


Introduction to Loans




What is a Loan?

- A loan is a debt (liability) to purchase an asset
 - Provided by a lender
 - To a borrower
 - Repaid in regular payments (installments) over time
- Loans are used to:
 - Purchase personal assets
 - House, car, college education, personal assets
 - Purchase business assets
 - Land, buildings, vehicles, equipment, inventories
 - Pay certain business expenses
 - Rent, utilities, hired labor




Why Do Businesses Use Loans

- To purchase expensive assets
 - Most businesses don't have enough money to pay in cash
- To purchase assets today vs waiting to save enough money
- For emergencies
 - When you don't have enough cash
- To improve the profitability of the business
 - This is called "financial leverage"




Alternatives to Loans

- Instead of loans, a manager can use:
 - Cash on hand
 - Do not use all of your cash and savings
 - Leave enough cash to meet your monthly expenses & emergency needs!
 - Leases
 - A lease is a rental agreement
 - You can lease:
 - Equipment
 - Structures and/or land
 - Livestock




Leases

- Advantages
 - You can lease the exact asset that you need
 - You can lease it for a specified period of time
 - And then return it to the leasing company
 - Ex. You only need a delivery van for 6 months out of the year
 - You can lease it for 6 months instead of buying it and having it sit idle for the rest of the year
 - You may get more tax advantages by leasing vs buying
 - Leasing may require less out-of-pocket cash
 - Lower down payment, fees, etc.




Leases

- Disadvantages
 - You cannot make major alterations to leased assets
 - Paint it, add new fixtures, etc.
 - Because you don't actually own the asset
 - It may be hard to lease the asset you want
 - There may be "over-use" fees
 - Mileage limits, hour limits, etc.
 - These are usually expensive
 - Getting out of a lease may be very expensive
 - Versus simply selling an asset that you own




Terms

- Down Payment
 - Cash that is paid by the borrower at the time of purchase
 - Down payments are usually 10-20% of the purchase price
- Principal
 - Principal is the term for the amount of the loan
 - Principal = "loan amount"
 - Principal is a liability on the balance sheet



Terms

- Collateral
 - The assets that are "pledged" to the lender in case the borrower cannot repay the loan
 - If so, these assets will be "repossessed" by the lender
 - Example: You have an auto loan for your car. The car is the collateral for the loan.
 - If you cannot make your loan payments, the lender may repossess the car.
- NOTE: Lenders do NOT want to repossess assets. They want borrowers to be able to repay the loans in full.




Down Payments

- Lenders usually require the borrower to make a down payment
 - Usually between 10-20% of the purchase price
- Example: You want to buy a \$25,000 trailer.
 - The lender requires a 20% down payment.
 - Down payment = \$5,000 (\$25,000 x 20%)
 - Loan Principal = Purchase Price - Down Payment
 - = \$25,000 - \$5,000 = \$20,000 loan




Types of Loans

- Personal Loans
 - Auto Loans
 - Repaid over 3-7 years
 - Student Loans
 - Repaid over 10-20 years
 - Home Mortgages
 - Repaid over 15-30 years
- Credit Cards
 - A "credit limit" is set - the maximum you can borrow
 - You can borrow up to that limit and repay the principal on in a flexible manner
 - Should be repaid as soon as possible (< 1 year)



Types of Loans

- Business Loans
 - Equipment Loans
 - Repaid over 3-10 years
 - Real Estate Loans
 - To purchase land, buildings, facilities
 - Repaid over 15-30 years
 - Operating Loan
 - Used to purchase or pay for operating inputs
 - Repaid within a 1-year period
 - Operating Line of Credit
 - Acts like a credit card



Loan Applications

- Borrowers need to submit a loan application
 - Helps determine their ability to repay the loan
 - Determines if the loan is a good idea for both parties (borrower and lender)
- Typically includes:
 - Balance Sheet(s)
 - Income Statement(s) or proof of income
 - Credit history
 - Credit score



Interest Payments

- Interest is the cost of borrowing money
 - Stated as APR (Annual Percentage Rate)
- Simple Interest
 - You only owe interest on the amount of principal you still owe the lender
- Interest calculation
 - Interest = Principal Owed x APR



