Comparable Valuation Analysis

Course Instructor

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About Jeff...

Prior to joining CFI, for over a decade Jeff taught financial modeling and valuation to thousands of students all over the world. Before his career in financial education, Jeff covered approximately 50 companies with a combined market cap of $500 billion during his career in equity research. He also worked in corporate development leading M&A modeling and due diligence, and FP&A, as well as working in investment banking and restructuring. Jeff has a B.S. from Texas A&M University and obtained his MBA from the University of Houston. He is a CFA charterholder.

Learning Objectives

Understand relative valuation versus other valuation methodologies.

Recognize the advantages and disadvantages of relative valuation.

Determine how to pick comparable companies and precedent transactions.

Match enterprise value and equity value with appropriate metrics.

Identify debt and debt equivalents as well as cash and other non-operating assets.

Find and enter the applicable data using real-world examples.

Introduction to Comparable Valuation Analysis

Valuation

Valuation is the art and science of **attributing a value** to an investment.

Examples of investments: Company stock, assets, prospective projects, real estate.

Valuation does not equal price. A public company's stock price may not be properly valued by the market, hence why we go through the valuation process.

*"**Price** is what you **pay**, **value** is what you **get**." – Warren Buffet (2008 Berkshire Hathaway shareholder letter)*

Why Value Companies or Assets

Valuation is probably the most crucial aspect of finance and is used in the processes below:

Investment Purposes

Buy, Sell or Hold a stock; Invest in a company project

Corporate Actions

Purchase a company;
Sell a division

Certain Accounting Policies

Acquisition Accounting; Mark-to-Market Accounting

Valuation Techniques

Valuing a Business or Asset

Asset Approach
(FMV of Net Assets)

- Cost to build
- Replacement Cost

Income Approach
(Intrinsic Value)

- Discount Free Cash Flows (DCF)
- Residual Income (Economic Value Added)

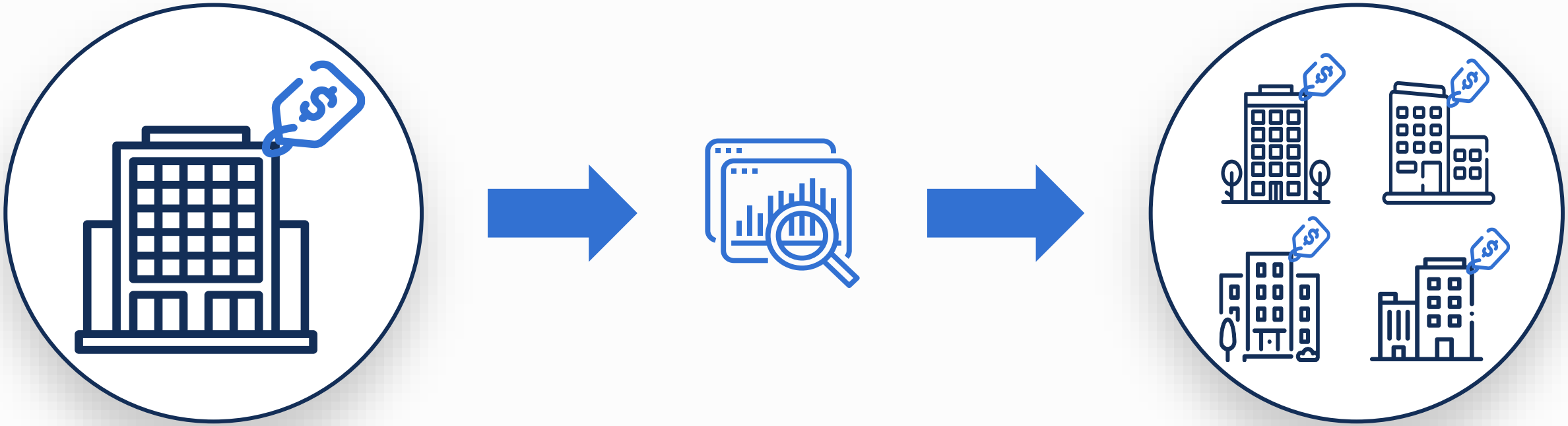
Market Approach
(Relative Value)

- Public Company Comparables
- Precedent Transactions

Market Approach

Why is the market approach also called relative valuation?

The ultimate valuation is based **relative** to other, similar assets.



Types of Relative Valuation

Public Company Comparables

Valuation based on the idea that similar public companies share similar **risk and reward characteristics**, and therefore should trade similarly.

Precedent Transactions

Valuation based on the **acquisition of companies** similar to the target company.

Due to size differences, we scale similar companies by using a ratio or multiple.

The multiple is usually based on a financial metric (e.g. Revenue, EBITDA, Earnings Per Share (EPS)).

Sometimes the multiple is based on a capacity factor (e.g. Oil or Mining Reserves).

Key difference is that precedent transactions usually result in **higher multiples** due to the presence of the 'control premium' in an acquisition.

Advantages and Disadvantages of Relative Valuation

Let's discuss some **advantages and disadvantages** of relative valuation.

Advantages

- Calculating and applying multiples is a relatively **simple and user-friendly** way of valuing a company, as well as communicating that value.
- Avoids the potentially misleading precision of other, more 'precise' valuation methodologies like DCF, so it's **harder to manipulate.**
- **Market data is directly observable.** We can directly observe a public company's market capitalization.

