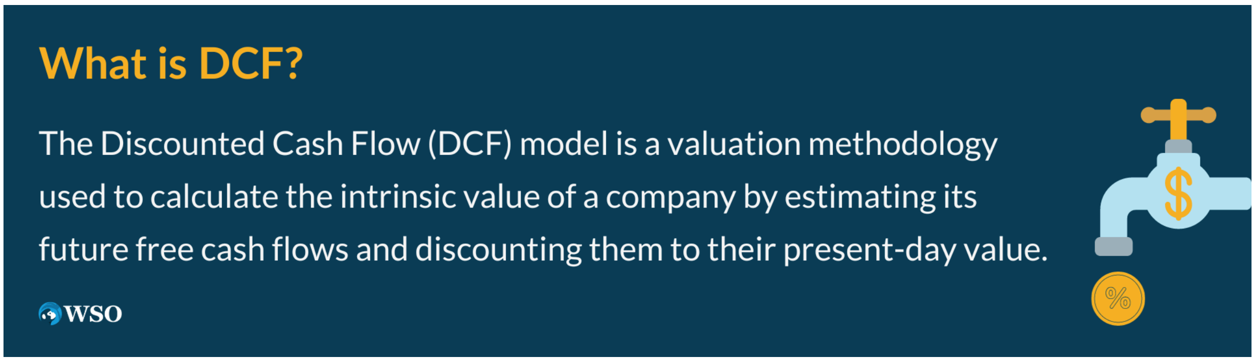
Checklist

Please ensure your article meets each of the following requirements, and tick them off on the checklist before submitting it for review. Thanks!

- [ ] External link: one non-competitor link to an external relevant domain, ideally with high authority like Wikipedia.
- [ ] No keyword stuffing - the KW must not be repeated more than 30 times in total (variations cool)
- [ ] Headings are consistent (h1 ->h2 -> h3 flow)
- [ ] One image for every header
- [x] ~~1,000+ words~~
- [x] ~~Minimum of 300 words between each header~~
- [x] ~~A cover image (large picture after the first paragraph)~~
- [x] ~~Reference to our courses where applicable :)~~
- [x] ~~No paragraphs with more than 3 lines~~
- [x] ~~Grammarly-check the whole article~~
- [x] ~~NUMBERED LISTS and BULLETS wherever possible~~

DCF Model Training Free Guide

The Discounted Cash Flow (DCF) model is used as a valuation methodology to find the intrinsic value of a company based on its future free cash flows discounted back to the present day value.



It operates under the tenet that a given sum of money today is worth more than it will be in the future due to variables like inflation and risk. For determining the worth of ventures, initiatives, stocks, and other investments, DCF is frequently employed.

The DCF model is used for various purposes, including:

- **Valuing a business or investment:** It helps investors determine a company's or project's fair value.
- **Investment decision-making:** Investors use DCF to decide whether an investment opportunity is worthwhile.
- **Capital budgeting:** DCF aids in evaluating the financial viability of capital-intensive projects.

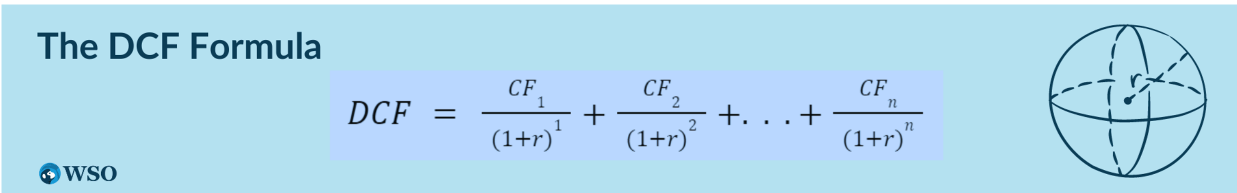
Key Takeaways

- The DCF model is based on the Time Value of Money (TVM) theory, which claims that a dollar obtained in the future is worth less than a dollar earned today.
- The discount rate is a critical component of the DCF model. The WACC considers both the cost of debt and the cost of equity. Because their risk is associated with the investment, the discount rate serves as a required rate of return to shareholders, bondholders, and investors.
- The DCF model typically forecasts free cash flows for 5 to 10 years and then uses the terminal value to encapsulate the rest of the company's future growth.
- The output of the DCF model is the asset's intrinsic value. If the asset's intrinsic worth exceeds its market value, it may be undervalued and considered a potential investment

