

Merger & Acquisitions

Mergers:

A merger is the type of agreement where two companies join together to form a new company.

Acquisitions:

The term 'acquisition' is used when the assets and liabilities of a smaller company is purchased by a larger one by paying shares, cash or other assets to the target company's shareholders.

Synergy:

- Synergy represents the estimated cost savings or incremental revenue arising from a merger or acquisition. This means that consolidated companies will be able to produce better value in comparison to the sum of their combined value. Hence, they will be able to benefit from higher levels of success than they would otherwise have.
- Synergy can be expressed in the form of the following formula:
- $V(AB) > V(A) + V(B)$
Where $V(AB)$ stands for the value of the combined companies and $V(A)$ and $V(B)$ for the stand-alone value of company A and B. So the value of synergy is the difference of the value of the combined companies and the

stand-alone value of the two companies:

$$S = V(AB) - (V(A) + V(B))$$

- If a company worth \$100M(V(A)) acquires another smaller-sized company which is worth \$20M(V(B)) – post-combination, the combined company is valued at \$150M(V(AB)), so the synergy value comes out to be:
- $S = V(AB) - (V(A) + V(B)) = \$150 - (\$100 + \$20) = \$30$
- Synergy leads to the increase of value of the both merging firms. Synergy can be roughly divided into two types, operational and financial synergy.

Types of Synergy:

1. Operational Synergy

Economics of scale- the merger increases the size of the company's operation, so it helps in lowering the costs per unit produced. The synergy will be even more if there is higher similarity in the operations of the merging firms.

Example-

Market power- market power synergy generally often occurs in mature markets, when the market is consolidating due to overcapacity.

It generally describes the the ability of a company, as a market participant, to control the price. If a company has higher market power over its other competitors, then the company will have the monopoly in the market, through which it can generate additional profits, can put barriers for potential competition.

Example-

Complementary resources- Here two companies combine different set of resources that are assumed to be mutually supportive. In a broader sense, resources can be, all assets, capabilities, organizational processes, firm attributes, information, knowledge controlled by a firm that enables the firm to conceive of and implement strategies that improve its efficiency and effectiveness.

2. Financial Synergy

Financial synergies are assumed to result from lower cost of capital. This can be achieved by the merger in different ways.

- Due to merger the size increases, asset increases, and thereby a higher debt capacity of the firm, which ultimately gives access to cheaper capital.
- In unrelated mergers, where companies asymmetric business cycle merges, the combined income stream of the firms stabilizes and their variance decreases
- The merging companies can establish an internal capital market, which might be more efficient in allocating capital due to better information.
- Another type of financial synergy which helps the merging firms is tax-related synergy. Tax synergies are not a sustainable source of value and rather a one-time benefit resulting from the merger.

Winner's Curse:

The winner's curse is a tendency for the winning bid in an acquisition to exceed the valuation of the company.