Disadvantages

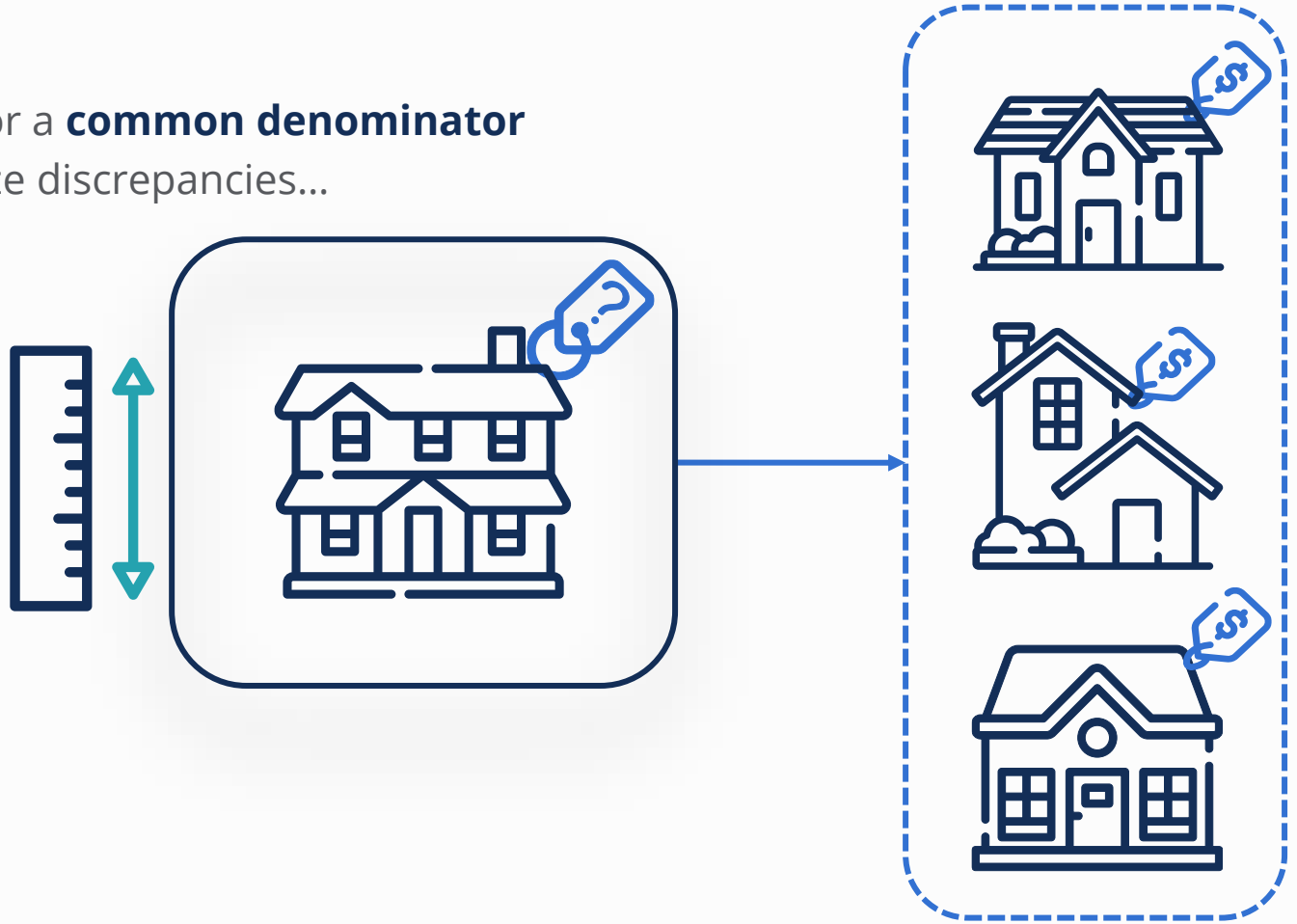
- While simplicity is an advantage, relative valuation can also be **too simplistic.**
- **No two companies, or transactions, are exactly alike** making the valuation more difficult.
- Even if you find good peer companies or transactions, sometimes **information can be hard to find or out-of-date.**

Valuation Example

One of the best and most intuitive ways to **conceptualize relative valuation** is by looking at the value of house sales.

We need to look for a **common denominator** that neutralizes size discrepancies...

$$\frac{\text{Price}}{\text{Sq / ft}}$$



We scale for differences in size.

Price Per Square Foot

Comparable House 1

Sales price: 352,000

Square Feet: 2,500

Comparable House 2

Sales price: 494,000

Square feet: 3,000

Comparable House 3

Sales price: 346,000

Square feet: 2,250

Homeowner's House

Sales price: ??

Square feet: 3,500

$$\frac{\text{Price}}{\text{Sq / ft}} = \frac{352{,}000}{2{,}500} = 140.80 \text{ / Sq Ft}$$

$$= \frac{494{,}000}{3{,}000} = 164.67 \text{ / Sq Ft}$$

$$= \frac{346{,}000}{2{,}250} = 153.78 \text{ / Sq Ft}$$

?

Valuation Example Continued

1. Find the **average price / sq ft** from the comparable houses.

2. Multiply the **average price / sq ft** by the **house's sq ft.**

	Sales Price (USD)	Sq Feet	Price / Sq Ft
Comparable House 1	352,000	2,500	140.80
Comparable House 2	494,000	3,000	164.67
Comparable House 3	346,000	2,250	153.78
AVERAGE			**153.08**

Homeowner's House

Square ft: 3,500

153.08 * 3,500 = 535,785

While this is technically an example of a **precedent transaction valuation,** this basic methodology also works for publicly traded companies.

Putting It All Together

The same methodology **applies to companies.**

In this example, **we scale different companies' enterprise value by EBITDA.**

From there, we **calculate the average, median, maximum and minimum enterprise value to EBITDA multiples.**

We then **apply these multiples to the target company's EBITDA** to calculate the target's enterprise value.

Comparable Trading Analysis

All figures in USD millions unless stated

Peer Companies	Enterprise Value	EBITDA LTM [1]	EV / EBITDA LTM [1]
Company 1	10,142	586	17.3x
Company 2	10,846	569	19.1x
Company 3	11,584	530	21.9x
Company 4	12,787	542	23.6x
Company 5	12,328	525	23.5x
Company 6	10,500	516	20.3x
Target Company Valuation [2]			
Average	10,178	486	20.9x
Median	10,256	486	21.1x
Maximum	11,466	486	23.6x
Minimum	8,411	486	17.3x

LTM means Last Twelve Months. (1)

Target Company Valuation based on LTM Multiple. (2)

Screening for Comps

Screening for Comparables

In order to learn about the target company, **read as much about it as possible,** including sector-specific material.

Pay special attention to the conference call Q&A as that gives you a better idea of what concerns or opportunities research analysts focus on.

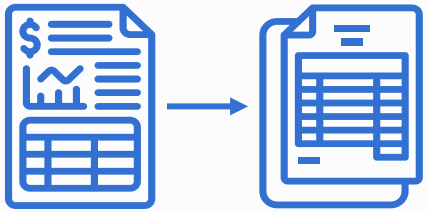
Steps in Performing a Comparable Trading Analysis

Once we understand the target's business, we can go through a **comparable company analysis,** which consists of **3 steps.**

Select Select appropriate peer companies.

Locate Locate and enter the relevant information into a comps model.

Value Value the 'target' company using the selected multiples.



This is the most important part of comps modeling.

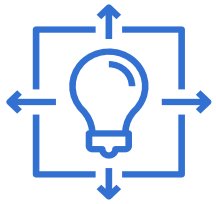
We will cover this in later lessons!

Selecting Appropriate Peer Companies

Realistically, this is the **most important** part of comps modeling and where you should spend the **bulk of your time.**

Similar Risks Factors

You want to identify firms with similar risk factors as the 'target' firm.



No Peers?

If there are no peers, you can look outside of the target firm's sector.

Closest Comps

The valuation should be determined based on the closest comps.

Business and Finance Characteristics

There are two categories of **key characteristics.**

Business Characteristics

- Industry/Sector (Sub-sector)
- Geography
- Products/Services
- Customers
- Distribution network

Finance Characteristics

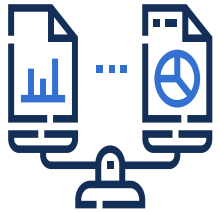
- Size
- Growth
- Margins
- Seasonality/Cyclicality
- Leverage/Credit rating

Why Perform a Precedent Transaction Analysis

Let's talk about the other relative valuation technique: **precedent transactions.**

Why perform a precedent transactions analysis?