opportunity. If the asset's underlying value is lower, on the other hand, it can be overpriced.

Discounted Cash Flow Formula

The Discounted Cash Flow (DCF) calculation, which is used to determine the present value of an asset's projected future cash flows, is a crucial part of financial valuation.



The methodology contains a step where the discounted values of expected cash flows are combined with a terminal value.

The DCF formula is as follows:

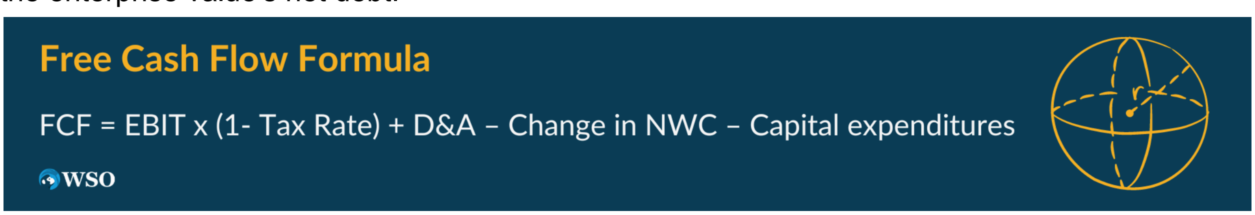
$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + ... + \frac{CF_n}{(1+r)^n}$$

Where:

- **DCF:** discounted cash flow
- **CF_i:** cash flow in the period i, so the first cash flow in the first period is CF_1
- **r** = interest rate or discount rate per annum
- **n** = time in years before the future cash flows

Free cash flows are projected and discounted to their present value using the DCF model. Levered DCF and Unlevered DCF are the two main methods.

The Unlevered DCF method determines the entire company's value, assuming it is entirely equity financed. In contrast, the Levered DCF technique calculates the equity value by removing the enterprise value's net debt.



FCF = EBIT x (1- Tax Rate) + D&A – Change in NWC – Capital expenditures

FCF stands for Free Cash Flow, and it represents the cash generated by a business that is available to be distributed to all its investors.

- EBIT (Earnings Before Interest and Taxes) measures a company's operating profitability.
- Tax rate refers to the percentage of earnings that a company pays in taxes.
- D&A stands for Depreciation and Amortization, representing non-cash expenses.
- NWC stands for Net Working Capital and includes the current assets and liabilities of the company.
- CapEx (Capital Expenditures) refers to the funds used to acquire, upgrade, or maintain physical assets.

Steps to Complete a DCF

We set out on a thorough tour through the complexities of the DCF model, exploring the underlying ideas and detailed steps that support this crucial method in financial research.

You will have a deep understanding of how the DCF model functions at the end of this investigation and the skills necessary to use it successfully in your investment analyses.

The following are the six steps to completing a DCF:

1) **Project FCF for 5 - 10 years**

We project free cash flows in a DCF model to estimate the present value of a company's future cash flows and determine its intrinsic value.

FCF = EBIT x (1- tax rate) + D&A – Change in NWC – Capital expenditures
Gather historical data to look at trends, compare against industry growth, and compare against similar competitors.

The crucial task of estimating free cash flows (FCF) for the upcoming 5 to 10 years is where our journey starts.

We stress the importance of historical data analysis as a useful tool for spotting trends, benchmarking against industry development, and comparing with similar competitors.