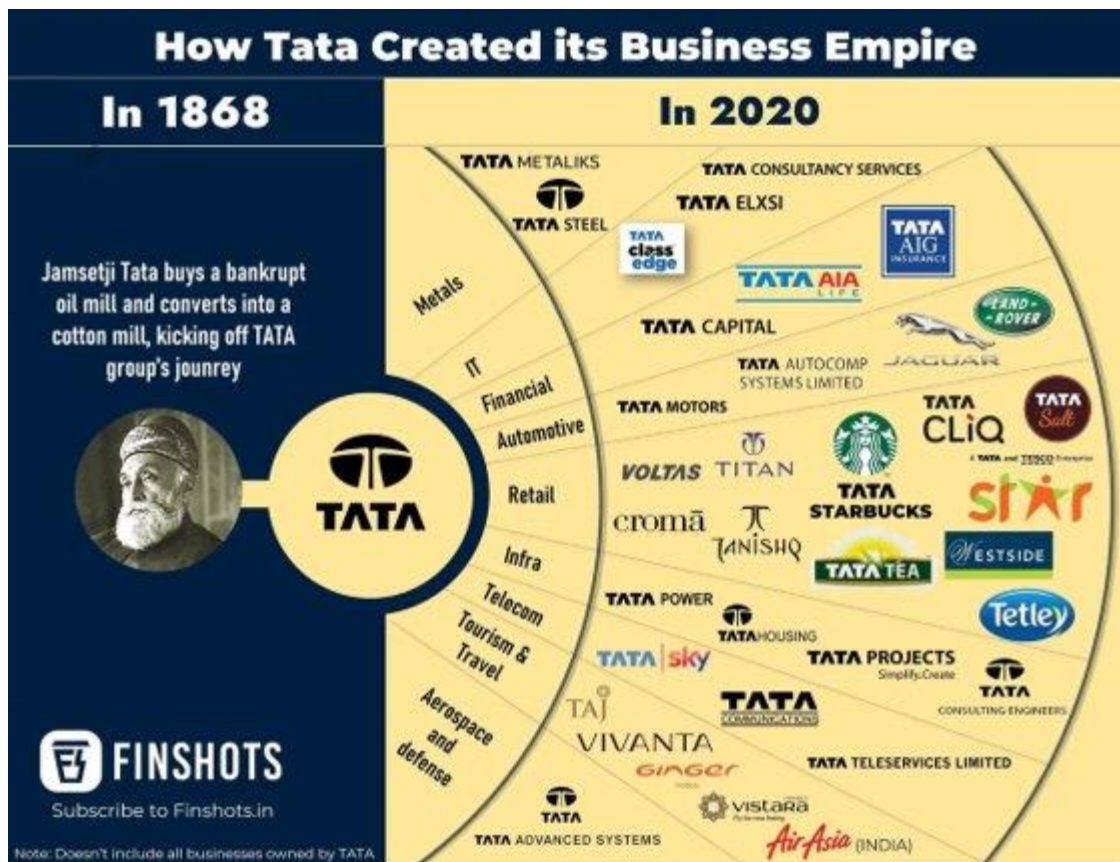
Winner's curse may be the result of emotions, incomplete information, a simple miscalculation, or a number of other factors regarding the company.

In general, subjective factors usually create a value gap because the bidder faces a difficult time rationalizing an item's true intrinsic value. As a result, the largest overestimation of an item's value ends up in acquiring a potential seller.

The winner's curse phenomenon is more likely to be observed if there is divergence of opinion about value of acquisition gains or if there is a high degree of competition from potential buyers to gain control of the seller.

Diversification:

- Diversification is a corporate action whereby a company either diversifies into a new line of products.
- The company may believe that diversifying unlocks synergies that promote growth or reduce prevailing risks in other operations.
- Economics of scope also plays a major role here since the production cost may decrease by sharing resources.
- Even if one venture fails, there are other ventures present to back the losses and keep the company stable.
- For example, TATA Group has been diversifying its product line for several past years and now has a presence in most of the sectors.
- Two unrelated companies with separate revenue streams and earnings drivers should theoretically face different challenges. The trouble is the parent company plays an instrumental role in molding investor's sentiment around subsidiary brands.
- If the corporation is faced with backlash for misconduct, it would trickle down and infect the smaller business units.



Diversification Acquisition:

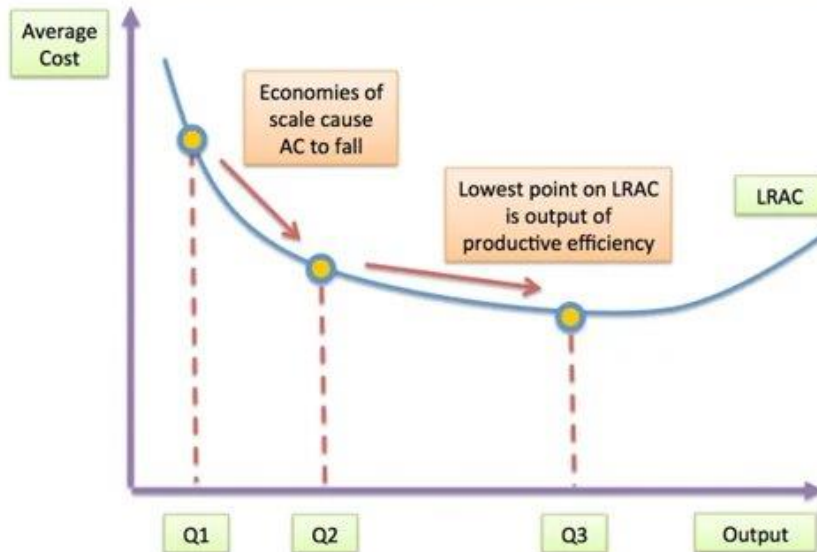
- Diversification acquisition is a corporate action whereby a company takes a controlling interest in another company to expand its product and service offerings.
- Big corporations typically find themselves involved in diversification acquisitions either to minimize the potential risks of one business component not performing well in the future, or to maximize the earnings potential of running a diverse operation.
- For example, in 2019 Reliance Industries Limited(RIL) acquired 100 percent stake in the British toy retailer Hamley's. This acquisition will help Reliance Brands become a dominant player in the global toy retail industry.