To determine a **hypothetical sales price** for a company.



To compare against other **valuation methodologies** (e.g. Trading Comps, Discounted Cash Flow (DCF))

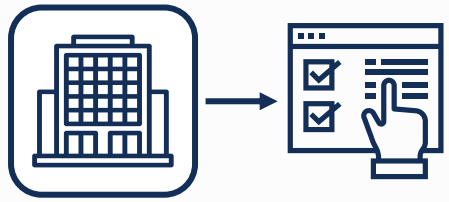
Selecting Appropriate Transactions

Just like trading comps analysis, there are **three main steps** in performing a precedent transactions analysis:

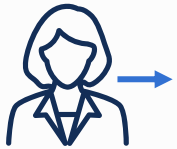
Select Select appropriate transactions.

Locate Locate and enter the relevant information into a comps model.

Value Value the 'target' company using the selected multiples.

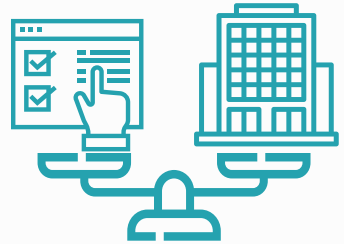


Most important part of Comps modeling and time consuming.



Financial or Strategic, Offer/Transaction Value, Consensus estimates, Control Premium, Synergies, etc

Some financial details are typically only provided when material.



Recent Deals and Fairness Opinions

The process is essentially the same as trading comparables as we **focus on the same business and financial characteristics.**

Recent Deals

Try not to use older transactions **as industries and market conditions change**. However, older deals may be necessary in order to create a more robust valuation.

Fairness Opinions

A good source for recent transactions is by looking at fairness opinions. These are documents put together by investment **bankers highlighting recent transactions to advise shareholders.**

Business and Finance Characteristics

In a transaction, the terminology changes.

Offer Value

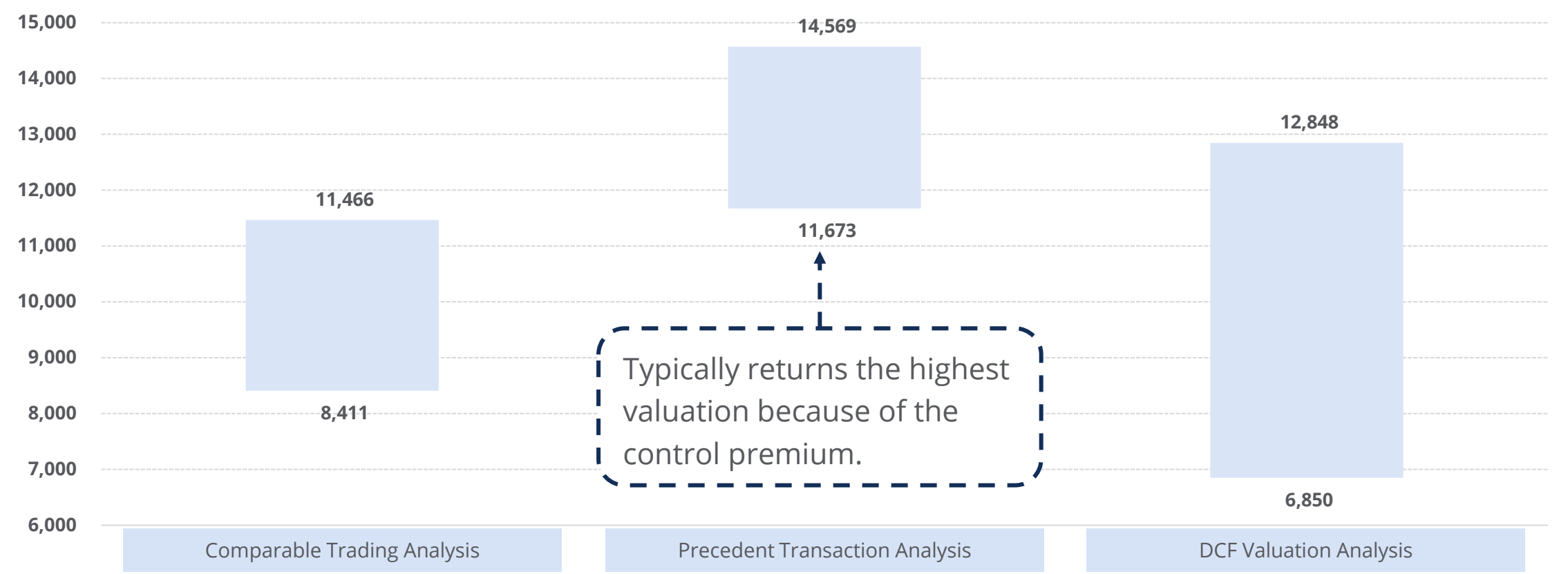
When we refer to offer value, we are referring to the **purchase of the target company's equity.**

Transaction Value

When we refer to transaction value, we are referring to the **offer value plus net debt** (so roughly analogous to enterprise value).

Football Field Chart

Value cannot be directly observed. That's why we **use multiple different valuation approaches** to 'triangulate' what we think the value of a company should be.



Comparable Trading and Precedent Transaction Analysis both use LTM EBITDA.

Enterprise Value vs. Equity Value

Balance Sheet Equation

Let's look at the balance sheet equation: Assets equals Liabilities plus Equity.

Assets = **Liabilities** + **Equity**

Operating Assets
(e.g. Inventory, PP&E)

Non-Operating Assets
(e.g. Cash, Securities)

Operating Liabilities
(e.g. Accounts Payable, Deferred Revenue)

Financial Liabilities
(e.g. Interest-Bearing Liabilities, Debt)

Equity
(e.g. Common Shareholder Equity)

What is Enterprise Value?

Enterprise value is the total value of a company's operations.

