

Financial Management

Section	Topic
Intro to Financial Management	Ch 1: Intro to Financial Management
Intro to Financial Management	Executive Education
Intro to Financial Management	Case: Parable of the Sadhu
Intro to Financial Management	Guest Speaker
Financial Statements (FCF & Analysis)	Ch 2: Financial Statements & Cash Flows
Financial Statements (FCF & Analysis)	Ch 3: Financial Statement Analysis
TVM & Bonds	Ch 4-5: Time Value of Money & Bonds
WACC, Risk & Return	Ch 6, 9: Risk, Return & WACC
Valuation (Public & Private)	Ch 7: Corporate & Stock Valuation
Valuation (Public & Private)	Valuation Case
Valuation (Public & Private)	Private Valuation
Valuation (Public & Private)	Ch 18: Public & Private Financing

Intro to Financial Management

What is Expected?

1. Participate in class
 - Business students must communicate
 - Keep track of your questions and comments
2. Engage with your team
 - Make this project consulting worthy
 - It will also reinforce the principles from class
3. Flex your brain
 - AI is great and all ...
 - Comes with reps

What is Finance?

- Analysis
- Valuation
- Investments

Executive Education

Root cause analysis: Ask why at least 5 times

Conversational Communication

- Move People to Action
- Be Seen as credible and knowledgeable
- Move forward in your career
- Takes practice & thinking to get right
 - Observation
 - Information: Logical, Emotional, Complex, Simple
 - Communicate: FTF, Video, Call, etc.

	Easier	Harder
Logical	Chart/Graph	Framework
Emotional	Communication Scale	Story
	Simple	Complex

Logical Communication

Developing Frameworks

- Graphs/Charts: Easy, Quick, Standard
- Off the Shelf: Known, Effective, Standard
- Custom: Complex, Harder, Super Effective

Creating a Framework

1. Define the specific problem: The problem needs to be complex and include many different considerations
2. Scope the parameters of the problem: This requires you to prioritize; everything is not of equal importance
3. Test the framework: You may need to run several different scenarios, but this refines your thinking
4. Find the intersect: The “Sweet Spot” of the framework communicates volumes without volumes of words

Emotional Communication

- There's power in Stories
- Stories allow for an emotional connection
- Make the connection
- Don't make them too long, only cover essential information

Story Components

- Protagonist
- Problem
- Resolution

Case: Parable of the Sadhu

Pressure

- Physical Stress → Altitude Sickness
- Once in a Lifetime
- Time Constraint
- No Clear Caretaker for the Sadhu
- Sherpas want to continue/Porters took off
- Plan → Limited Resources
- Clash of Cultures

Characters

Main

- Bowen McCoy
- Stephen
- Sadhu
- Sherpas
- Porters

Side

- Kiwis
- Swiss
- Japanese
- Horse

People

Bowen

- Rich
- MS Investment Banker - 20 Years as Managing Director
- Christian
- Goal/Success Driven - Deal Closer
- 6 Month Sabbatical
 - Sick in Nepal - Meaningful
 - Goal: Self Actualization
 - Become Whole
 - Empathetic
 - Clear Conscience
 - Looking for Purpose/Meaning
 - Didn't Reach
 - Same Person = Same Result
 - "Wherever you go, There you are"
 - Wasn't willing to let go
 - No changed mindset

Sadhu

- Maybe wanted to die
- Survival is not the top priority
- Went the hard route
- Hypothermia?
- What is his intent
- Wanted to be there

Stephen

- Value of People
- Quacker
- Anthropologist
- Moral
- Connection to the People
- Funeral - Highlight of the trip

Learnings

- **First Principle of Leadership: LOVE**
- **Second Principle of Leadership: INTEGRITY**

LOVE + INTEGRITY - Gives the rich/true success

Not Blind to Change - Real Focus

Blind to Change - Self Focus

Guest Speaker

James Singer from Dell

Notes

Dell CTO Tech Overview - Technology Dell ISG CTO

R&D: Short-term financials in the way of long-term R&D → Innovators Dilemma

Background

- USU MS in Electrical Engineering
- Compaq Design Engineer
- Don't be afraid to follow an opportunity