- 5 years for companies that are more mature and have stable cash flow
- 10 years for growth companies who need time to trend down to terminal value

Resources for financial research include Bloomberg, CapIQ, Factset, and EDGAR.

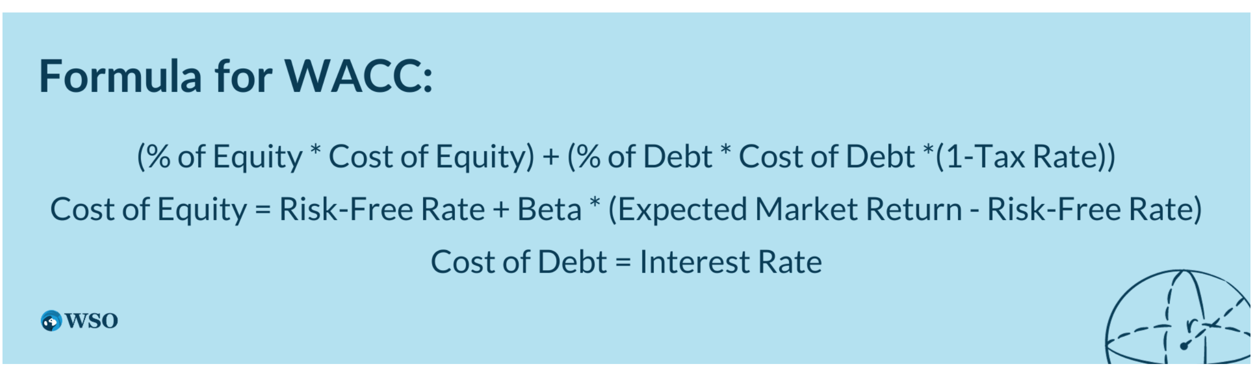
2) Calculate the Weighted Average Cost of Capital (WACC)

We use a discount rate to account for the time value of money and assess the present value of future cash flows.

Time value of money: $1 million today is worth more than $1 million 100 years from now.

The cash flows forecasted in the future are not as valuable as what they would be if they were in the present time. We need to discount the free cash flows back to their present value.

WACC represents the rate of return required by debt and equity investors for your company to fund the growth of its future free cash flow.



The formula for WACC:

*(% of Equity * Cost of Equity) + (% of Debt * Cost of Debt *(1-Tax Rate))*
*Cost of Equity = Risk-Free Rate + Beta * (Expected Market Return - Risk-Free Rate)*
Cost of Debt = Interest Rate

3) **Calculate Terminal Value**

Terminal Value is the value of the expected cash flows of a company beyond the forecast period. It captures the value of a company after the specific projection period, usually 5 to 10 years.

This is important because it is not easy to predict cash flows in the long run. It can be calculated by using the Perpetual Growth Model or Exit Multiple method. Estimation of Terminal Value must be precise, as it can be very influential on the overall valuation of a business.

A. **Perpetuity Growth Method**

Investors have the option to project that cash flows will experience a consistent and perpetual growth rate, commencing from a specific future point. This projection corresponds to what is termed the terminal value.

*[Last year FCF * (1+ Terminal Growth Rate)] / (WACC – Terminal Growth Rate)*

Terminal Growth Rate represents the rate at which the company's cash flows are expected to grow indefinitely beyond the forecast period.

B. **Exit Multiple Method Formula**

There is no need to employ the perpetuity growth model if investors believe the operational window is limited.

> The Exit Multiple Method Formula is used to determine the terminal value of an investment by considering the current net realizable worth of assets, often based on valuation multiples of similar companies in the industry or market.
>
> WSO

The terminal value should instead reflect the assets' current net realizable worth. This frequently suggests that a larger company will buy the shares, and the worth of purchases is frequently determined using exit multiples.

EV/EBITDA multiple or near current trading value for comparable companies. The Exit Multiple can be determined by analyzing the valuation multiples of similar companies in the industry or using a multiple commonly applied in the market.