Economics of Scale

- It is the cost advantage that the company has with the increased output of a good or service.
- Generally, when the fixed costs are covered, the marginal cost of production for each additional product decreases, increasing profits.
- Walmart is the largest US general retailer. They can buy in such enormous bulk, and force suppliers to accept such low prices, so they can sell at low prices to customers.
- Although an economy of scale may seem beneficial to a company, it has some limits. Marginal costs never decrease perpetually. At some point, operations become too large to keep experiencing economies of scale.
- For example, suppose company ABC, a seller of computer processors, is considering purchasing processors in bulk. The producer of the computer processors, company DEF, quotes a price of \$10,000 for 100 processors. However, if company ABC buys 500 computer processors, the producer quotes a price of \$37,500. If company ABC decides to purchase 100 processors from company DEF, ABC's per unit cost is \$100. However, if ABC purchases 500 processors, its per unit cost is \$75.
- At some point, operations become too large to keep experiencing economies of scale.
- LRAC-Long Run Average Cost

Internal Economies of Scale in the Long Run

Economies of scale arise from increasing returns to scale

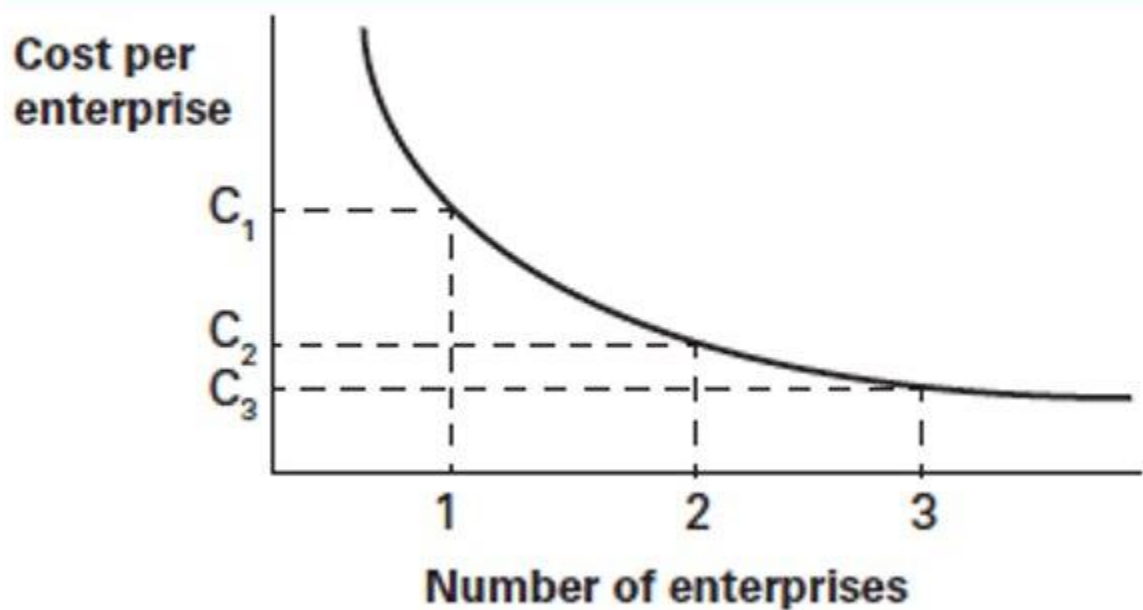


Economics of Scope

- Economics of scope basically says that the average cost of products decreases as diversification of goods produced takes place.
- One simple way to think about it is to imagine that it is cheaper for two goods to share production resources instead of each one of them having their individual product lines.
- For example airlines take major advantage of this concept. Passenger airlines frequently transport freight cargo underneath the plane. This optimizes the use of the plane, the fuel, and the flight crew already needed to run a passenger flight.
- Economy of scope gives a cost advantage to a company when it produces a complementary range of products while focusing on its core goods.
- An easy way to illustrate economy of scope is with rail transportation. A single train can carry both passengers and freight more cheaply than having separate

trains, one for passengers and another for freight. In this case, joint production reduces total input costs.

