MODULE 4

Don’t Rent, Buy

How Loans Work For You

Loans can turn an intimidating purchase price into much smaller more manageable payments. In some case, purchasing an asset such as a home using debt can be cheaper than renting.

In other situations, such as a car, it’s a little more complicated…

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Key Takeaways From This Module

Guiding Questions

- How do companies and governments borrow money?
- Are there good and bad types of debt for companies and governments as well?
- What are credit scores for large institutions when they want to borrow capital?
- How do investors profit on large debt?
- How can a company access capital once they have already had an initial public offering?

Enduring Understandings

- Governments and companies borrow capital from institutional lenders by issuing bonds or other debt instruments.
- Bond Ratings can be thought of as credit scores for large borrowers and they are issued by credit rating agencies.
- Bond prices are closely related with interest rates because they are a collection of cash flows which investors discount.
- Bond markets provide a massive source of funding for large companies.

Buying Your First Car... Used

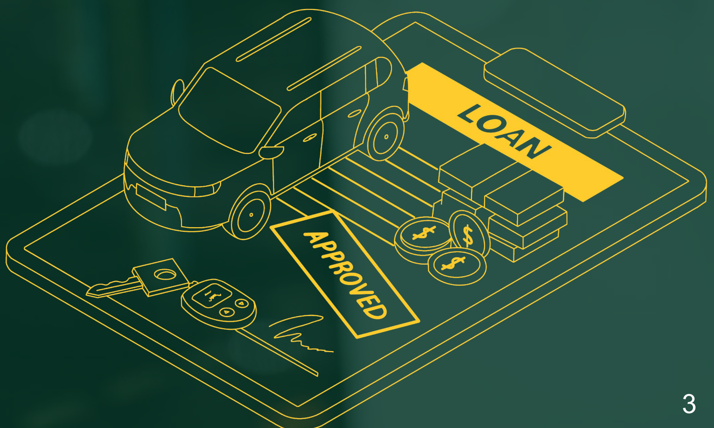
If you're buying your first car there are two options: pay upfront or take a loan out to pay off the car. And for many, paying upfront isn't an option.

FINDING A CAR

We recommend that you don't buy a new car as the second you drive it off the lot, the value of the car drops nearly 40%! And in the first year, the car will be worth less than half of what you paid!

This concept is called depreciation and it happens rapidly in the first year for a car.

On the other hand when you buy a used car that's a couple years old with limited miles, the **depreciation** only happens as you use it; not right away. This means you do not lose value in the car the second you drive it the first time.



And Then Your First Home...

Buying your first home is a daunting task. That’s why the government offers assistance to first time home buyers through various Federal Housing Administration (FHA) programs. So before buying that house ensure that you look to see if there is any assistance available, such as grants, down payment assistance, and credits to assist with closing costs!

One of the main things to look at when buying a house is a mortgage. This is a loan that allows you to buy a house without paying for it upfront and slowly paying it off over the course of the years you live there. There are many different term lengths for mortgages and types so ensure to find the best one that suits your needs.

These mortgages are issued by banks and are dependant on your financial history. The bank will look at your credit score, your employment, and your current debt.

To find the best mortgage for you it is important to shop around and look at different companies.

On Google there is a mortgage rate calculator that is incredibly helpful when looking through these.

Younger Adults Are Renting, Not Buying

Many young adults are renting houses rather than buying because homes are expensive, getting the required funds to put a deposit on a house can be very challenging, and mortgages are typically a 25-30 year commitment.

Renting offers more flexibility however, you are giving up the chance to build equity in a home, which over the long-term will increase in value. Here are some key terms to know:

Lease Term: A lease term is the length of the contract to rent that property. This means you are on the hook to pay that entire time.

Security Deposit: This is the amount you deposit at the beginning of your rental term to ensure damages are covered for your rental period.

Grace Period: This is the amount of time before you owe a late fee after missing a rental payment

Eviction: Is when you miss enough payments or break the rental agreement that your landlord removes you from the property.

Mortgages & Opportunity Cost

The following is just an example to show you a mortgage payment calculation, and to show why even when you have the cash, taking out a loan is the smart financial decision. To calculate other mortgage payments, use Google's free Mortgage Calculator.

