

Financial Literacy with Mr. 401(k)
[‘FinLit with Mr. 401(k)’]
Winter Term 2023-2024
February 8, 2024

Investments Class 25: The Basics of Bonds & Business Plan Project



Practical Application



Jane deposits \$200 in a savings account at a local bank. The bank pays 2.4% annual interest on savings accounts. The bank pays the interest monthly.

- **How much interest income did Jane receive after exactly 1 month?**
- **What is Jane's account balance at the end of the month?**

Practical Application

Jane deposits \$200 in a savings account at a local bank. The bank pays 2.4% annual interest on savings accounts. The bank pays the interest monthly.

- **How much interest income did Jane receive after exactly 1 month?** $\$200 \times (2.4\% / 12) = \0.40
- **What is Jane's account balance at the end of the month?** $\$200 + \$0.40 = \$200.40$

Practical Application

Jane is unhappy with the interest income on her bank savings account. Her friend John is starting a lemonade stand and needs startup money to buy supplies. They made a deal. Jane will loan John \$200. John promises to pay Jane \$1 each month in interest. Then, after exactly 1-year, John would pay Jane back her \$200.

How much is the interest John promises to pay Jane?

What is the value of the loan Jane makes John?

When does John promise to repay the value of the loan?

A debt security in which an investor loans money, typically to a corporation or a government, which borrows the funds for a defined period at a fixed interest rate.

Bond

Typical Loan vs. Bond Payments

John borrows \$1,000 at a 6% annual interest rate for 3 years to finance the purchase of a new high-end bicycle.

Typical Loan vs. Bond Payments

John borrows \$1,000 at a 6% annual interest rate for 3 years to finance the purchase of a new high-end bicycle.

Typical Loan

Payments reduce the balance by including interest + principal. **John pays \$122 of interest**

End of Year...	John's Payment	Loan Balance
0	\$0	\$1,000
1	\$367	\$686
2	\$367	\$353
3	\$367	\$0

Installment Loan vs. Bond

John borrows \$1,000 at a 6% annual interest rate for 3 years to finance the purchase of a new high-end bicycle.

Installment Loan

Payments include interest + principal to reduce the balance due. **John pays \$122 of interest.**

End of Year...	John's Payment	Principal Balance
0	\$0	\$1,000
1	\$374	\$686
2	\$374	\$353
3	\$374	\$0

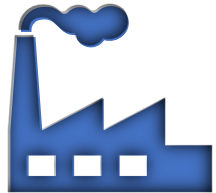
Bond

Only interest payments are made until the bond's maturity. **John pays \$180 of interest.**

End of Year...	Interest Payment	Face Value Payment
0	\$0	\$0
1	\$60	\$0
2	\$60	\$0
3	\$60	\$1,000

Please note that payment amounts and balances have been rounded to the nearest dollar for simplicity.

Type of Bonds



Corporate Bonds

Issued by companies to raise money for new projects or expansion.



Government Bonds

Issued by governments to fund public projects, like building schools or roads.



Municipal Bonds

Issued by states, cities, or counties for public projects, often offering tax benefits.



Class Discussion

Since a bond is basically a loan from an investor to a bond issuer, what do you think might be a risk?