Operating Assets + Non-Operating Assets = Operating Liabilities + Financial Liabilities + Shareholder Equity

Operating Assets − Operating Liabilities = Financial Liabilities − Non-Operating Assets + Shareholder Equity

Enterprise Value = **Debt** − **Cash** + **Market Cap/Equity**

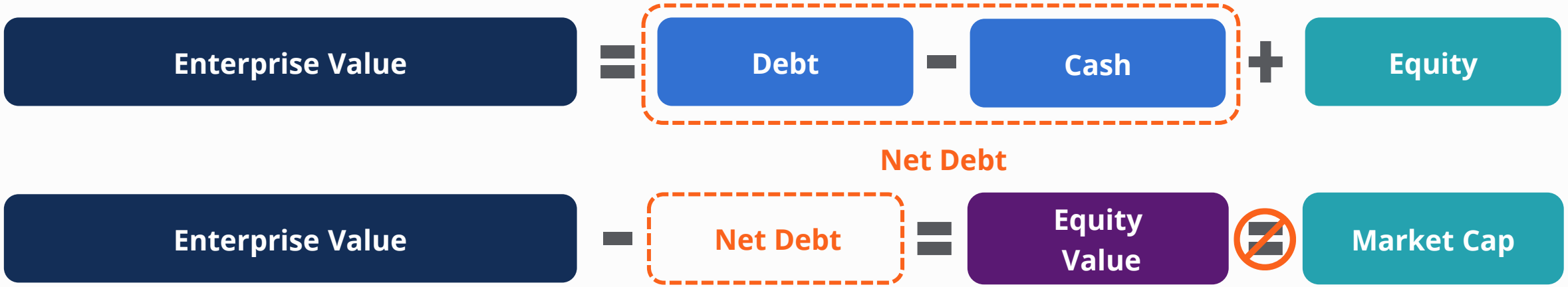
We generally **do not use balance sheet numbers** when calculating enterprise value; however, we can use the balance sheet equation to show that Enterprise Value is the value of a company's operations.

Enterprise Value and Equity Value

Next, the other measure of a company's **size** is its equity value or market cap.

While enterprise value is the **value of a company's operations,** equity value is the **residual value of the business, after all claims on that business have been paid.**

We can directly calculate market cap by taking the public company's share price times the number of shares outstanding.



If there is a **significant difference** between the equity value and market cap, then that could result in a profitable trading strategy.

Enterprise Value: Debt and Debt Equivalents

List of Debt and Debt Equivalents

Debt

Long-term Debt

Current Portion of Long-term Debt

Revolving Line of Credit

Commercial Paper

Debt Equivalents

Leases

Noncontrolling Interest

Preferred Stock

Traditional Debt

Debt is **interest-bearing** and generally has a **higher 'claim' on a company's business** than any other source of funding.

This is important because **debt gets paid first** before other funding sources.

Debt may have **different names** and come in **different structures:**

Long-term Debt
(including Current Portion of Long-term Debt)

Revolving Line of Credit
(Revolver)

Commercial Paper
(Unsecured money-market instrument sold at a discount to face value; usually repaid within a year)

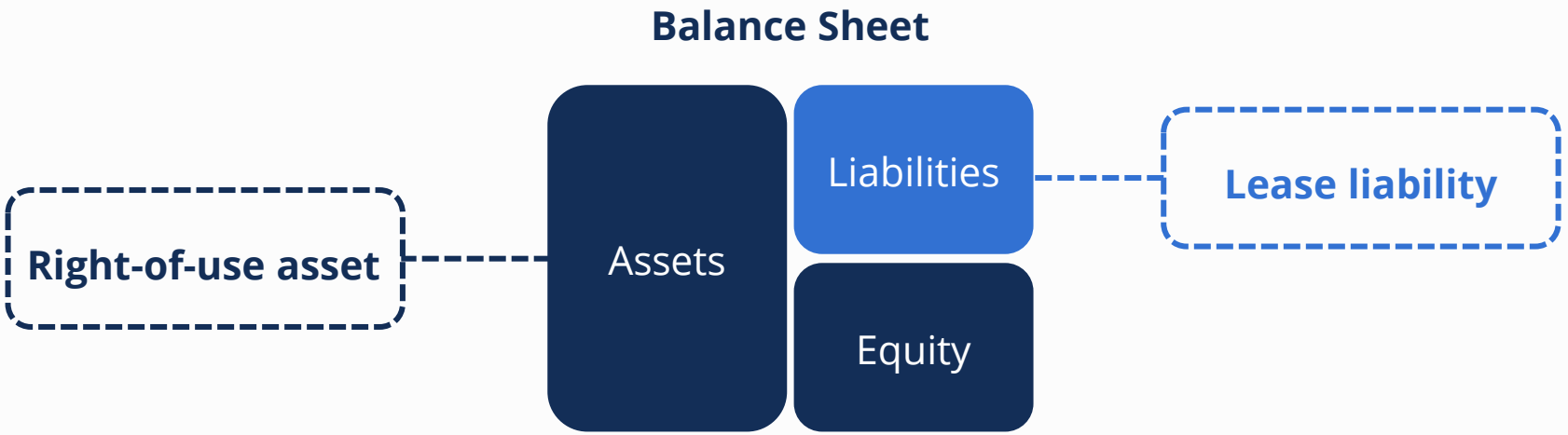
Notes, Bonds, Loans, Borrowings

Convertible debt may even be convertible into common equity.

Finance and Operating Leases

Debt Equivalents = Leases

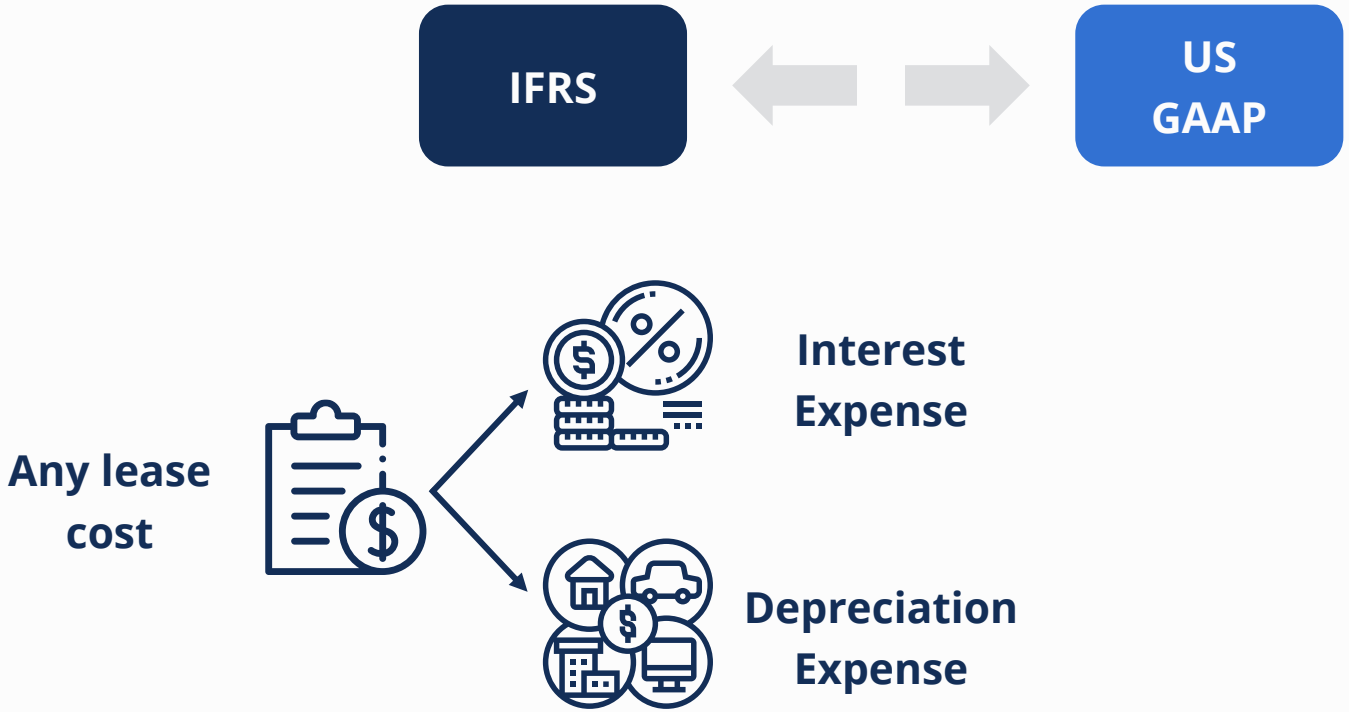
Nearly all leases, whether classified as a finance or operating lease, are **recognized on the balance sheet.**