Dell Structure

- ISG: Infrastructure Solutions Group
- CSG: Consumer Solutions Group

Core Data Center

- On-premise
- Decorate the data → Simulated environment
- Model Collapse → Over simulated data
- SDG - Synthetic Data Generation
- Server focused
- Gretel ai

Grand Darpa

- 2004: No Win
- 2005: Stanford Team won and started Waymo

Leadership in Auto Industry

- More than 70% of the 20 auto suppliers use Dell PowerScale powered by OneFS
- More than 70% of the leading ADAS/AD tier-1 suppliers use OneFS for ADAS Development
- More than 50 ADAS/AD organizations use OneFS
- ADAS/AD customers have deployed over 1 exabyte of Dell PowerScale storage powered by OneFS for automotive workloads
- Supply chain Pick to Light

ML Ops

- Training: AI Model Creation and Development
- Inference: AI Model Verification and Validation

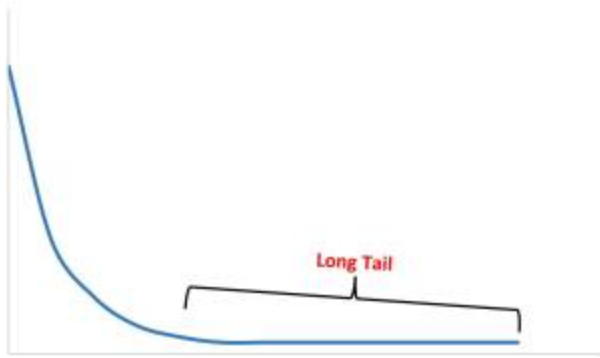
Multi-Modal AI Transformer Models

- VLM: Vision Language Model
- VLA: Vision Language Action

SAE Automation Levels

0. No Automation
1. Driver Assistance
2. Some Automation
3. Conditional Automation
4. High Automation
5. Full Automation

Long Tail Problem



- How things behave
- The area under the tail and the head are the same
- X: Time, Y: # of Errors

Types of AI

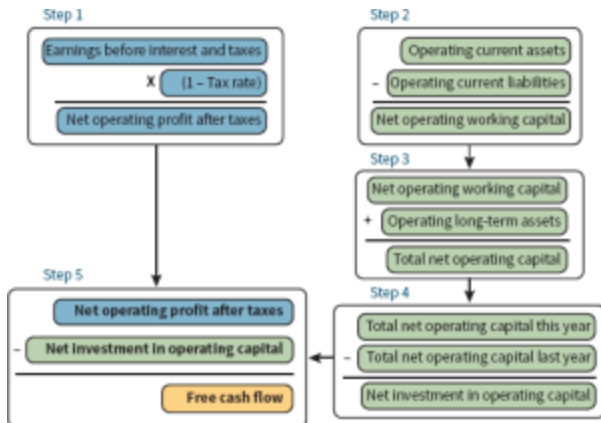
1. Perception AI
2. Generative AI
3. Agentic AI
4. Physical AI
5. Embodied AI

META research: Less data-trained reasoning models

Financial Statements & Cash Flows

Moral Hazard: Lack of incentive to guard against risk where one is protected from its consequences

Free Cash Flow



- EBITDA (Operating Income) - Proxy of Free Cash Flow
- Valuation Multiple \Leftrightarrow EBITDA Multiple
- Start with EBITDA then go to the FCF
- Calculated by Accounting used by Finance
- Net Worth is Common Equity
- Preferred Stock is generally treated as a liability
- The company's value is based on it's FCF

Steps to Calculate the FCF

$$FCF = EBIT(1 - T) + Depreciation - \Delta NWC - Capex$$

1. Net Operating Profit After Tax if it had no debt: $NOPAT = EBIT * (1 - Tax Rate)$
2. Net Working Current Assets: $NOWC = Operating Current Assets - Operating Current Liabilities$
3. Total Net Operating Capital: $TNOC_{This Year} = NOWC + Operating Long - term Assets$
4. Net Investment in Operating Capital: $NIOC = TNOC_{This Year} - TNOC_{Last Year}$
5. Free Cash Flow: $FCF = NOPAT - NIOC$