Top Risks of Investing in Bonds

1

Interest Rate Risk

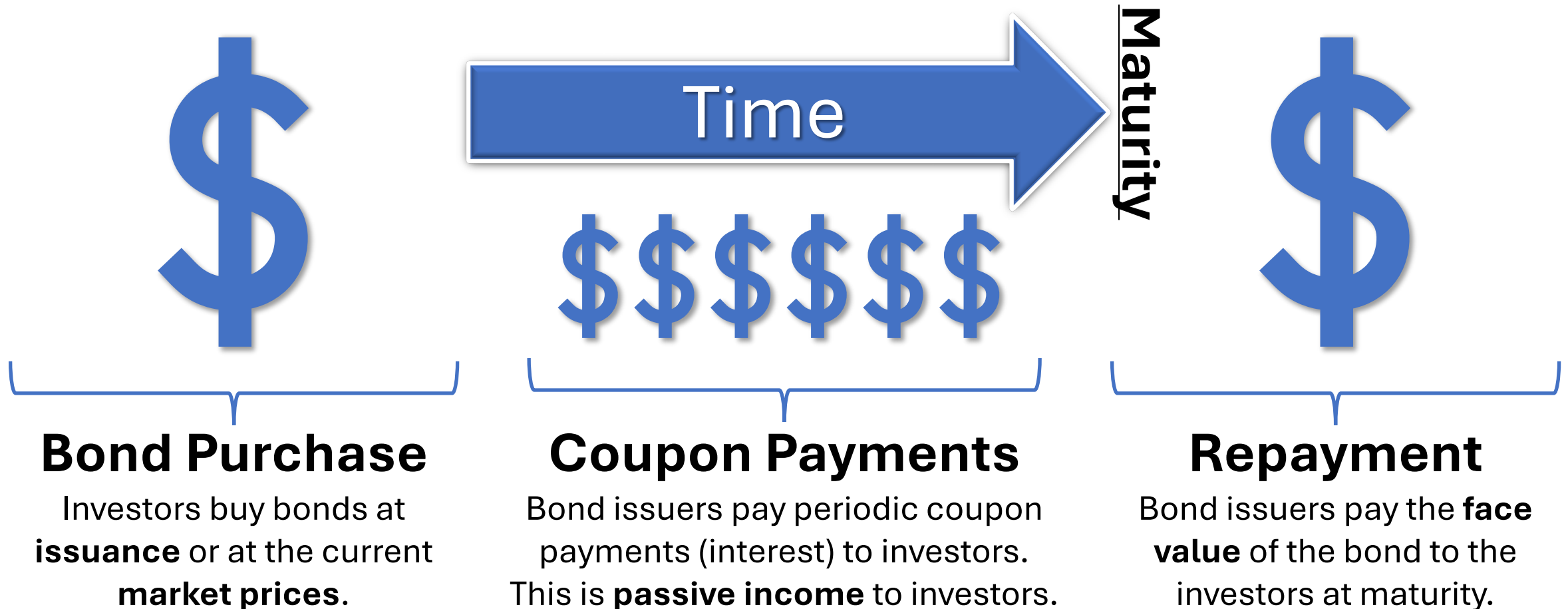
This is the risk that bond prices will decrease as interest rates rise. This is particularly relevant for long-term bonds.

2

Default Risk

The risk that the bond issuer will fail to make payments on interest or principal when due. Credit risk is higher with corporate bonds compared to government bonds.

How Bonds Work for Investors



Bond Characteristics and Example of an Investor's Cashflow

Bond Face Value

\$1,000

Coupon Rate: **5%**

Coupon Dates
December 1

Maturity Date
December 2029

Issue Price: **\$1,000**

- **Face Value:** The amount of money the bond will be worth at its maturity, and the amount on which the interest payments are calculated. Here, it is **\$1,000**.
- **Coupon Rate:** The annual interest rate paid on the face value. Here it is **5%** of **\$1,000** or **\$50 per year**.
- **Coupon Dates:** The dates on which the bondholder receives interest payments. Here, it is **December 1st**.
- **Maturity Date:** The date when the bond issuer must pay the face value to the bondholder. Here it is **December 2029**.
- **Issue Price:** The price at which the bond is originally sold. Here, it is the **same as the face value**.

Bond Characteristics and Example of an Investor's Cashflow

Bond Face Value

\$1,000

Coupon Rate: **5%**

Coupon Dates
December 1

Maturity Date
December 1, 2029

Issue Price: **\$1,000**

Date	Cashflow Description	Amount (\$)
2024-02-08	Initial Investment	-1,000
2024-12-01	Coupon Payment	50
2025-12-01	Coupon Payment	50
2026-12-01	Coupon Payment	50
2027-12-01	Coupon Payment	50
2028-12-01	Coupon Payment	50
2029-12-01	Coupon Payment	50
2029-12-01	Maturity (Face Value)	1,000

Practical Application

As was agreed, John paid Jane \$1 per month for 7 consecutive months. Then, Jane decides to sell John's promises to Jennifer. Jane accepts \$196 from Jennifer. Now, John will pay Jennifer \$1 per month for 5 more months. When the loan matures in 5 months, John will pay Jennifer the \$200.

Can you think of any reasons for why Jane may have sold John's promises to Jennifer?