Interest Calculation Example

- You borrow \$50,000 to buy a delivery truck
- The loan is at 5% APR for 4 years
- Interest = Principal Owed x APR
 - = \$50,000 x 5% = \$2,500
- 2 years later, you still owe \$26,200 on the loan
- Interest = \$26,200 x 5% = \$1,310



Loan Payments

- Several types of loan repayment plans
 - Most common is "level payment"
 - The payment stays the same each period
 - Example: Car loan has payments of \$400/month
 - \$400/month for the life of the loan
- Loan payments consist of interest and principal
 - All of the interest owed since the last payment
 - A portion of the principal



Components of a Loan Payment

- Assume your annual loan payment is \$5,000 and you owe \$3,000 of interest since the last loan payment was made
- Payment = \$5,000
- Interest = \$3,000
- Principal = \$3,000 (\$5,000 - \$3,000)



Calculating Annual Loan Payments

- Using the Time Value of Money Tables
- Table 3 Annuity Factors: Annual Loan Payments
- Need to know:
 - Interest Rate (APR)
 - Life of the loan in years (the "term" of the loan)
 - Amount of the loan (principal)
- Find the loan payment factor in Table 3
 - Example: 10-year loan at 6% APR
 - Find the 6% column of the table
 - Go down to the 10 row (n = 10 in left column)
 - Factor = 0.1359



Calculating Loan Payments

- Multiply the loan principal by the factor
 - For a \$40,000 loan at 6% for 10 years
 - Annual Payment = \$40,000 x 0.1359 = \$5,436/year
 - You will repay the loan and all interest in full if you pay \$5,436/year for the next 10 years
 - This is called "amortizing" the loan
 - "Amortizing" = paying back the principal slowly over time



Practice Using Table 3

- Find the annual loan payment factors for the following loans:
- 8% APR for 20 years
- 4% for 30 years
- 7% for 8 years



Practice Using Table 3

- Find the annual loan payment factors for the following loans:
- 8% APR for 20 years factor = 0.1019
- 4% for 30 years factor = 0.0578
- 7% for 8 years factor = 0.1675



Breaking Down a Loan Payment

- Remember, loan payments contain interest and principal
- For the \$40,000 loan at 6% for 10 years
- For the 1st loan payment:
 - Annual Loan Payment = \$5,436
 - Interest Due = \$40,000 x 6% = \$2,400
 - Principal Due = \$5,436 - \$2,400 = \$3,036
- You will still owe \$36,964 after you make this first payment
 - \$40,000 principal borrowed - \$3,036 principal due



Monthly Loan Payments

- Use Table 4
 - Monthly Payments Required to Amortize a \$1,000 Loan
 - NOTE: we use this table differently than Table 3
- Step 1. Find the factor in the same manner
 - Assume a 5-year loan at 5.5% APR
 - Monthly Payment Factor = 19.10
 - This means the monthly payment for a \$1,000 loan at 5.5% APR for 5 years is \$19.10/month



Monthly Loan Payments

- Step 2. Divide the loan principal by \$1,000
 - Example: \$20,000 car loan
 - \$20,000 / \$1,000 = 20
- Step 3. Multiply the factor from Step 1 by the answer from Step 2.
 - Monthly Payment = 19.10 x 20 = \$382/month



Using a Spreadsheet

- It is easy to calculate loan payments on a spreadsheet
 - Just enter the information for the loan
 - The spreadsheet does the rest!
- Find the monthly payment for a \$55,000 tractor loan at 5.25% APR for 6 years
 - Loan Principal = \$55,000
 - Interest Rate = 5.25
 - Life of Loan = 6 Payment = \$892.16
 - Payments/Year = 12



Using a Spreadsheet

- Calculate the quarterly payment for a \$30,000 loan at 6.25% APR for 4 years
 - Loan Principal = \$30,000
 - Interest Rate = 6.25
 - Life of Loan = 4 Payment = \$2,133.67
 - Payments/Year = 4
- Look at the table below the calculator to see how the interest and principal payments change for each payment