Return on Invested Capital (ROIC)

- $ROIC = NOPAT / Invest Capital$
- Assesses a company's efficiency in allocating capital to profitable investments
- Gives a sense of how well a company is using its capital to generate profits
- Comparing a company's ROIC with the its WACC whether invested capital is being used effectively
- $ROIC > WACC$ means you are beating the market

Banking System

- Fannie Mac & Freddie Mac
- Bundle of securities value \rightarrow Net Asset Value
- Firms used to analyze the securities: Moodys, S&P, and Fitch

Financial Statement Analysis

- Financial analysis gives you a leg up on the market
- Ratios are used to compare against other firms in the industry
- One problem is there might not be a comparable firm to compare against
 - Common Size: Compare yourself to yourself

Ratios

Profitability

- *Operating Margin = EBIT/Sales*
 - *Profit Margin = Net Income/Sales*
 - *ROA = Net Income/Assets*
 - *ROE = Net Income/Equity*
 - *BEP = EBIT/Assets*
- Effects of Debt
- ROA Lowered by Debt
 - ROE Increased by Debt

Asset Management

- *Inventory Turnover = COGS/Inventories*
- *DSO = Receivables/Average Sales/Days = Receivables/Annual Sales/365*
- *Fixed Asset Turnover = Sales/Net Fixed Assets*
- *Total Asset Turnover = Sales/Assets*

Liquidity

- *Current = Current Assets/Current Liabilities*
- *Quick = (Current Assets - Inv)/Current Liabilities*

Debt Management

- *DebtRatio = Debt/Assets*
- *Debt to Equity = Debt/Equity*
- *Equity Multiplier = Assets/Equity*
- *TIE = EBIT/Interest*
- *EBITDA Coverage = (EBIT + Depr&Amor + Lease)/(Interest + Principal + Lease)*

Market Value

- *Price/Earnings(PE) = Price/Earnings*
- *Earnings Yield = Earnings/Price*
- *Market to Book = Market/Book*

Industry Specific

- Hotels: $Occupancy = Occupied\ Rooms / Total\ Rooms$
- Retail: $Sales / Square\ Foot = Sales / Square\ Foot\ of\ Selling\ Space$
- Manufacturing: $CM = (Sales / Unit - Variable\ Cost / Unit) / Sales\ Unit$
- Hospital: $Nursing\ Hours / Patient\ Hours = Nursing\ Hours\ Worked / Total\ Number\ of\ Patients$

Operating Cycle

Net Operating Cycle or Cash Conversion Cycle

- Purchase of Inventory → Sales of Inventory → Collect Receivables
 - Collection Cycle: Days of Inventory on Hand → Days of Sales Outstanding
 - Cash Conversion Cycle: Day of Payables → Cash Cycle



Time Value of Money & Bonds

Key Features of a Bond

- Par Value
- Coupon Interest Rate
- Maturity Date
- Issue Date
- Default Risk

Effect of Rate on Value

- Inflation goes up → Value goes down
- Inflation goes down → Value goes up
- Inflation stays constant → Value stays constant

Provisions

- Call Provisions: A clause in a bond's contract that allows the issuer to redeem the bond before its maturity date
- Sinking Fund Provisions: A requirement in a bond's contract that forces the issuer to set aside money periodically in a special account

Yields

- Yield to Maturity (YTM): Rate if you hold it to maturity
- Yield to Call (YTC): Rate if the bond is called
- Current Yield:
 $\text{Annual Coupon} / \text{Current Price}$
- Capital Gains Yield: $YTM - \text{Current Yield}$

Semiannual Bonds -- Valuation and Yield

- Multiply years by 2 to get periods: $2N$
- Divide nominal rate by 2 to get periodic rate: $r_d/2$
- Divide annual INT by 2 to get PMT: $INT/2$