One way to think of a lease is a company purchasing a piece of property or equipment by issuing debt. **Leases have an implicit interest rate** embedded in the lease terms so **we should consider leasing a form of collateralized borrowing.**

Finance and Operating Leases

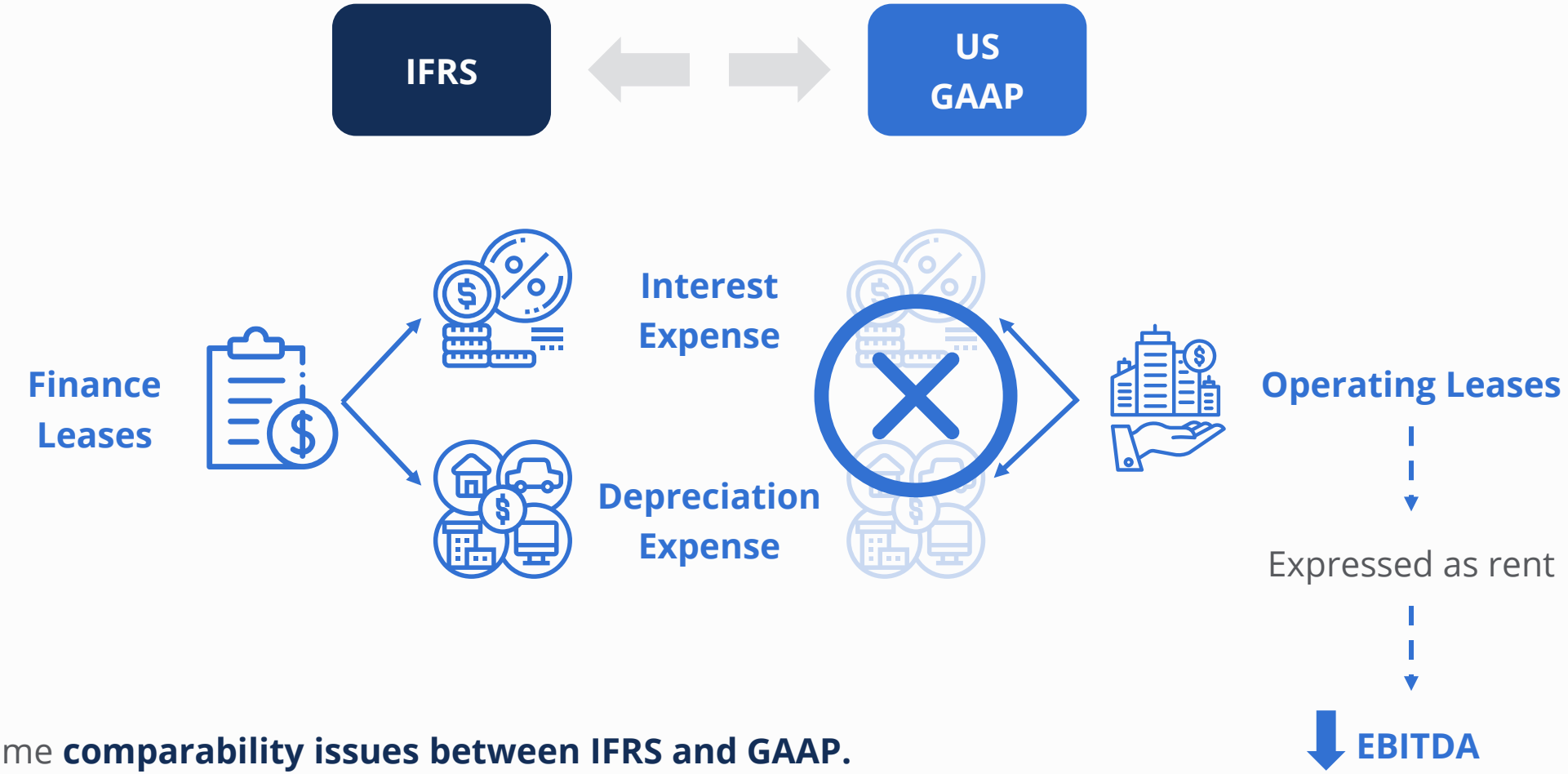
There is a **key difference** between how **US GAAP accounts for operating leases versus IFRS:**



A lease is essentially a collateralized borrowing so this treatment should make sense.

Finance and Operating Leases

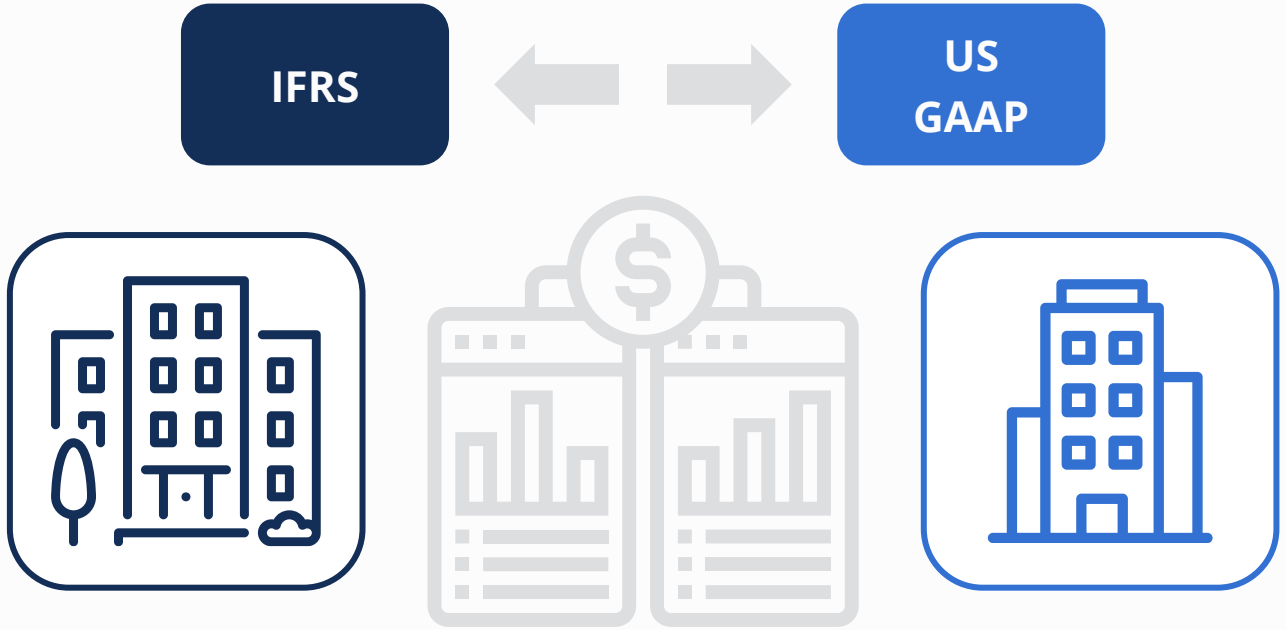
There is a **key difference** between how **US GAAP accounts for operating leases versus IFRS:**