Figure 1. Economies of scope



M&A Waves:

A merger wave is an intense period of merger activity in a particular sector or industry and lasts from a short period to a long time partly depending on the performance of the market and the participating companies.

M&A Activity in India: M&A activity has seen phenomenal rise in India in the past few years and some patterns are discernible in this mass of financial transactions .India has passed several milestones and come a long way from overseas investments

of about \$0.7 billion in 2000-01 to \$2.7 billion in 2005-06 and finally to \$11 billion in 2006-07.

Mergers and Acquisitions in times of Pandemic: Deal-making in India in the first three months of this calendar year raced to a four-year high, bucking the global trend where mergers & acquisitions fell sharply. Corporate India closed 608 deals worth \$13.3 billion during the period, up from 408 deals worth \$12.1 billion a year ago.

- While global deal-making fell to its lowest opening period since 2020, the start of the Covid-19 pandemic, M&A activity involving India witnessed a strong start as the first quarter period reached a four-year high. The acquisition of technology and healthcare, availability of private equity and abundant cash reserves as well as historically low interest rates were key factors pushing the M&A growth so far this year.

M&A deals in health care industry in India post pandemic:

- The merger and acquisition (M&A) deals in the healthcare industry has seen a jump in terms of value in the first six months of the year 2021, to \$1.9 billion as compared to \$772 million during same period of previous year, owing to factors including digitisation, supply chain optimisation, new business models and incubation.
- Private equity investments drove deal values in the first quarter of 2022 with 441 deals valued at \$9.4 billion, which is the highest number of deals recorded in the opening quarter of any year.

Cross Border Merger:

A cross border merger explained in simplistic terms is a merger of two companies which are located in different countries resulting in a third company. A cross border merger could involve an Indian company merging with a foreign company or vice versa. A company in one country can be acquired by an entity (another company) from other countries. The local company can be private, public, or state-owned

company. In the event of the merger or acquisition by foreign investors referred to as cross-border merger and acquisitions.

TYPES OF CROSS BORDER MERGERS

The most popular types of mergers are horizontal, vertical, market extension or marketing/technology related concentric, product extension, conglomerate, congeneric and reverse.

Inbound M&A's

In this process foreign company merges with or acquires an Indian company. E.g. Daichii Acquiring Ranbaxy

Outbound M&A's

In this process an Indian company merges with or acquires a foreign company. E.g. Tata steel Acquires Corus

- the Jet-Etihad deal and the Air Asia deal in the aviation sector in India are good examples of how cross border M&A deals need to be evaluated . For instance, there is both support and resistance to the Jet-Etihad deal as well as for the Air Asia deal. This has made other foreign companies weary of entering India.
- Past of Daimler-Chrysler Merger which was a cross border M&A where Daimler-Benz was a German automotive company and Chrysler Corporation an American automobile manufacturer. This German-American marriage took place in the year 1998 and was considered as a “merger of equals”.

Cost of Equity and Debt:

- Every business needs capital to operate successfully. Capital is the money a business—whether it's a small business or a large corporation—needs and uses to run its day-to-day operations. Capital may be used to make investments, conduct marketing and research, and pay off debt.

- There are two main sources of capital companies rely on—debt and equity:
-Debt: Debt capital refers to borrowed funds that must be repaid at a later date. This is any form of growth capital a company raises by taking out loans. These loans may be long-term or short-term such as overdraft protection.
-Equity: Because equity capital typically comes from funds invested by shareholders, the cost of equity capital is slightly more complex. Equity funds don't require a business to take out debt which means it doesn't need to be repaid. But there is some degree of return on investment shareholders can reasonably expect based on market performance in general and the volatility of the stock in question.

WACC

(Weighted Average Cost of Capital)

- The WACC is the rate at which a company's future cash flows need to be discounted to arrive at a present value for the business.
- It reflects the perceived riskiness of the cash flows. Put simply, if the value of a company equals the present value of its future cash flows, WACC is the rate we use to discount those future cash flows to the present.
- **Capital structure — a company's debt and equity mix**

Because the cost of debt and cost of equity that a company faces are different, the WACC has to account for how much debt vs equity a company has, and to allocate the respective risks according to the debt and equity capital weights appropriately.

