t do this

What you should do

Invest in the market. Why?

Because market fundamentals

- The market may fluctuate on the scope of days, weeks, months, years, ...
- But on the whole, over time, the market always rises
- It’s just how the economy works
  - Or something
  - (I am not an economist)

Say it with me now

I cannot beat the market

I will invest IN the market

I cannot beat the market

I will invest IN the market

I cannot beat the market

I will invest IN the market

...

Investing in the market

Convinced? Great!

Now, we need some more terminology

- A mutual fund is a group of stocks together that you can buy in one fund
  - Either managed actively or passively
  - Some management fees
  - Advantages: less risk than individual stock trading, since the funds are diversified
- An index fund is a mutual fund that captures the market
  - Tracks a market index, like the S&P 500
  - Passively managed -> low fees
  - The best return you can get

Index funds details

Knowing to “invest in index funds” gets us pretty far, but there are still a few choices left to make

Again, terminology

- Asset allocation is deciding the ratio of stocks to bonds in a portfolio
- Bonds are like loans. Lower risk, but also lower return, than stocks
- Stocks are a share of a company. Taken as a whole, the stock market rises over time
- Domestic vs international stocks is a question of asset allocation we’ll return to later

Concrete strategy

- The “three fund portfolio” is the easiest way to profit with the market
- It consists of one index fund each that captures
  - The total U.S. bond market
  - The total U.S. stock market
  - The total international stock market
- A “lazy portfolio” is one that prescribes asset allocation, hence is “lazy”

So which index funds?

- My source
    - http://www.bogleheads.org/wiki/Lazy_portfolios#Three_fund_lazy_portfolios
- The funds
    - Vanguard Total **Bond Market** Index Fund (VBTLX)
    - Vanguard Total **Stock Market** Index Fund (VTSAX)
    - Vanguard Total **International Stock** Index Fund (VTIAX)

Note the ticker symbols here are for the Vanguard Admiral Shares that correspond to the regular (non-Admiral) versions of those funds. This is because the regular versions are, at the time of this writing, closed for new purchases. “Admiral Shares” just means you must buy and keep at least $3k worth of the fund.

And what allocation?

My answer for the tl;dr (too lazy; didn't research) people would be

- Your age as the % in bonds, (100 - your age) as the % in stocks
    - As younger people can afford more risk, and stability is more important as you age
    - However, there is no one right answer. E.g., if you're saving for a particular short term goal, you may want to invest in more bonds, for safety
- 80% domestic stocks, 20% international
    - This balances diversification with home preference, and risk with returns
    - However, again there is no correct answer. This asset allocation question is an area of great controversy, as past performance cannot guarantee future reality

If you're interested, you should research these and decide for yourself

With what account?

- Most brokerage accounts are for people who want to play the game of investing in individual stocks
  - They have huge selections of stocks for trading
  - And fees for each trade
- But you are smarter than that, and are going to invest only in index funds
- Go straight to the source: use a Vanguard account
- Advantages
  - No brokerage fees (where you pay for each trade)
  - Some of the lowest fund management fees in the industry (most are around 1%, while Vanguard's are at most around 0.1%)

Portfolio rebalancing

- After you buy stocks and bonds with your asset allocation
- The ratios may go astray, as some grow/lose faster than others
- Every now and then, rebalance your portfolio
  - Sell the shares that have become too high in %
  - Buy the ones that have become too low in %
- Notice this means that you sell high, and buy low!
  - Selling strong performers to buy weak performers seems counterintuitive
  - But it exactly aligns with the most important rule of investing: buy low, sell high
- Do NOT go back and forth on allocation
  - If you chase the high performers, you will sell low and buy high, like a schmuck
  - So, stick with the allocation you choose

Oh also, taxes

- Our favorite thing in the world
- Capital gains taxes
  - Where the money you make from investing is taxed
  - The amount depends on your tax bracket
- Types
  - Short term capital gains apply to sales < 1 year after buying
  - > 1 year, then you pay the lower long term capital gains
- Example rates
  - For single filers in 2018 in the $82,501 to $157,500 income bracket
  - Short term: 24%, long term: 15%
- So, try not to move your assets around too much