*Last Year's EBITDA * Exit Multiple*

Exit Multiple is based on what similar companies are trading at.

4) PV of FCF and TV = Enterprise Value
Finding the present values of our free cash flows and terminal value figures allows us to understand what the company's entire value is worth today.

Find the present values of each free cash flow figure, then add those to the present value of your terminal value.

The formula for the Present Value of a Free Cash Flow

FCF for Year X / (1 + WACC) ^ (Year X)

Sum of PV of Free Cash Flow + PV of Terminal Value = Enterprise Value

The Enterprise Value is the value of a firm as a whole to both debt and equity holders.

5) Find EV (Market Capitalization)
The advantage of finding the equity value is important because your share price is determined by the percentage of the company's ownership stake.

Equity Value is the value of the business attributable to the equity shareholders. It is calculated by subtracting net debt from the Enterprise Value.

The formula for Equity Value:

Enterprise Value - Debt + Cash = Equity Value

6) Find Share Price
Once the equity value is determined, the last step is to find the company's share.

The formula of Market Value of Equity:

Equity value / Number of shares

Example of DCF Modeling

To aid your understanding of how to create and interpret a DCF model, we will go through the WSO discounted cash flow template below.

Example of DCF Modeling

This example demonstrates the process of DCF (Discounted Cash Flow) modeling, including projecting cash flows, discounting them, calculating the terminal value, and arriving at enterprise and equity values.

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1. We have ten years of projected free cash flows (FCF), which we discount with a WACC of 11% to find the discounted FCF of each year.
2. After this, the terminal value is calculated using the perpetual growth rate (PGR) of 2%. Similar to the FCF, this is discounted using the same WACC to find the discounted TV.
3. All the discounted FCFs are totaled to find the present value of cash flows (PV of CF).
4. The discounted TV and PV of CF are added together to find the enterprise value (EV).
5. As an additional step, we can find the equity value by subtracting net debt and minority interest from the enterprise value.

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Discounted Cash Flow

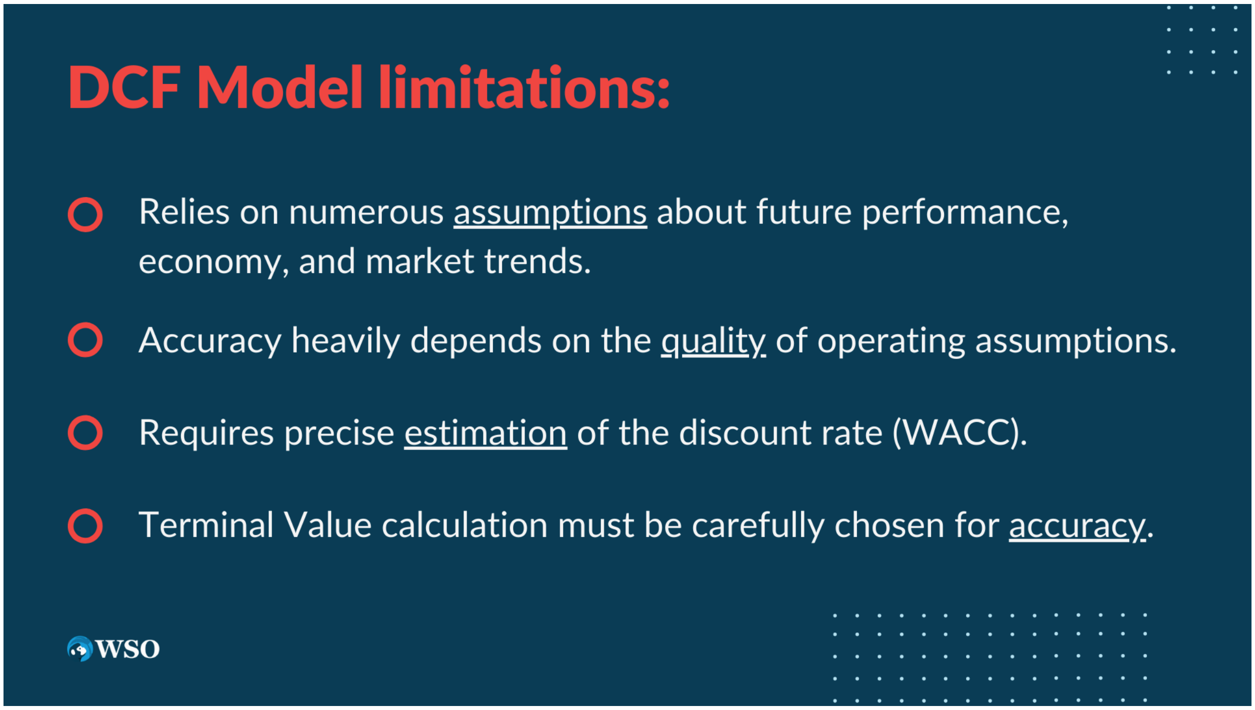
(YE 31-Dec, USDm)