Practical Application Answers

- 1. Immediate Cash Need:** Maybe Jane needed money right away and decided it was worth getting \$196 now instead of waiting.
- 2. Better Opportunities:** Maybe Jane found a better opportunity. Remember there are opportunity costs in all financial decisions.
- 3. Concerns Over Payment:** Maybe Jane was worried John might not pay in the future. Jane thought it was better to sell the promises now, even for less money, instead of taking the risk of not getting \$1 per month or \$200 back later.
- 4. Interest Rate Changes:** Maybe interest rates went higher, so investors could make more than \$1 a month lending \$200. In this case, the promises Jennifer owns are not worth as much.

Current Yield: a Bond Investor's Return on Investment as a %

- **Current Yield Calculation**

- Current Yield = Annual Coupon Payment / Bond Price
- Annual Coupon Payment = Face Value x Coupon Rate

- **Investors Can Buy or Sell Bonds at...**

- Par: Price = Face Value
- A Discount: Price < Face Value
- A Premium: Price > Face Value

\$1,000
Face Value

Coupon Rate: 5%

Bond Price: **\$1,000**

This bond trades at Par.

Yield =

5.00%

\$1,000
Face Value

Coupon Rate: 5%

Bond Price: **\$950**

This bond trades at a Discount.

Yield =

5.26%

\$1,000
Face Value

Coupon Rate: 5%

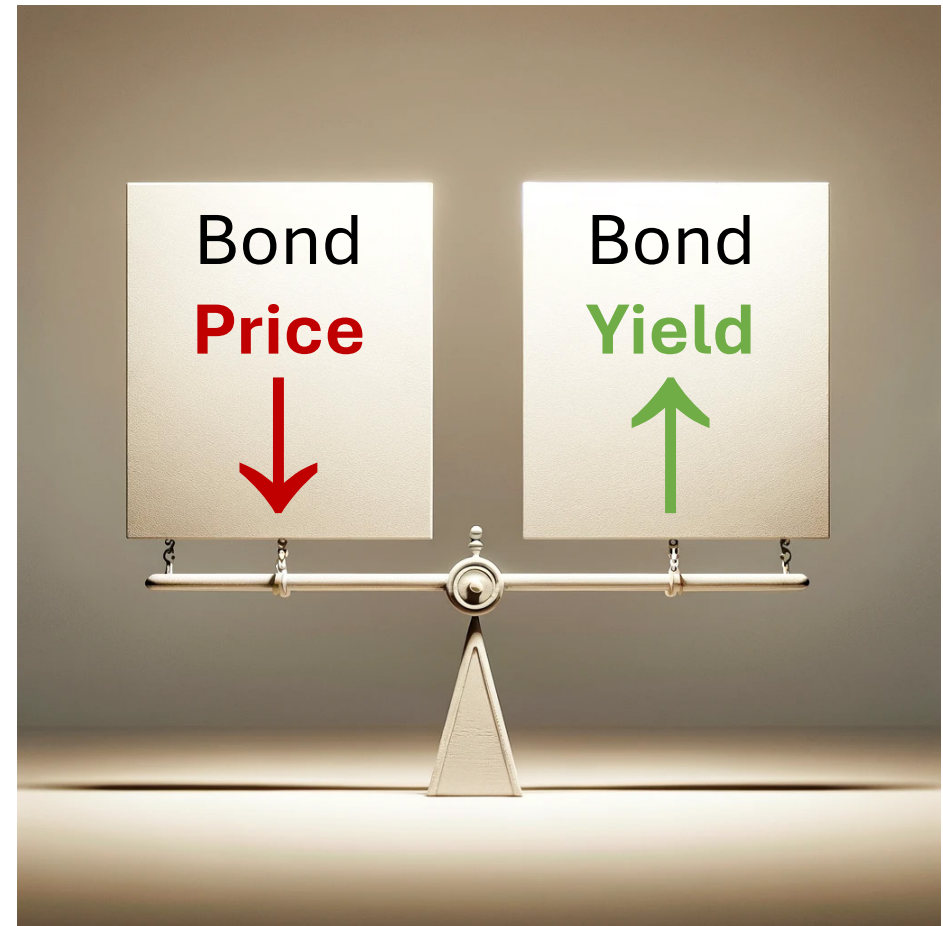
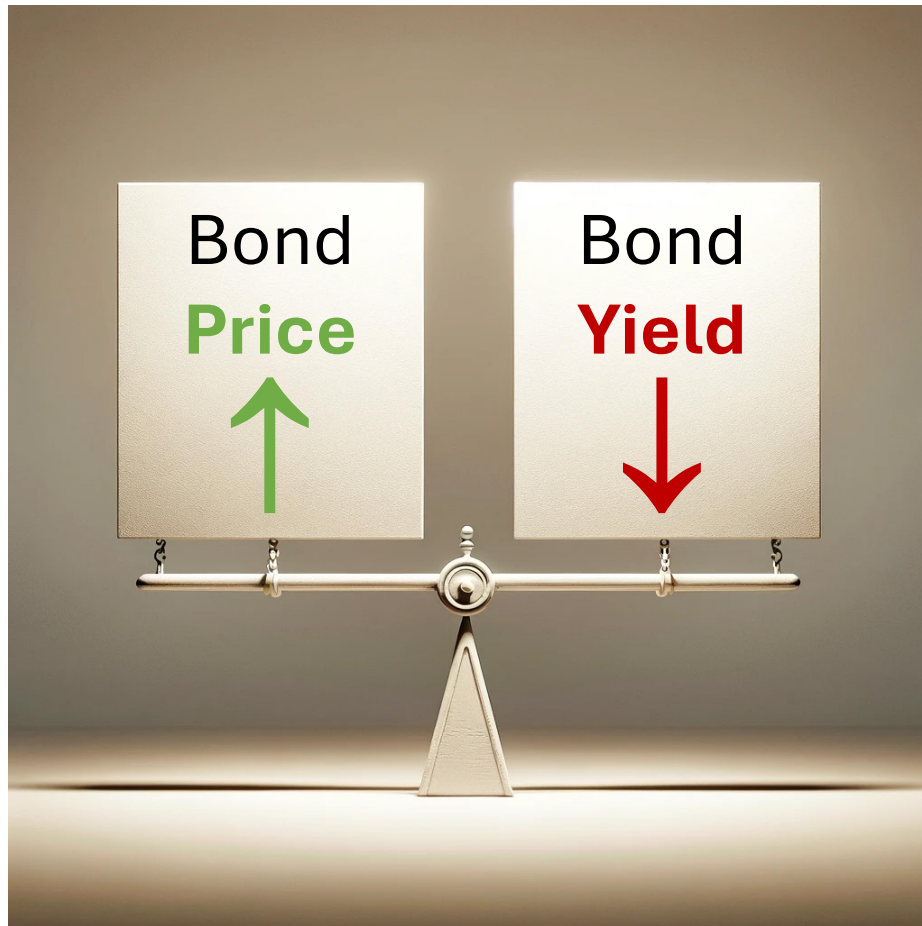
Bond Price: **\$1,050**