Home Price:	**$150,000**
Down Payment:	**$15,000**
Mortgage Amount:	**$135,000**
Interest Rate:	**4%**
Mortgage Period:	**30 years**
Mortgage Payment*:	**$927.84 per month**

***Your mortgage payment includes both interest and a portion of the principal tied to the loan**

IMAGINE
Even if you had $150,000 to purchase the house with cash, would you? We know that the stock market has an average return of 12% per year. So if the bank is willing to loan you $135,000 at 4%, wouldn't you be better off investing that $135,000 and just paying the interest? Let's take a look.

Loan Repaid To The Bank:	**$135,000**
Interest Paid Over 30 Years:	**$97,023**

Earnings On $135,000 at 12% Per Year for 30 Years, Minus Bank Payments:
$3,680,000

Collateral & Down-Payments

When taking out a mortgage, the first thing a bank is going to ask about is your down payment. This down payment is collateral, which means if you do not pay off the loan the bank will take the collateral (usually your house).

When a lender takes your collateral, the borrower loses all of the payments they made towards the house and the down deposit they first placed.

Down payments are common for mortgages and range from at least at 3% of the home value but typically closer to 5% or more. The larger your down payment, the less you need to borrow for your mortgage.

A deposit reduces risk for the lender because if the borrower defaults and is unable to pay back the debt, then the lender can take the collateral. This is what happens when a bank repossesses a home.

The Difference With Fixed & Adjustable Rates

When you're looking at different mortgages, it's important to understand the difference between fixed and adjustable rates.

- Adjustable rate mortgages mean that the interest payments you make may change over time as the market changes.
- A fixed-rate stays the same through the whole mortgage term, which is why they are preferred by people who intend to live in their home for a long time.

The difference in payment amounts between the two loans can be significant, because a lot of what you pay ih your mortgage is actually interest!

Comparing $100,000 Mortgages:

30 years with 6% interest rate has monthly payments of $599.55

30 years with 2% interest rate has monthly payments of $369.62

15 years with 2% interest rate has monthly payments of $643.51

15 years with 6% interest rate has monthly payments of $843.86

Understanding Good Vs. Bad Personal Debt

Whether we like it or not, personal debt can often be a reality. For many of us, goals like a college education or home ownership would be unattainable without personal debt. However, it is important to be aware of its advantages and disadvantages:

The Good

- Taking on personal debt for things like education can **increase future earning potential** and upward mobility
- Taking on personal debt for investing can **increase your returns** if you make sure to compare interest rates and rates of return
- For individuals with irregular income, taking on personal debt can help **manage cash flows**

The Bad

- Forms of personal debt, like credit cards, are seen as poor sources of financing since they charge **high interest rates**
- Many items for which personal debt is incurred, like cars and phones, **do not appreciate in value** thereby making debt less justifiable
- Taking on large amounts of personal debt **impairs future borrowing and purchasing abilities**

Each Borrower Has Different Objectives

Banks
Banks often borrow from other banks to meet liquidity ratios stipulated by the Federal Bank

Investors
Investors take on debt to, finance investments. Doing so, can increase your rate of return

Consumers
Consumers borrow for consumption. This includes education, housing, cars, etc

Companies
Companies take on debt to finance their day to day operations or larger expansions

Governments
Government borrowings finance infrastructure, social security programs, military etc.

Consumer Leverage Ratio: Too Much Debt?

When an individual has too much debt relative to their income, there are serious long-term consequences, because strains their budget and make it impossible to afford groceries and rent.

If the debt is not paid off in a timely manner, this could lead to late fees, higher interest expenses, or even default, which could have a detrimental effect on an individual's credit score.

Once a lender's credit score is impacted, the score remains lower for at least 7 years, which makes it much more difficult to secure loans and other forms of credit in the future, which has a long-term impact.

Debt Is The Bedrock Of Our Economy

Nearly every company uses debt, at least with corporate credit cards. But the world of debt is a lot larger than what you can spend on a credit card!

Skyscrapers, fiber optic tunnels, sports stadiums, and national highway systems are all multi-billion dollar projects that take years to complete

It would be inefficient to allocate all of the necessary capital for a project up front, particularly if those building the skyscraper believed they could sell apartments and earn a profit. Or perhaps the government wants to spend more than they earned in tax receipts to fund an infrastructure project?

That's where large scale debt comes in.

Debt fuels growth by lending at an interest rate and allows individuals, companies and governments access to capital in the present.