Assume a constant capital structure when calculating WACC

- **To determine the equity value of a company:**
 1. If the market value of a company's equity is readily observable (i.e. for a public company), Equity value = Diluted shares outstanding x share price
 2. If the market value of is not readily observable (i.e. for a private company), estimate equity using comparable company analysis .

- **To determine the debt value:**

Most of the time you can use the book value of debt from the company's latest balance sheet as an approximation for market value of debt. That's because unlike equity, the market value of debt usually doesn't deviate too far from the book value

Cost of capital assumptions		
Cost of debt	2.0%	
Tax rate	26.0%	
After tax cost of debt	1.5%	
Risk free rate	2.5%	Observed β
Beta	0.82	0.93 <input type="button" value="Industry"/>
Market risk premium	8.0%	
Cost of equity	9.1%	
Capital weights		
	Amount	% of total
Market value of equity	521,140.0	134.5%
Net debt	(133,627.0)	(34.5%)
Cost of capital (WACC)		11.7%

- Let us see an example of Apple's WACC calculation and how it impacts Apple's valuation
- According to estimate, Apple's WACC is 11.7%.
- In this particular scenario, we are using an 8% equity risk premium assumption.

Equity value per share		Long term growth rate (g):					
	\$216.42	2.0%	2.5%	3.0%	3.5%	4.0%	
WACC:	14.9%	165.84	169.18	172.79	176.73	181.03	
	13.9%	175.59	179.62	184.03	188.86	194.18	
	12.9%	187.13	192.09	197.54	203.59	210.31	
	11.9%	201.02	207.22	214.12	221.84	230.55	
	10.9%	218.05	225.98	234.91	245.06	256.69	

Weighted average cost of capital formula

$$WACC = \left(\frac{E}{V} \times Re \right) + \left(\frac{D}{V} \times Rd \times (1 - Tc) \right)$$

E = market value of the firm's equity

D = market value of the firm's debt

Tc = corporate tax rate

Re = cost of equity

Rd = cost of debt

V = E + D

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Terminal Value:

Terminal Value is the value of a business or a project beyond the explicit forecast period wherein its present value cannot be calculated. It includes the value of all cash

flows, regardless of duration, and is an important component of the discounted cash flow model (DCF).

There are three ways to calculate the Terminal Value of the Firm.

1. **Perpetuity Growth Model**
2. **No Growth Perpetuity Model**
3. **Exit Multiple Method**


$$\text{Terminal Value} = \sum_{t=1}^{t=\infty} \frac{FCFF_t}{(1 + WACC)^t}$$

DCF Terminal Value Formula

- Given below is a simple DCF workout, where we calculate the DCF Terminal Value (using Terminal EV Multiple Formula) and the Enterprise Value for this company, assuming that cash flows fall at the end of the year.
- the previously explained terminal value and WACC are used in computation of DCF and SPCM. It is very important to get them right as otherwise it can have a big impact on the valuation. Generally the terminal value represents a large portion of the valuation. It might be good to not rely on just this but to use other methods too to have a check and balance mechanism and validate the result.

	A	B	C	D	E	F	G	H	I
8		Terminal value EBITDA multiple:	7.0						
9		WACC	7.0%						
10									
11		Year	Current	1.0		2.0		3.0	
12		EBITDA		120.0		130.0		140.0	
13		Free cash flow		50.0		55.0		60.0	
14									
15		Discount factor		0.9	$=1/(1+\$C\$9)^1$	0.9	$=1/(1+\$C\$9)^2$	0.8	$=1/(1+\$C\$9)^3$
16		Present value		46.7	$=D13*D15$	48.0	$=F13*F15$	49.0	$=H13*H15$
17									
18		Terminal value						980.0	$=C8*H12$
19		Present value of free cash flow	143.7	$=SUM(D16:H16)$					
20		Present value of terminal value	800.0	$=H18*H15$					
21		Enterprise value	943.7	$=SUM(C19:C20)$					

Different Approaches of Valuation

Valuation can be done in many ways. There are three main approaches to valuation-