	2011A	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E
EBITDA	39.2	39.6	42.7	47.0	52.0	58.1	59.8	64.3	67.9	70.7	72.3
D&A		4.3	4.8	5.4	6.2	7.2	4.1	4.5	4.9	5.3	5.5
EBIT		35.3	37.9	41.5	45.7	50.9	55.7	59.8	63.0	65.4	66.8
Taxes		--	--	--	--	--	--	--	--	--	--
Capex		(6.2)	(6.6)	(7.3)	(8.0)	(8.9)	(4.9)	(5.2)	(5.5)	(5.7)	(5.8)
NWC Change		2.6	2.7	3.8	4.5	5.5	5.1	4.4	3.4	2.6	1.4
FCF		36.1	38.8	43.5	48.5	54.7	60.0	63.5	65.9	67.6	67.9
Factor		*0.9*	*0.8*	*0.7*	*0.6*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*	*0.3*
Discounted FCF		32.4	31.3	31.5	31.5	31.9	31.4	29.8	27.8	25.6	23.1

WACC	**11%**
PGR	**2%**
Terminal value	804.3
Discounted TV	273.3
PV of CF	296.2
EV	**569.4**
Net Debt	235.0
Minority Interest	--
Equity Value	**334.4**
1 Year Fwd EV/EBITDA	**14.4x**
1 Year Fwd EV/EBIT	**16.1x**

Limitations with DCFs

Despite its popularity, the DCF model has some **limitations**, such as:



1. **Requires Many Assumptions**

DCF mainly depends on assumptions regarding the company's future performance, the state of the economy, and market trends. Such assumptions may be arbitrary and lead to inaccurate valuations.

2. **The Operating Assumptions**

The accuracy of the DCF model heavily depends on the quality of the operating assumptions used in the forecasts. Small changes in these assumptions can significantly impact the final valuation.