This presents some **comparability issues between IFRS and GAAP.**

Finance and Operating Leases

If we want to compare an IFRS company with an US GAAP company, we need to **add back the US GAAP company's rent expense.**



Results in numerator and denominator consistency since leases will be a debt equivalent in the numerator of enterprise value.

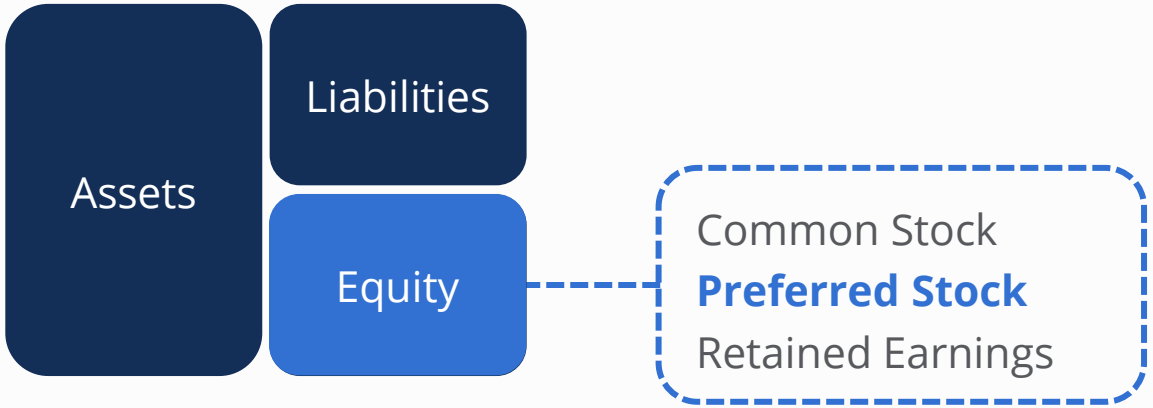
+ Operating Leases Expensed as Rent = EBITDA + R

Preferred Stock

Preferred stock is essentially a **hybrid debt and equity security.**

It has a higher claim than common shareholders on the company, and preference on dividends.

IFRF & US GAAP
Balance Sheet



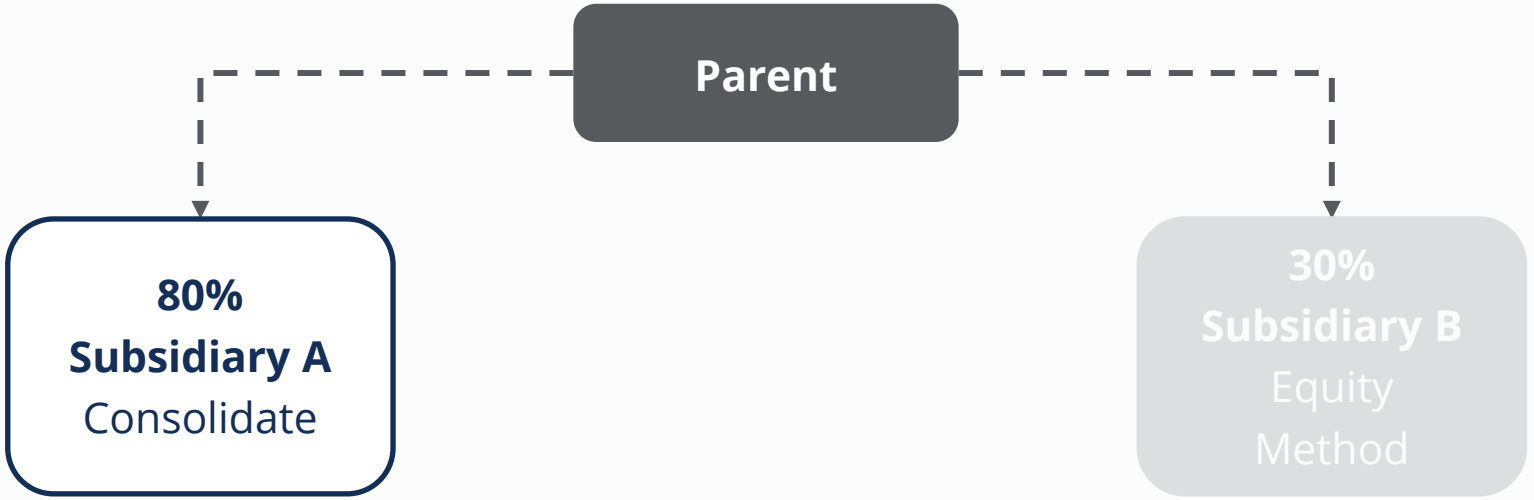
Valuation Purposes

Preferred stock should still be considered a **debt equivalent for valuation purposes** and included in net debt.

(Net debt = Debt – Cash)

Noncontrolling Interest (NCI)

Although noncontrolling interest (NCI) typically shows up in shareholder's equity on a balance sheet, it is **not considered common equity** and should be included in net debt as a debt equivalent.



$$\frac{\text{EV}}{\text{EBITDA}} = \frac{\text{80\% of Subsidiary A reflected}}{\text{100\% of Subsidiary A reflected}}$$

We need to think of **how much of the subsidiary is reflected** in the numerator and denominator of the parent.

Nuances of Debt and Debt Equivalents

We want to use **market values** for all debt and debt equivalents, but that is not always the case.

Market Values

Book Values

Sometimes, we favor the book value since that is the **actual contractual amount** the company must pay to settle the debt.

Usually, we do not have **enough information to estimate the market value** of something like noncontrolling interest (NCI), so we use book value instead.

An alternative would be to apply a **price-to-book multiple to NCI to proxy the market value,** but this would require doing a separate comps analysis with less information.