$300

Trillion

Total Size of Global Debt Markets

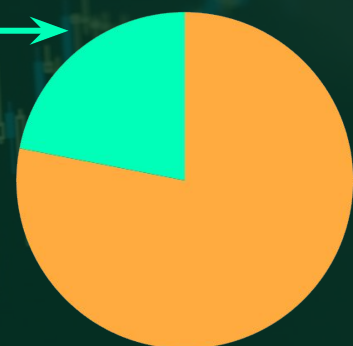
Understanding The US Deficit

The word deficit refers to to the difference between government expenditure and receipts in a given annual budget. Government debt is an accumulation of all theses deficits and is basically the money the government (state or federal) owes to its creditors. So therefore U.S. debt is the sum of all outstanding debt owed by the federal government, which passed $28 trillion in 2021!

How Does That Debt Break down?

Intragovernmental Debt (22%)

This the debt owed between governmental agencies. it has no net effect on the government's overall finances



The Public (78%)

This is debt owed to individuals, businesses, financial institutions,state and local governments, foreign investors, and the U.S. Federal Reserve Bank. It usually takes the form of treasury bills, bonds, and notes.

The **Largest** Way Companies Raise Money:

BONDS!

What Are Bonds?

Bonds are units of company debt that are issued by the company in order to raise capital in exchange for paying an interest rate for a period of time. Once bonds are issued, they are traded in secondary bond markets. Each bond is different, but they share some similarities:

Face value: the money amount the bond will be worth at maturity

Coupon rate: rate of interest the issuer will pay on the face value of the bond

Dates: includes when coupon payments will be made and when the bond matures

Issue price: price at which the bond issuer originally sells the bonds

Types of Bonds

Zero Coupon

Offers no coupon payments but price is less than its face value

Convertible

Can be converted to equity depending on certain conditions

Callable

The company can retire the bond before it matures

Puttable

The investor can get their principle before the bond matures

Bonds Overview

Bonds are a financial instrument that are created when an investor makes a loan to a borrower, typically a corporation or government entity.

The borrower uses the capital to finance operations or expenses and, based on the likelihood that the borrower can repay the loan, the investor charges an interest rate.

Key Terms:

Principal: The amount of capital initially lent to the borrower through the bond.

Maturity: The length of time until the principal is scheduled to be repaid

Face Value: The net present value of all future cash flows related to an existing bond. This is used to show how much the bond owner will receive through maturity.

Coupon: The dollar value of the periodic interest payment promised to bondholders (usually paid semiannually)

Coupon ($)=Coupon Rate x Face Value

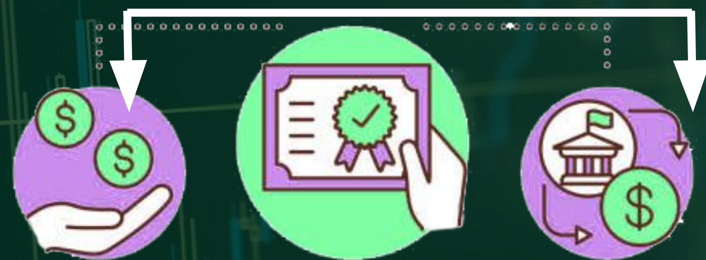
Yield to Maturity: The rate of return assuming the investor holds the bond until its maturity date. It rises and falls depending on the market value of bond and number of payments left until maturity

Internal Rate of Return (IRR): The rate of return that sets the net present value of an investment equal to zero.

Government Debt

Governments borrow money primarily through government bonds, which offer the lenders interest payments on a quarterly basis for a period of time until the bond matures. When the bond matures, the government also repays the initial loan amount. In the US, these bonds are called Treasury Bills, but they exist for nearly every country around the world.

Lenders provide capital in US Dollars, including large companies and entire countries, as a loan to the government.



Governments use this money to fund a deficit in spending where the government is investing in the country while also meeting interest payment obligations

Government Debt ranges in risk. US Treasury Bills are considered a safe-haven asset, whereas, Argentina's Bonds have been classified as 'Junk' when the government announced they did not have intention to pay a few years ago.

Many governments run a deficit, which means that the government spends more than they make. This may not be a bad thing. Economists continue to debate if a country should run a deficit, and if so, at what levels and for how long. But clearly without Treasury Bills, that debate wouldn't even be possible.

Corporate Debt

These are debts taken on by businesses to finance business operations and expansions.

Depending on the creditworthiness and relationships a business has, different forms of corporate debt will be available to them.

Similar to personal loans, the more likely companies are to repay your loan, the better the interest rate for their debt.

Investors pay a LOT of attention to how companies borrow money and what they spend it on.

A key measure of how effective a company is at spending capital is **ROE: Return On Equity**. ROE is a measure of management's ability to generate income from the equity available to it. ROEs of **15–20%** are generally considered good.