1. Asset approach- This simply adds all the assets of the company and subtracts all the liabilities. Often book value is adjusted to its present market value and intangible assets such as brand name, intellectual property etc. are also included. Since only assets and liabilities are considered this represents the amount the owners would get if they were to liquidate. It is also useful where the assets are more intrinsically linked to the business than earnings(e.g. real estate). the previously explained terminal value and WACC are used in computation of DCF and SPCM. It is very important to get them right as otherwise it can have a big impact on the valuation. Generally the terminal value represents a large portion of the valuation. It might be good to not rely on just this buy to use other methods too to have a check and balance mechanism and validate the result.
2. Income approach-It works by estimating the current value of estim3. Market approach-This approach tries to estimate the valuation by comparison with other similar companies. There are 2 methods-
Guideline Public Company Method-This approach takes a public company that is similar to the one under consideration. It takes the valuation of the as multiple of its earnings and other financial parameters. We then adjust those

multiples to account for the size , risk and other specific parameters of subject company and then use the adjusted multiples to get the required valuation.

3. Rated cash flows(returns) of the organization. We can use single period capitalization or discounted cash flow capitalization in this approach. This approach is commonly used and allows us to estimate earnings and risk specific to the company itself. It is also a useful approach where the company doesn't have a lot of tangible assets.of all approaches this is the only one which takes into account company specific forecasts and factors.
4. Merger and Acquisition Method-This method basically estimates the valuation with reference to recent sales of similar companies in the industry. This gives us the true market price of the company at present. However, these details may be difficult to obtain as details of such private acquisitions are not easily applicable.

Income Approach- Single Period Capitalization Method

This method is a simpler version of the discounted cash flow method. It assumes a single constant growth rate (which is generally modest) and uses that to get the valuation. The earnings are discounted to get the valuation. This method is more appropriate for companies that are established and have stable revenue stream. However there are some disadvantages associated with this kind of an approach. The rate of risk is derived from the risk free rate and adjusted for equity risk . A company's expenses and revenue may change. None of this is accounted for as all of these factors are essentially fixed for the entire period. This method gives us only one chance to get rate of returns right. An error I this can distort the valuation.

Income Approach DCF(Discounted Cash Flow)

This method seeks to take the present value of all future cash flows by adjusting the growth parameters of the company for a few years and also accounting for risk to investors , inflation etc. Basically, growth rate is assumed to be irregular(exponential

or otherwise) for a few years and then assumed to be constant for perpetuity. Here we have two approaches-

- Direct to equity- This approach takes the cash flows and includes changes in debt as well as interest payments in them. The discount rate(which basically represents risk to investors-more the rate more the risk, less the valuation) here takes into account only the equity discount rate and the resultant valuation represents value of equity of the company.
- Debt free- This approach does not take into account changes in debt and interest payments in projected cash flows. As such the discount rate also includes another term which accounts for the debtors' rate of return. The valuation given here represents value of all infused capital, be it as debt or equity.
- We first compute the FCFF(Future cash flow to firm) for a few years. The growth rate is varied and historical earnings are often taken as a starting point. FCFF is basically amount of cash flow available after expenses , depreciation, taxes and investments. This rate is discounted to get its present value .
- Next, we consider that the growth rate will stabilize and be constant and continue to be so for all time. This growth rate is generally conservative and not can be too high. The cash flows form an infinite GP whose sum is taken and added to previous cash flows to get the valuation.
- This method is appropriate for companies whose income stream may be unsteady or new companies whose income could be expected to grow unsteadily or maybe even post a loss for a few years and then stabilize.(or it may be used in the same situations where the previous method is used too)

Some advantages of DCF Valuation are-

- It takes into account the time value of money.
- Does not require us to compare companies
- Includes all major assumptions about the business and allows us to adjust forecasts specific to the business.

Some disadvantages of DCF valuation are-

- Requires a lot of assumptions. Also in practice making accurate forecasts may be quite difficult.
- Prone to overcomplexity

- Terminal value calculation needs to be as accurate as possible since it represents a huge chunk of the valuation.