Enterprise Value: Cash and Non-operating Assets

List of Cash and Non-Operating Assets

Cash & Cash Equivalents

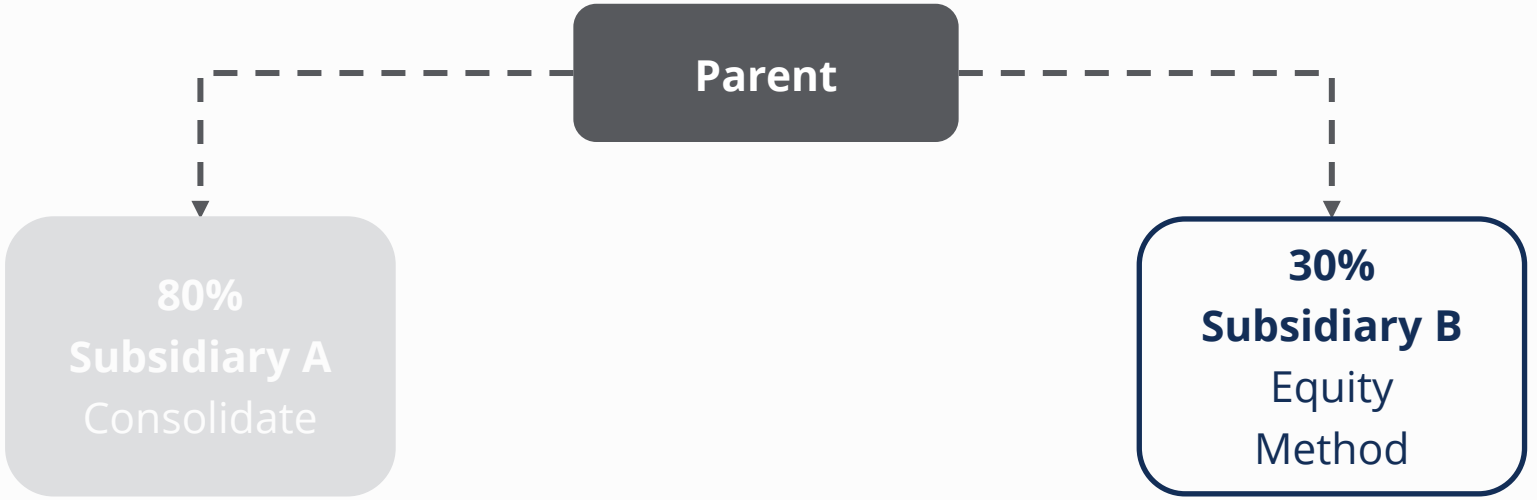
Marketable or Liquid Assets

Assets Held for Sale

Investments in Unconsolidated Affiliates

Investments in Unconsolidated Affiliates

An investment in an unconsolidated affiliate occurs when a company has **significant influence over another company** (affiliate) but **does not control it** (between 20%-50% ownership).



The company is **entitled to a proportionate share of the affiliate's income,** usually below EBIT or operating income.

$$\frac{\text{EV}}{\text{EBITDA}} = \frac{\text{30\% of Subsidiary A reflected}}{\text{0\% of Subsidiary A reflected}}$$

Income Statement and Last Twelve Months (LTM)

Income Statement Data

Now that we have determined the company's size (enterprise value and equity value), we need to **work out the appropriate financial metrics to calculate multiples.**

We will focus on **Enterprise Value to EBITDA and Share Price to Earnings per Share (PE ratio).**

We can easily calculate the **enterprise value today,** as well as obtain the **current share price.**

However, we will need to **calculate profitability metrics on a historic or forward basis** (using analyst estimates).

We will start by **calculating historical profitability for the last twelve months (LTM).**

Last Twelve Months (LTM)

There are a couple of different ways we can calculate an LTM.

Let's adjust reported data to the last twelve months assuming the date is **July 12, 2023.**

LTM EBITDA:

18,283 + 8,591 – 8,471 = $18,403

Normalization and Analyst Estimates

Normalization

After entering the income statement data and calculating LTM metrics, we need to normalize these numbers.

What do we mean by **normalizing?**

In effect, we want to **determine what we think the core, ongoing profitability of the company** should be, excluding these one-off items.

Typical Non-Recurring/Normalization Adjustments

Restructuring

Foreign Exchange Adjustments

Gain/Loss on Sale of Assets

Stock-based Compensation

Acquisition Integration Expenses

Asset/Goodwill Impairments

Impairment Reversal (IFRS only)

Amortization of Intangible Assets

Litigation Gains/Expense

Forward Estimates

When research analysts make projections (whether it's EBITDA or earnings per share or another metric), **they use normalized numbers.**

So, we build the comps template to have research estimates in the same area as the normalized numbers.

That way we are **comparing like-for-like.**

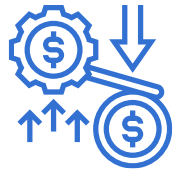
Unlevered vs. Levered Metrics

Before we move on, we need to define the appropriate financial metrics to be used for multiples. We can categorize an income statement into **2 different types of metrics.**

Unlevered

Any financial metric **before** interest expense.

For example, **earnings before interest and taxes**, or **EBIT**.



Levered

Any financial metric **after** interest expense.

For example, **net income**.

Normalization

Income Statement

Revenues
Less: Cost of sales
= Gross profit
Less: Selling, general & administrative
= Earnings before interest, taxes, depreciation & amortization (EBITDA)
Less: Depreciation & amortization
= Earnings before interest, taxes (EBIT)

Less: Interest expense
= Earnings before taxes (EBT)
Less: Income taxes
= Net income
÷ Shares outstanding
= Earnings per share (EPS)

Unlevered Metrics (Enterprise Value Multiples)

Levered Metrics (Equity Value Multiples)

Finding Normalization Adjustments and Entering Analyst Estimates

Before we get back into Excel, we need to **find the company's suggested normalizations.**

In the case of our comps, we can **find the normalization adjustments on the income statement**, but this will not always be the case.

After normalizing several metrics, we will then **enter the analyst estimates** we obtained from Capital IQ and calculate **enterprise value and equity value multiples.**

Let's get started!

Fully Diluted Shares Outstanding

Fully Diluted Shares Outstanding (FDSO)

We need to properly calculate a company's true market cap. Therefore, we need to discuss the number of shares a company has or may have.

Basic Shares Outstanding

Fully Diluted Shares Outstanding

- Analysts prefer fully diluted shares outstanding as this **captures all potential shares.**
- The fully diluted share count is the basic share count **plus any potentially dilutive securities.**
- **Potentially dilutive shares** come from:
  - Employee stock options
  - Warrants
  - Restricted stock or other share awards
  - Convertible debt or convertible preferred stock.

Stock Option Basics

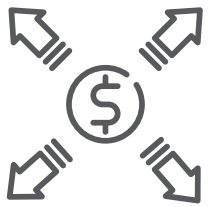
In many companies, **employees are given stock options to help incentivize them.**

These stock options have a **strike price (exercise price)** that the employee pays to receive the number of shares in the options agreement.