Interest Rates & Premiums

- Bond Spread: The difference between a bond's yield and the yield on some other security of the same maturity;
 $\text{Spread} = \text{DRP} + \text{LP}$
- Reinvestment Rate Risk: The risk that cash flows will have to be reinvested in the future at lower rates, reducing income
- Maturity Risk Premium: Yields on longer-term bonds are usually greater than on shorter-term bonds, so the MRP is more affected by interest rate risk than by reinvestment rate risk
 - Long-term bonds: High interest rate risk, low reinvestment rate risk
 - Short-term bonds: Low interest rate risk, high reinvestment rate risk

Market Interest Rate $r_d = r^* + IP + MRP + DRP + LP$

- r_d : Required rate of return on a debt security
- r^* : Risk Free Rate
- IP : Inflation Premium
- MRP : Maturity Risk Premium
- DRP : Default Risk Premium
- LP : Liquidity Premium

Liquidity Priority

1. Past due property taxes
2. Secured creditors from sales of secured assets.
3. Trustee's costs
4. Expenses incurred after bankruptcy filing
5. Wages and unpaid benefit contributions, subject to limits
6. Unsecured customer deposits, subject to limits
7. Taxes
8. Unfunded pension liabilities
9. Unsecured creditors
10. Preferred stock
11. Common stock

Bond Rating Factors

- Provisions in the bond contract
- Secured vs unsecured debt
- Senior versus subordinated debt
- Guarantee provisions
- Sinking fund provisions
- Debt maturity
- Earnings stability
- Regulatory environment
- Potential product liability
- Accounting Policies

Yield Curve

- Term Structure of Interest Rates: The relationship between interest rates (or yields) and maturities
- Inverted means Recession is coming

Risk, Return & WACC

Market Efficiency

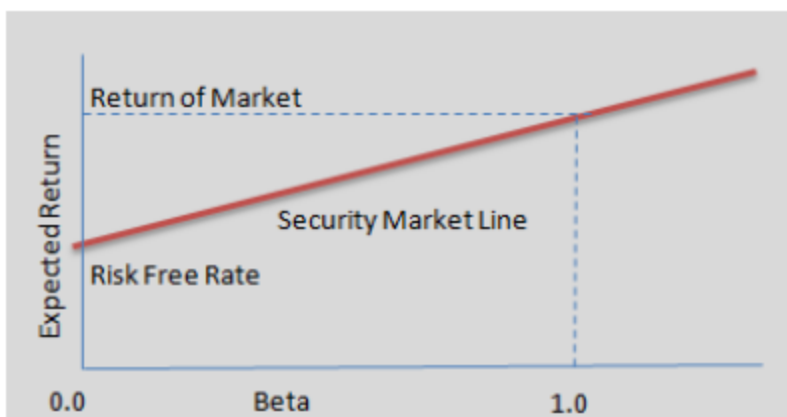


- Weak: Past Information
- Semi:
 - Past Data
 - Today's Public Knowledge
- Strong:
 - Future
 - Political Insight
 - Tariffs
 - Executive Orders

Currency

- In the 60s, 1oz of Gold = \$21
- Later based on supply and demand: \$1 pegged to x amount of ¥, €, £, etc.
- Balance of Payments - Works well if economies play by the rules
 - Trade Balance
 - Cap Account
 - Reconciliation
- War resets the debt with debt forgiveness

Risk & Return



- Risk: Measure being away from the expected return
 - The increase in the deviation in the stock return is the higher the risk
 - Measure how many Std Deviations the stock is from the expected return (S&P)
- Beta: Stock's risk compared to the market
 - Typically compared against the S&P 500
 - $\beta = correlation_a * (std\ dev_a / std\ dev_m)$
- CAPM: Capital Asset Pricing Model - Req Return
 - $R_{fr} + beta(R_{Market} - R_{fr})$
 - $R_{fr} + beta * RP_{Market}$

WACC

- Weighted Average Cost of Capital
- Cost of money to operate the firm
- Opportunity Cost
- Returns have to be higher than the WACC
- Forward-looking
 - Based on the company plans
 - For project planning

Capital Structure: Capital used to fund the Firm

- Debt
- Pref
- Equity

WACC Components

$$Weight_{debt} * Cost_{debt} + Weight_{equity} * Cost_{equity} + Weight_{ps} * Cost_{ps}$$