3. **WACC Assumption**

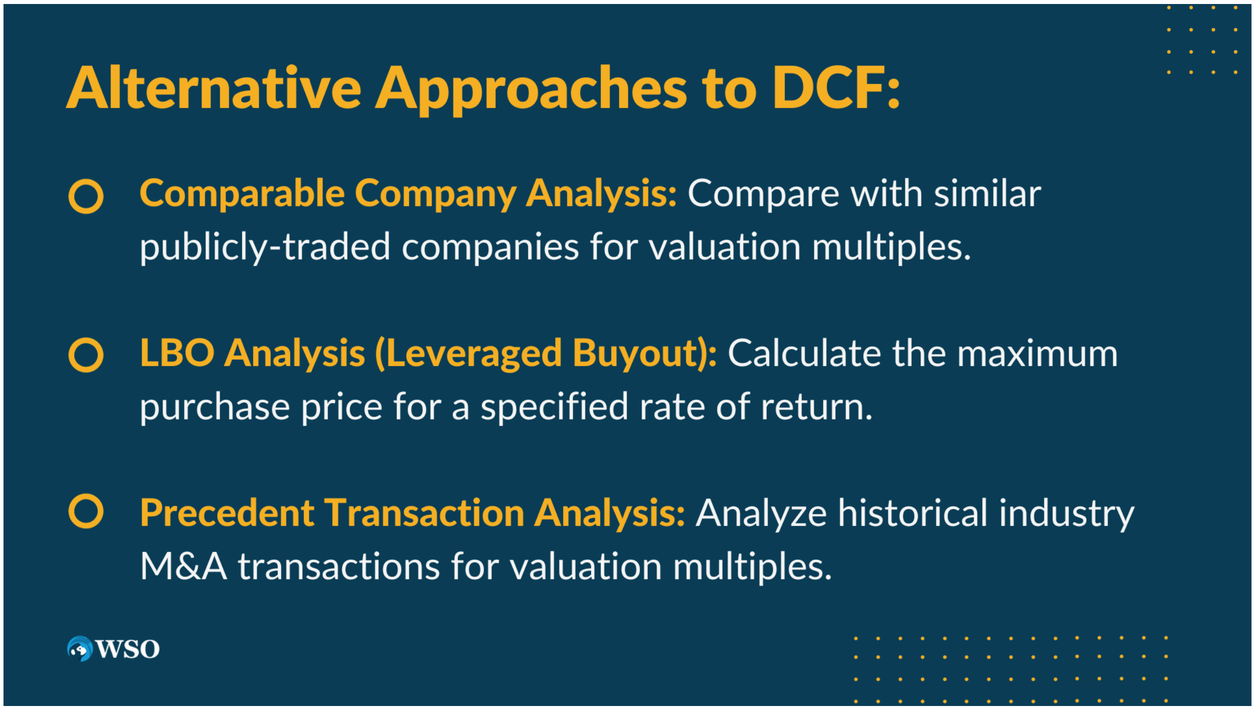
Selecting an appropriate discount rate (WACC) is essential in a DCF model. The estimation of the WACC includes making assumptions about the cost of debt, cost of equity, and capital structure.

4. **Terminal Value**

Because the Terminal Value represents a significant portion of the overall valuation, it’s critical the accuracy of this value is precise. You must carefully choose an appropriate method when calculating the TV to arrive at a reasonable estimation.

Solutions to the DCF

While the DCF model is a widely used valuation method, there are alternative approaches that can be used to supplement or cross-validate the results:



1. **Comparable Company Analysis**

This method involves comparing the target company to similar publicly traded companies to determine a valuation multiple (e.g., Price-to-Earnings ratio) that can be applied to the target company's financial metrics.

2. **LBO Analysis (Leveraged Buyout)**

LBO analysis involves determining the maximum purchase price that a financial buyer (private equity) can pay for a company while achieving a specified rate of return on their investment.

3. **Precedent Transaction Analysis**

This method involves looking at historical merger and acquisition transactions in the industry to derive a valuation multiple or a range of multiples for the target company.

Conclusion

Discounted Cash Flow is a highly potent valuation tool in finance. It is used to determine the intrinsic value of an investment through projected future cash flows. DCF is the most common and widely used model for the valuation of businesses, projects, and other investments.

Conclusion

The DCF model is a vital tool for estimating the value of investments based on future cash flows, despite its limitations. Combining it with other valuation methods enhances the evaluation of an investment's worth.

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The DCF model calculates forecasted future cash flows, discounts them back to the present value, and factors in the terminal value in order to arrive at the investment's Enterprise Value and Equity Value.

Although it has its limitations and heavily depends on assumptions, it still remains an important tool for the finance professional.

Nonetheless, combining DCF analysis with other valuation approaches is prudent to obtain a more comprehensive view of the investment's worth.

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