An employee would only exercise the option if the **exercise price is less than the company's market price.**

In-the-money options (ITM):
Exercise Price < Current Market Price

$5.00 < $5.50



Out-of-the-money options (OTM):
Exercise Price > Current Market Price

$5.00 > $4.50

Fully Diluted Shares Outstanding (FDSO) – Options and Warrants

When calculating the number of options to include in the fully diluted share count, we typically use a calculation known as the **treasury stock method.**

The treasury stock method assumes that **any proceeds the company receives from the employee will be used to repurchase shares at the current market price.**

Net Impact of Dilution = ITM Options – Shares Repurchased by Company

Technically, **we should also include any unrecognized compensation cost** as proceeds but we don't typically have enough information to do so.

Fully Diluted Shares Outstanding – Restricted Stock

We also use the treasury stock method to calculate the dilution from restricted stock awards and/or restricted stock units.

Net Dilution from Restricted Stock:

Hypothetical Proceeds = Unrecognized compensation costs related to RSAs/RSUs

Given the lack of information, we typically just **add unvested restricted stock or other stock awards directly to the basic share count** to derive the diluted share count.

Trading Comps Summary

Final Steps: Comparable Companies

After completing our first comp, we **link our Summary table to the appropriate metrics.**

We then **repeat the process for all our comparable companies** (use Excel's find and replace to expedite this task).

We then **add in the target company metrics and calculate the implied valuations.**

We will use a **football field chart for the final output.**

Precedent Transaction Nuances

Precedent Transactions: Additional Details Needed

While the process behind selecting precedent transactions vs. public company comps is similar, there are **several additional data points and calculations** we need to consider.

Deal Announcement Date

Deal Status

(e.g., Announced, Pending, Closed, Withdrawn)

Target Share Price

Acquirer Share Price

Merger consideration can come in either **stock, cash or a combination of cash and stock.**

Merger Consideration

All-Cash Offer

All-Stock Offer

Mixed Offer

- The acquirer makes a cash offer for all the target's outstanding shares, assuming the target is a public company.

Total Consideration = Per-Share Amount * Target's Share Count

- If the target is private, the all-cash offer will be a lump-sum amount.

Merger Consideration

All-Cash Offer

All-Stock Offer

Mixed Offer

- If the acquirer and the target company are both public, the acquirer will usually use an ‘exchange ratio’.

Acquirer Shares to be Issued: Number of Target Shares to be Acquired

- While there are different ways to structure an exchange ratio (fixed, floating, collared), we will assume it is a fixed exchange rate.

Exchange Ratio * Acquirer’s Share Price = Target Share Amount

Merger Consideration

All-Cash Offer

All-Stock Offer

Mixed Offer

- The Mixed Offer accounts for both **the cash consideration and the stock consideration.**
- Our analysis will be set up to handle **all 3 structures.**

Premium Paid Analysis

An acquisition premium is a **figure that's the difference between the target's market price and the actual price paid to acquire it.**

- If the target is public, we also want to know **what the premium paid might be.**
- A premium is paid in order to **acquire control of the target.**
- If no premium was offered, selling **shareholders would have no incentive to sell.**
- This premium is **expected by both the acquirer and target.**
- It is a common measure in **mergers, acquisitions and precedent transactions.**

Transaction Timing: 2021 Acquisition of Morrison's PLC

With precedent transactions, **we need to be aware of timelines.**

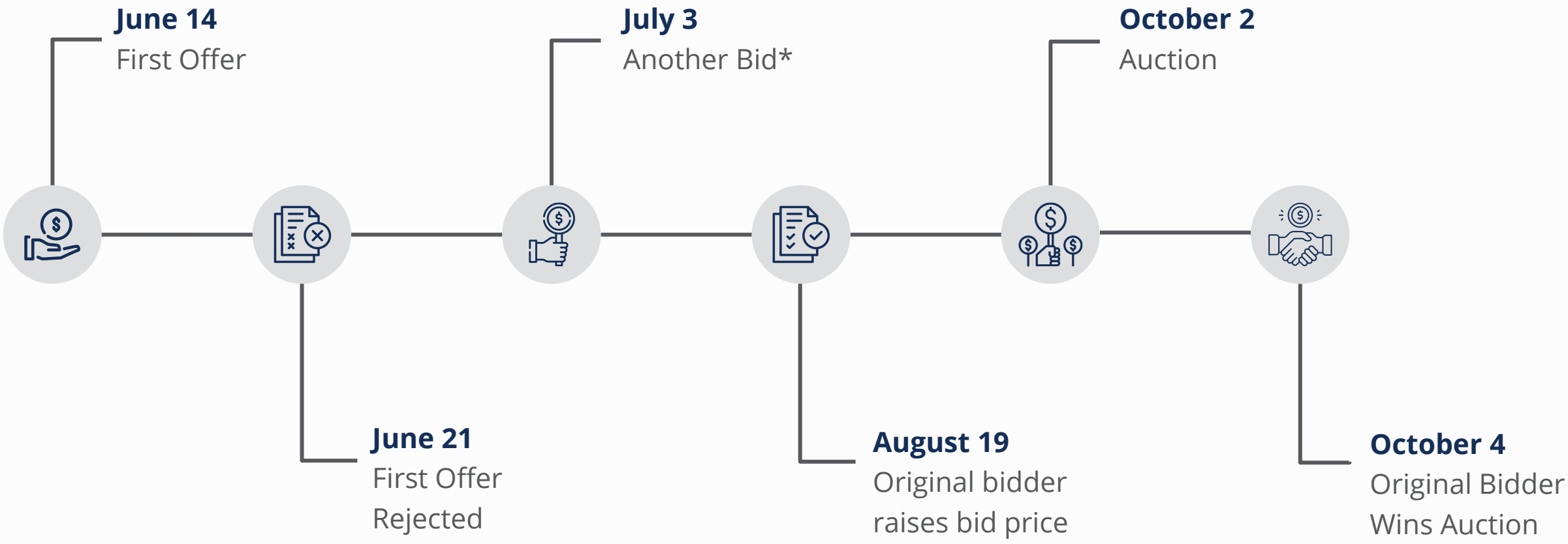
The transaction won't close for some time after the announcement and signing of the merger documents.

An analyst must make a judgment call on what information to use based on timing.

We are going to use the data available when the auction was held when we calculate the offer value and transaction value.

For the premiums paid analysis, we are going to use the dates when the original offer was made and the final, winning offer.

Transaction Timing: 2021 Acquisition of Morrison's PLC



** The other bid price was subsequently raised on August 6.*

Learning Objectives

Understand relative valuation versus other valuation methodologies.

Recognize the advantages and disadvantages of relative valuation.

Determine how to pick comparable companies and precedent transactions.

Match enterprise value and equity value with appropriate metrics.

Identify debt and debt equivalents as well as cash and other non-operating assets.

Find and enter the applicable data using real-world examples.