EPS Accretion and Dilution:

- EPS accretion / dilution allows shareholders of an acquirer company to see whether an acquisition of a target will lead to an increase in their earnings per share. It is an important metric in deciding whether the acquisition should go ahead or not
- The process of an accretion/dilution analysis begins with estimating pro-forma net income to eventually arrive at pro-forma earnings per share (EPS).
- The deal will be accretive when pro forma EPS is higher than standalone EPS. The deal will be dilutive when pro forma EPS is lower than standalone EPS

What Is Earnings Per Share (EPS)?

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock. The resulting number serves as an indicator of a company's profitability.

The higher a company's EPS, the more profitable it is considered to be.

Understanding EPS Accretion / Dilution

- **EPS Formula**

$$\text{Pro forma EPS} = \text{Pro forma net income} / \text{Shares outstanding}$$

- **Calculating Earnings: Pro Forma Net Income**

$$\text{Pro forma net income} = \text{Investor (acquirer) net income} + \text{Investee (target) net income} +/- \text{Transaction effects}$$

- **Calculating Earnings: Transaction Effects**

Any expected synergies due to the transaction will have to be included in the forecast income statement of the combined business and will need to be captured in the appropriate line item, most commonly SG&A expenses. The impact of synergies is to decrease SG&A costs, and therefore increase net income and EPS.

The company may also have issued additional debt or used balance sheet cash to fund the deal. These impact the interest expense/income lines of the income statement, thus affecting net income and EPS.

- **Calculating Number of Shares**

$$\text{Shares outstanding} = \text{Acquirer shares (diluted)} + \text{New shares issued}$$

- **Accretion / dilution calculation**

$$\text{EPS accretion / (dilution)} = \text{Pro forma EPS} / \text{Acquirer standalone EPS} - 1$$

This is often expressed as a percentage.

A positive number indicates the deal is accretive as proforma EPS is higher than the acquirer's standalone EPS.

A negative number indicates the deal is dilutive because proforma EPS is lower than the acquirer's standalone EPS.

EPS Accretion / Dilution Example

STEPS:-

1. The first step is to calculate the pro forma net income. This starts with the acquirer's standalone net income, plus the target's standalone net income, plus the post-tax synergies, less debt interest.
2. Assume synergies savings post tax is 3.5 for all years and interest expense increases by 6.2 due to debt issuance for all years. The pro forma net income of 23.2 in the Actual Year column.
3. In an EPS accretion / dilution model, these would need to be calculated based on the assumptions and information in the model.
4. we need the shares outstanding. This would be calculated and starts with the WASO of 15 from the acquirer in row 9, and adds on the number of shares issued to the target shareholders in exchange for their old shares.
5. Assume 2.8 shares are issued. This gives the number of pro forma shares outstanding to be 17.8 which is assumed to stay flat across all years.
6. The pro forma EPS can now be calculated as pro forma net income divided by shares outstanding and gives a figure of 1.31 in the Actual Year column.
7. Finally, to calculate EPS accretion or dilution, we need to compare the pro forma EPS to the acquirer EPS. The deal is accretive as pro forma EPS 1.31 is higher than the standalone EPS 1.20, producing EPS accretion of 8.8% in the Actual Year column.
8. It is important to check EPS accretion / dilution in future years because M&A deals will affect the future financial data.

In our example, EPS accretion has been achieved in all 3 of the forecast years and this suggests the acquisition should go ahead.

Football Field Evaluation:

- A football field is a chart that is used to compare the results of different valuation methodology of a company.
- The underlying purpose of the chart is to give a visual representation of the valuation range, average, and target valuation for the company/asset.
- The valuation process involves making a significant number of forecasts and estimates to measure the financial performance of a company. However, these estimates are prone to uncertainties and are ultimately dependent on the analyst. Future cash flows could vary from estimates for various reasons including lower-than-expected demand (resulting in decreased sales), technological disruption, regulatory changes, etc.
- To deal with such uncertainties and reduce the margin for error, analysts may use more than one valuation methodology
- The use of different valuation methods and assumptions results in a wide valuation range. A football field shows the range and the mean valuation arrived at using different methodologies (and their underlying assumptions) in a single chart.



- The left-hand side (vertical axis) or the y-axis lists the different valuation methods and assumptions used by an analyst to value a company.
- The x-axis (horizontal axis) features the unit used for measuring value. For public companies, the unit used is the share price, as in the above example.

- Finally, the football field should highlight the acquisition value range. This range overlaps with the results obtained from all the valuation methodologies mentioned above.