Revolving Credit

Here, the business enters to an agreement with the bank which allows it to repeatedly borrow money upto a certain limit

Term Loans

A loan from a bank for a specific amount that has a specified repayment schedule and either a fixed or floating interest rate

Bonds

A tradable, financial instrument that represents a loan made by an investor to a borrower

Commercial Paper

A security issued by large corporations to meet short term obligations like payroll

How Do Companies Issue Debt?

Decide

Before issuing, companies have to decide what kind of bonds they want and whether they want their bonds publicly traded, OTC or privately issued.

Issue

The bond is issued with a stated face value, price, coupon rate, coupon date, and maturity date. Typically, the bond starts trading at its face value.

Trade

Once the bond is issued, its price will vary depending on company reputation, interest rates, and expiration date. The initial and subsequent bondholders can trade the bond till maturity.

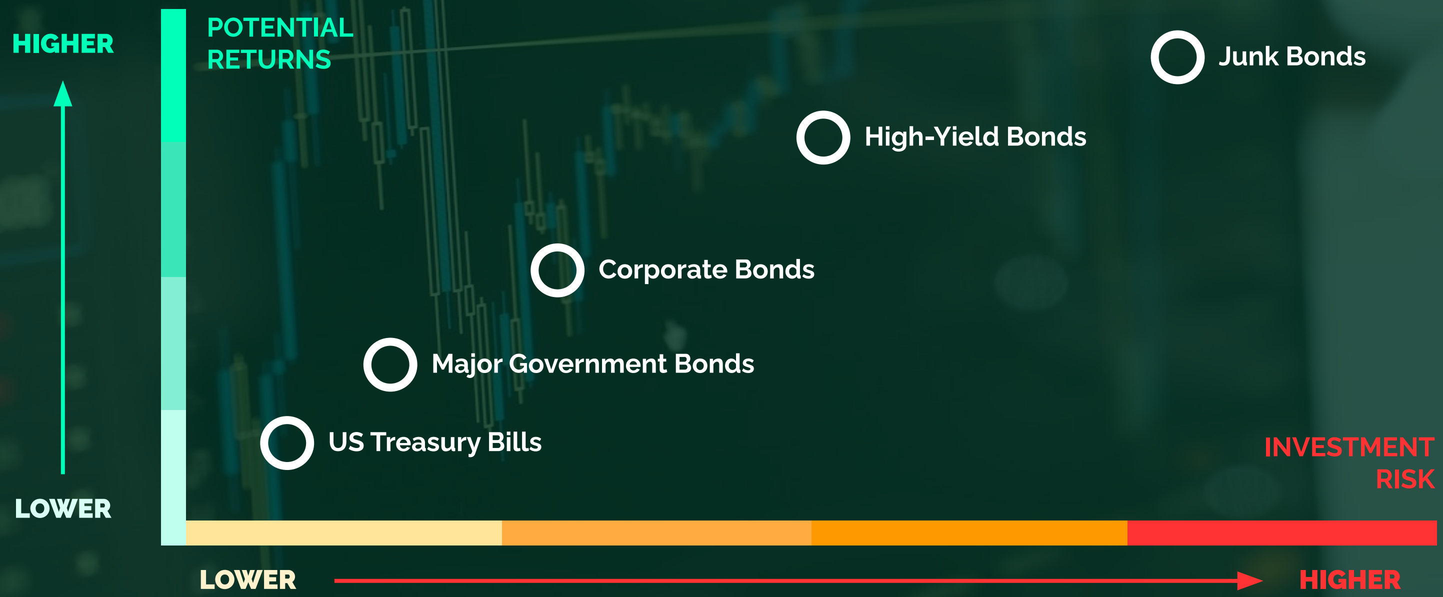
Debt vs Equity

Companies often choose to issue debt over equity since they do not dilute company control and are cheaper to issue.

However, bonds create a fixed liability for the company. They have to make coupon payments on time and repay the principal once the bond matures.

Just Like Stocks... With Risk Comes Reward

Different companies and governments are more or less likely to pay back their debt, based on multiple factors. This results in bonds having different risks. In order to be compensated for this risk, investors charge a higher interest rate on bonds.



Grading Debt With Bond Ratings

A bond rating is a letter-based credit scoring scheme used to judge the quality and creditworthiness of a bond.

A lot of the same factors that impact an individual's credit score play a factor with a company's bond rating.