Cost of Debt (r_d or r_{debt})

$$Interest Rate * (1 - Tax)$$

- Method 1: Ask an investment banker what the coupon rate would be on new debt
- Method 2: Find the bond rating for the company and use the yield on other bonds with a similar rating
- Method 3: Find the yield on the company's debt, if it has any

Cost of Equity (r_s or r_{equity})

- CAPM: $r_{RF} + (r_M - r_{RF})b = r_{RF} + (RP_M)b$.
- Dividend Growth: $D_1/P_0 + g$
- Bond-Yield-Plus-Judgmental-Risk Premium:
 $r_d + RP_{Bond}$

Methods to Raise Equity

- Directly: Issue new shares of stock
- Indirectly: Retain earnings

Cost of Pref (r_{ps} or r_{pref})

$$D_{ps}/(P_{ps}(1 - F))$$

- The cost of preferred stock is simply the preferred dividend divided by the price the company will receive if it issues new preferred stock.
- No tax adjustment is necessary, as preferred dividends are not tax deductible.
- Flotation (F) costs for preferred are significant, so they are reflected. Use net price.
 - Expenses incurred when issuing new securities (like stocks or bonds) to raise capital, including fees for underwriting, legal counsel, and registration with regulatory bodies

Corporate & Stock Valuation

Going Concern: Accounting term for a business that is assumed will meet its financial obligations when they become due

Responsibility

Owners, Directors, and Managers

- Represents ownership
- Ownership implies control
- Stockholders elect Directors
- Directors hire Managers
- Maximize Stock Price (may not totally agree)

Back-of-the-envelope estimation

- $NOPAT/WACC$
- $EBIT/WACC$

DCF

- Assumptions
 - Going Concern
 - WACC
 - Growth
 - Constant Growth at Horizon
- Estimation WACC: 11%
- Hope for growth
 - Base on the plans for the future
 - Use growth models
 - What's your forecast?

Constant Growth

1. Find the value of the operations: $V_{Op} = FCF * (1 + G)/(WACC - G)$
2. Compute the total value of the company: Add short-term investments
3. Intrinsic Value of the Firm: Subtract debt and preferred stock
4. Value Per Share: Divide the equity by the number of shares

Non-Constant Growth

1. Find PV of prehorizon nonconstant cash flows (NPV of FCFs w/ rate being WACC)
2. Calculate the Horizon Value of the constant cash flows
 - Horizon Value: $HV = FCF * (1 + G)/(WACC - G)$
 - Perpetuity: $PV = PMT/Rate$
 - Rate: $WACC - Growth$
3. Discount the Horizon Value to today
 - $HV/(1 + WACC)^n$
 - Do a PV using the WACC and Horizon Value
 - FV: Horizon Value
 - NPER: Years to horizon
 - Rate: WACC
4. PV of the Operations (Enterprise Value of DCF): $PV_{Op} = Nonconstant + Constant$
5. Compute the total value of the company: Add short-term investments
6. Intrinsic Value of the Firm: Subtract debt and preferred stock
7. Value Per Share: Divide the equity by the number of shares

Dividend Growth

$$P_0 = D_1 / (r_s - g) = D_0(1 + g) / (r_s - g)$$

1. Calculate the Required Rate of Return
 - CAPM: $r_s = r_{RF} + (r_M - r_{RF})b = r_{RF} + (RP_M)b$.
 - Dividend Growth: $r_s = D_1 / P_0 + g$
 - Bond-Yield-Plus-Judgmental-Risk Premium: $r_s = r_d + RP_{Bond}$
2. Find the Dividend in Year 1: $D_1 = D_0(1 + g)$
3. Apply the Dividend Model using D1

Multiples

Used to compare companies with other companies

1. Entity Value (V)
 - The market value of equity (# shares of stock multiplied by the price per share)
 - Plus the value of debt
2. Pick a measure: Using EBITDA, Sales, or ratios like PE
3. Calculate the average entity ratio for a sample of comparable firms
 - V/EBITDA
 - V/Sales
4. Find the entity value of the firm in question
 - Multiply the firm's sales by the V/Sales multiple
 - Multiply the firm's # of customers by the V/Customers ratio
5. The result is the firm's total value
6. Subtract the firm's debt to get the total value of its equity
7. Divide by the number of shares to calculate the price per share

Valuation Case - Mercury Footwear

What are the levers?