This bond trades at a Premium.

Yield =

4.77%

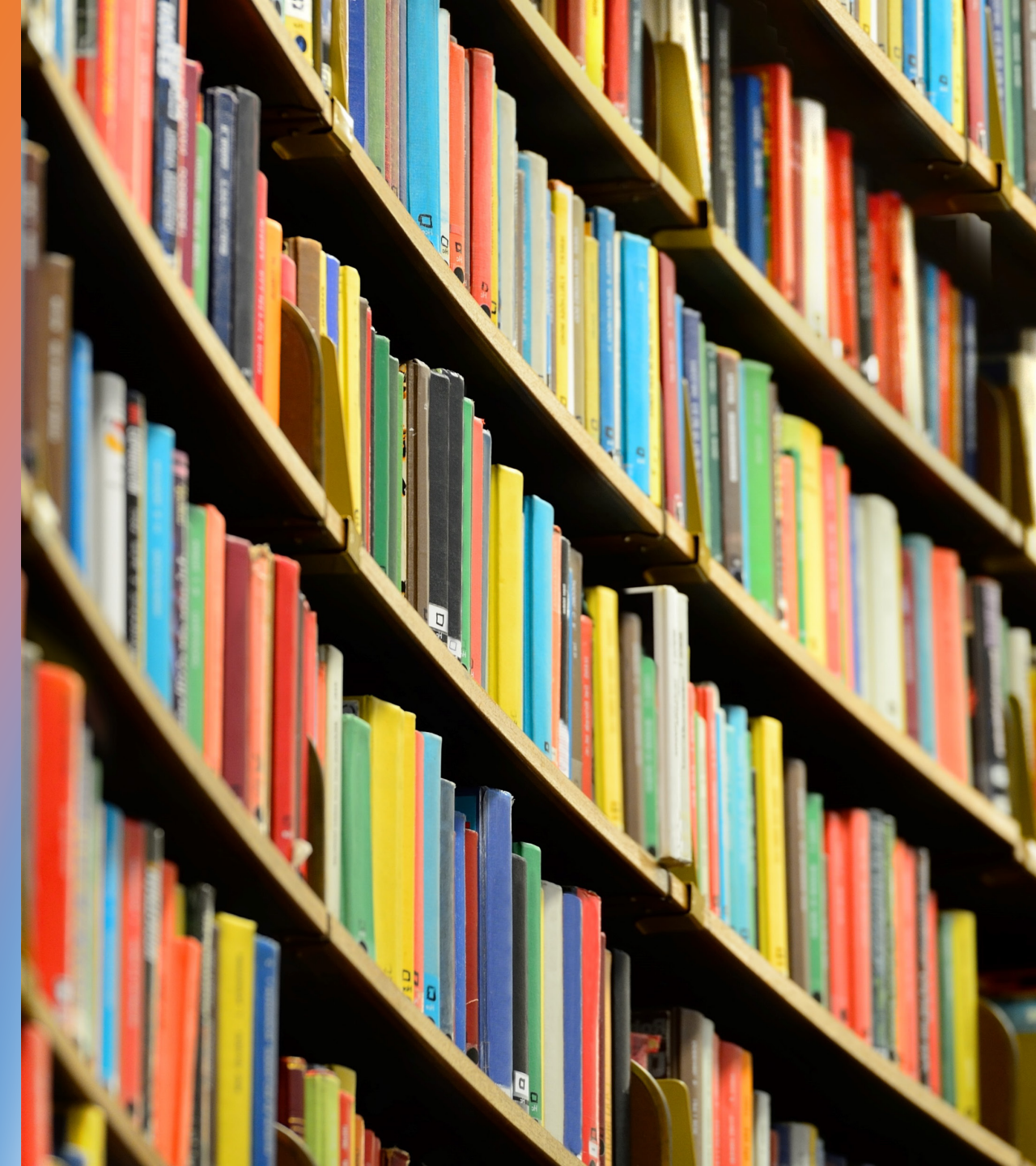
Bond Prices & Current Yield Relationship





Three Key Takeaways

1. Bonds represent loans made by investors to entities like governments or corporations, which promise to repay the loans with interest.
2. Bond types include municipal, corporate, and government -- each with its own risks, such as default risk and interest rate risk.
3. Bonds generate income for investors through regular interest payments, known as coupon payments, and repayment of the bond's face value at maturity.



Where to Learn More

- [Everything You Need to Know About Bonds](#) by PIMCO
- Video: [What are Bonds? Fixed Income 101: Easy Peasy Finance for Kids and Beginners](#) by Easy Peasy Finance
- [What is a Bond?](#) By Chadhurst Sharpe via Kids' Money



Business Plan Project

Business Idea & Business Plan Project within Money Mavericks Groups



Develop Business Idea

What problem does your business solve? Who are the business's target customers? **[Completed]**



Write Business Plans

How does the business earn money? What are the ongoing costs? How will it differentiate?



Present Your Business Plans

Each Money Mavericks Group gives a 10-minute presentation of their business plan to class

Business Ideas by Money Mavericks Workgroup



Alpha

Babysitting /
Childcare
Services



Beta

App that
Recommends and
Markets Books to
Users



Gamma

Online Sales of
Sporting Apparel
& Goods,
Focusing on
Footwear



Delta

Digital Content
Creator AI
Support

Practical Application



- What is your business name? Feel free to design a logo for your business.
- Who are your business's target customers?
- How does your business earn money?
- What are your business's products and/or services?
- What are the costs to start your business?
- Where will your business's startup costs come from?
- What are your business's ongoing expenses?
- What are the prices for your business's products and/or services? How did you determine those prices?
- How will your business promote its products and/or services?
- Write a "pitch" that describes your business to a target customer.
- Who else competes with your business?
- How will your business differentiate itself from competitors?