[Optional] Alternatives considered

- Roboadvisory accounts, like Betterment or Wealthfront
- Clear disadvantage: much higher fees
- Purported advantages
  - Automatic portfolio rebalancing
  - Tax loss harvesting (TLH)
    - Where you sell at a loss, to get a tax deduction, then replace those shares in your portfolio by buying a similar asset
    - Difficult to do right, as the IRS knows about this, and if a sell and subsequent buy are too similar, this will be a “wash sale” and no tax deduction will be given
- Why not chosen
  - Portfolio rebalancing is easy enough to DIY
  - No compelling argument that their TLH are substantial enough to offset the fees

Action items 4

- Use a 3 fund portfolio
- Use my “lazy” portfolio if you don’t want to research your own allocation
- Use Vanguard
- Remember that you will be taxed when selling, so don’t do that too often
    - Instead let the money grow...
    - Because compound interest

Very quick note on HSAs (because I promised to circle back to these, but forgot to until now)

One slide only, I promise

- HSA = health savings account, provided by your employer
- Contributions to HSA are tax free
  - 2019 IRS limit is $3,500 for individuals
- Money in HSA can be used, for qualified medical expenses, tax free
  - Copays, extra dental work, filling prescriptions, etc.
  - Review the full list in your own time—don't get penalized for unqualified purchases
- Money left in your HSA does roll over every year
  - Can be withdrawn after age 65, taxed as income then (again, probably lower then)
- So, for maximum budget simplicity
  - Max out your HSA contributions, and put that in your budget
  - Don't bother budgeting for medical expenses beyond that (if you're healthy)
  - Eventually enjoy extra money in retirement

Closing thoughts

Part 4

Hang in there, we’re almost through

You have learned

- Money comes into your life via a paycheck
  - Right off the bat, you lose some of it to deductions
  - Budget your overall flow (deductions, take-home pay) and expenses
- You save and grow money by
  - Keeping cash safe for emergencies
  - Taking advantage of your employer’s retirement plan
  - Investing in index funds to get the unbeatable market rate of return
- And to use
  - Those credit card rewards
  - A high-yield savings account
  - A pre-tax 401k
  - A Vanguard brokerage account

Is this everything I need to know about money, ever?

- Maybe. Probably not
- This is just what I learned about money in 2018
- It could very well change next year and so on
- But for now, this is my state of the art, cutting edge personal finance knowledge
- I highly recommend you internalize this knowledge and follow all action items
  - Among many reasons, so that I get fewer stomachaches
  - Refer to the introduction

Further reading

- I found the following resources helpful
  - Investopedia for core concepts
  - Nerdwallet for specific reviews of platforms
  - Bogleheads wiki for index fund portfolios
  - Personal Finance on Reddit for their diagram of the most basic, dead-simple things to do
  - Searching everything else I needed to know

To clarify

- My framework may seem similar to the communities of
  - FIRE (people who aspire to financial independence; retire early)
  - minimalists (the group of people who blog about owning few things)
  - Bogleheads (named after Jack Bogle, inventor of the index fund)
- But I do not identify with any of them, nor do I explicitly share any of their goals
- Just old fashioned frugality for me
  - E.g., the underlying assumptions from the intro

Questions?

- If you’re my family, I will answer them
- If somehow these slides got leaked (or I bit the bullet and shared them), I will not answer any questions
  - I have no qualifications, and really, no one should listen to me anyway
  - All decisions are your own, and all risk is yours to own

How much free time do you have?!

- Great question
- For the record, I put these slides together in one sitting, with minor bathroom and water breaks, in what appears to be 3 hours and 6 minutes (according to this file's revision history)
- Let's just not count the research it took to get here

Actual parting thoughts

- Learn this material, understand it, and internalize it
- Follow the action items
- Then automate as much as possible
  - Set up your financial life to run itself
  - Abstract the rest away into processes
  - Identify things to check once a year, and once a month
- And then, *don't think about this at all*
- Because with money, *success is not having to think about it*
  - (In a sustainable way)
- Go enjoy your life