The ratings are published by credit rating agencies and used by investment professionals to assess the likelihood the debt will be repaid and they evaluate:

- *Past borrowing history to see if a company has repaid bonds in the past.*
- *Outstanding debt on a Company's balance sheet to ensure they do not have too much debt.*
- *Cash flows to determine if a Company will have enough money to repay the Bond in the future.*

And a lot more, including - in some cases - how the company plans to spend the bond.

Interpretation of Rating	S&P Rating	5-Year Default Probability
Highest Quality	AAA	1.3%
High Quality	AA+ AA AA-	2.4%
Strong Payment Capacity	A+ A A-	2.7%
Adequate Payment Ability	BBB+ BBB BBB-	6.1%
High-Risk Obligations	B+ B B-	18.4%

Two Types of Bond Valuations

Intrinsic Valuation

Here, you discount the **future cash flows** of the bond using a required rate of return that you decide. These future cash flows include coupon payments and the face value of the bond.

If the **present value of these cash flows is greater than the current price of the bond**, this would be a good investment option.

Relative Valuation

Here, you **compare the bond's yield spread to a benchmark spread**. This benchmark is usually developed by studying the yield spread of comparable companies.

You want to purchase undervalued bonds which will have a spread that is **larger** than the industry standard (the benchmark.)

Understanding Discounted Cash Flows

Turns out $1000 today is not worth the same as $1000 one year from now!

The intuition behind that idea is that $1000 today could be put in a savings account and would earn you interest in a year's time. This means that:
$1000 one year from now = $1000 today invested for a year - interest earned

That wordy equation can be summed up with 3 terms: present value, future value, and discount rate.

- **Present value:** Current value of a future sum of money or stream of cash flows given a specified rate of return.
- **Future value:** Value of a current asset at a future date based on an assumed rate of return
- **Discount rate:** A stipulated rate of return. Treasury rates are often used here.

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{no. of periods}}}$$

How To Calculate The Value Of A Bond

The present value of a bond is calculated by discounting the bond's future cash payments by the current market interest rate. This is because money in the future is worth less than money in the present. For that reason, bond prices are heavily influenced by interest rates which are used to discount future cash flows.

These future cash flows are determined by adding the present value of typically, semi-annual interest payments with the principal repayment on the date the bond matures.

Below are the cash flows for a $100,000 bond with 9% interest and 2 interest payment periods per year. A company would issue this bond if they thought they could earn more than 9% per year by investing the $100,000 into their company.

	At Start	1 Year	1.5 Years	2 Years	3 Years	4 Years	5 Years
Borrower Receives	$100,000	$-	$-	$-	$-	$-	$-
Total Interest Paid	$-	$9,000	$13,500	$18,000	$27,000	$36,000	$45,000
Principal Repayment	$-	$-	$-	$-	$-	$-	$100,000

Good & Bad Corporate Debt

REMEMBER: WHAT'S THE ROE?

ROE is a measure of management's ability to generate income from the equity available to it. That means, when we look at if a company's debt is "good" or "bad", we should look at the ROE of the debt.

If companies borrow money at a 7% interest rate, to grow their company at a 20% rate or develop a new product, then that's a phenomenal use of debt which has an ROE higher than the interest rate you paid.

If a company borrows money to pay their executives large salaries or payout large dividends to shareholders, then they are not creating value with the debt.

Good Investments

- Projects with a high ROE, higher than the interest rate of the bond.
- Research & development of new products that can help drive growth.
- Expansion of marketing and sales in order to expand the business.
- Create a cash reserve during a market downturn or pandemic in order to ensure the business remains solvent (has enough cash to operate).

Bad Ways To Spend A Bond

- Lucrative Executive Compensation
- Dividend Programs
- Stock Buyback Programs
- Projects with an ROE lower than the interest rate of the bond.

Key Takeaways From This Module

CORE & FUNDAMENTALS

- Governments and companies borrow capital from institutional lenders by issuing bonds or other debt instruments.
- Bond Ratings can be thought of as credit scores for large borrowers and they are issued by credit rating agencies.

APPLIED KNOWLEDGE

- Bond prices are closely related with interest rates because they are a collection of cash flows which investors discount.
- Bond markets provide a massive source of funding for large companies.

RELEVANCE FOR YOU

- When interest rates increase, it becomes harder for governments and companies to borrow money for new projects, which can lead to downsizing, hiring freezes, or layoffs.
- Bonds are an alternative investment opportunity to stocks and are seen as relatively safer, plus they can provide ongoing coupon payments, but they are mostly for institutional investors.