Firm Value

1. Free Cash Flow Projections: $FCF = EBIT(1 - T) + Depreciation - \Delta NWC - Capital Expenditures$
2. Calculate the Cost of Capital (WACC): $Weight_{equity} * Cost_{equity} + Weight_{debt} * Cost_{debt} * (1 - T)$
3. Complete Valuation
 - a. Estimate Growth Rate: Average Revenue Rates or $ROIC * Reinvestment Rate$
 - b. PV of Prehorizon Value
 - c. PV of Terminal

Synergies

- Combined benefits, like cost savings or revenue growth, that arise when two companies merge or acquire each other, exceeding the sum of their individual parts
- Never believe Revenue Synergies
- Trust Cost Synergies

Private Valuation

Overview

- 99% of Business are private
- Contribute 75% of net new job growth
- Employ 1/2 of non-govt workforce
- Usually don't have management succession
- Lack of corporate governance
- Have an informal management structure
- Less-skilled, lower-level management
- Value ownership more than growth

Why do Private Owners need a Valuation

- Part of a merger or an acquisition
- Settling an estate
- Owners want to sell a position
- Employees want to exercise stock options
- Shareholder disputes
- Court cases
- Divorce
- Payment of gift or estate taxes

Challenges of Valuing Privately Held Firms

- Lack of externally generated information
- Lack of adequate documentation of key intangible assets such as software, chemical formulae, recipes, etc.
- Lack of internal controls and rigorous reporting systems
- Firm-specific problems
 - Narrow product offering
 - Lack of management depth
 - Lack of leverage with customers and vendors
 - Limited ability to finance future growth
- Common forms of manipulating reported income
- Revenue may be understated, and expenses overstated to minimize tax liabilities
- The opposite may be true if the firm is for sale

Valuation Process

1. Adjust (Recast) the Financial Statements
 - True profitability and cash flow in the current period
 - All projections into the future will begin with the baseline of the current period
2. Determine the appropriate valuation methodology
 - Back of the Envelope Estimation
 - Fair-market value vs. Fair-value
 - DCF
 - Relative Value or Comps
 - Replacement Cost
 - Asset Oriented
3. Apply the correct discount rate
4. Adjust the value for premiums and add synergies (Revenue and Cost)
 - Control Premium
 - Liquidity Premium
 - Minority Premium

SPAC

- Special Purpose Acquisition Company - Public Shell
- Custody Agreement (Earned Risk-Free Rate)
- Merged with a Private to make a Public Company

Funds

- Closed Ended: Locked to 1 or 2 times a year to modify the fund
- Open Ended: Fund modified anytime whenever

Public & Private Financing

Good Regulation is Good Business

M&A

Stock as a Currency (doesn't work during volatility)

- Taxes
- Incentives
- Cash Flow

IPO

Steps

1. Select an investment banker (Reputation, Experience in industry)
2. File registration document (S-1) with SEC
3. Choose price range for preliminary (or “red herring”) prospectus
4. Go on a roadshow
5. Set the final offer price in final prospectus

Ready

- Systems Reporting (Internal Controls - SOX)
- Governance
- Growth

Exchange Choosing

- NASDAQ: Innovator
- NYSE: Sophisticated

Why Go Public

- Forced Public with over 2000 private placement
- Liquidity increased
- Shareholder diversity

Why Not Go Public

- Regulations
- Operating data must be disclosed
- Managing investor relations is time-consuming

How an IPO is Priced

1. Determine gross proceeds and post-IPO equity value
 - $Net\ Proceeds = Capital\ Required / (1 - F)$
 - $Postmoney\ Valuation = Premoney + Capital\ Required$
2. Determine the ownership % new investors require: $\% Required = Net\ Proceeds / Post\ IPO\ Valuation$
3. Determine the number of new shares required:
 $New\ Shares\ Required = [(\% to\ new)(Existing)] / (1 - \% to\ new)$
4. Set offer price: $Offer\ Price = Net\ Proceeds / New\ Shares\ Required$