

RNFC: Value Investing Technical Report

Introduction

This technical report explains the structure and the formulae used in the Value Investing methodology taught by Professor George Athanassakos at the Ben Graham Centre for Value Investing.

Structure

The entire valuation is contained in one column, which enables the end user to easily perform various sensitivity and comparison analyses.

Instruction

[x] refers to the index number used to reference a particular cell (see Index in the Appendix). For example, [10] refers to Required Margin of Safety. It is important to realize this is **not** the row, it is strictly an index number.

Colors

Black: indicates that the value shown is a result of a formula.

Blue: indicates that the value needs to be manually inputted by the end user.

Red: indicates historical average values that may need to be calculated separately.

Green: indicates that the value should be linked to the financial statements in the INPUTS section. The user needs to dynamically change the link if different financial statements are loaded onto the model for valuation. Otherwise, the information can be manually inputted by the end user from the company's latest financial statements.

RNFC: Value Investing Technical Report

Section 1: Valuation Summary

This section is the summary of valuation results from the rest of the valuation framework. This section gives the end user the final signal on whether to buy the stock or not.

Entry Price Analysis

[1] First Pass ROIC

- = [57] First Pass ROIC (Two-Year Avg)

[2] Second Pass ROIC

- = [79] Second Pass ROIC

[3] NAV

- = [150] NAV Implied Share Price

[4] EPV – No Growth

- = [288] 1. Zero Growth EPV Implied Share Price

[5] EPV - Growth

- = [289] 2. Growth EPV Implied Share Price

[6] Difference

- This cell shows the difference between the NAV valuation and the EPV valuation, and signifies the maximum value that can potentially be unlocked in the future.
- Formula: =ABS([3] NAV – [4] EPV – No Growth)
- Translation
 - o The absolute value of the difference is taken; this will be used to calculate [9] Realizable Differential Value, which will be added to the lower of EPV and NAV.

[7] Catalyst / Franchise

- This cell shows whether [6] Difference is a catalyst or a franchise.
- Formula: =IF([3] NAV > [4] EPV – No Growth, "Catalyst", "Franchise")
- Translation
 - o If EPV < NAV, the cell will display “Catalyst”
 - o If NAV < EPV, the cell will display “Franchise”

[8] Probability

- The end user must decide how likely i) the NAV will reach the EPV in the case of franchise or ii) the EPV will reach the NAV in the case of catalyst. Usually, 80% is given for a high probability, 50% is given for a medium probability, and 20% is given for a low probability.

[9] Realizable Differential Value

- This represents the additional value that is expected to be realized from the company's catalyst/franchise.
- Formula: =[6] Difference * [8] Probability

[10] Required Margin of Safety

- The end user must decide what level of margin of safety he/she is comfortable with. The default value investing margin of safety is one-third (33%).

RNFC: Value Investing Technical Report

[11] Intrinsic Value

- This cell provides the end user with the final intrinsic value per share.
- Formula: $=IF([316] \text{ Growth Model Enable} = "No", MIN([3] \text{ NAV}, [4] \text{ EPV} - \text{No Growth}) + [9] \text{ Realizable Differential Value}, [345] \text{ Value of Growth (Vg)})$
- Translation
 - o If the company is treated as non-growth, the Realizable Differential Value is added to the lower of EPV and NAV.
 - o If the company is treated as a growth company, the output links to [345] Value of Growth (Vg), which calculates the intrinsic value incorporating the value of growth.

[12] Entry Price

- This cell tells the end user what the ceiling price to buy the stock at is.
- Formula: $=IF([316] \text{ Growth Model Enable} = "Yes", [346] \text{ Growth Entry Price}, (1 - [10] \text{ Required Margin of Safety}) * [11] \text{ Intrinsic Value})$
- Translation
 - o If [316] Growth Model Enable = "Yes", the Entry Price equals to the Growth Entry Price.
 - o Otherwise, the Entry Price is simply the Intrinsic Value multiplied by 1 minus the Margin of Safety.

[13] Current Trading Price

- The end user must provide the current trading price of the company at hand.

[14] Current Discount/(Premium) to Entry Price

- This cell shows how much the Current Trading Price is at a discount (premium) compared to the Entry Price.
- Formula: $=([12] \text{ Entry Price} - [13] \text{ Current Trading Price}) / [13] \text{ Current Trading Price}$

[15] Buy / No Buy

- This cell gives the end user the final investment signal on whether to buy the stock or not.
- Formula: $=IF([12] \text{ Entry Price} > [13] \text{ Current Trading Price}, "Buy", "Don't Buy")$
- Translation
 - o This formula tests whether the current trading price is higher than the calculated entry price.
 - If the Current Trading Price is below the calculated Entry Price, this cell gives a “Buy” signal.
 - Otherwise, this cell gives a “Don’t Buy” signal.

Common Inputs

[16] Revenue (Current Fiscal Year)

- The end user must provide the current fiscal year’s revenue figure.

[17] Revenue (Last Fiscal Year)

- The end user must provide the last fiscal year’s revenue figure.

[18] Tax Rate

- The marginal tax information is given in the company annual reports under the tax section. This rate should include both federal and state/provincial statutory rates.

[19] Shares Outstanding (Shares + RSUs)

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- The end user must provide the number of shares outstanding. This cell combines basic shares outstanding with any restricted stock units that the company might have offered to its employees to account for dilutive effects.

[20] Treasury Stock (#)

- The end user must provide the number of treasury stocks.

[21] Market Capitalization

- This cell shows the current Market Capitalization of the company.
- Formula: $=[19] \text{ Shares Outstanding (Shares + RSUs)} - [20] \text{ Treasury Stock (\#)} * [13] \text{ Current Trading Price}$
- Translation
 - o Treasury Stock is subtracted from Shares Outstanding to give the net shares outstanding not held by the corporation.
 - o The number of shares outstanding is multiplied by the Current Trading Price to give the Market Capitalization.

[22] Book Value of Equity

- The end user must provide the book value of equity.

RNFC: Value Investing Technical Report

Section 2: Weighted Average Cost of Capital (WACC)

This section calculates the weighted average cost of capital based on the business risk, the financial risk, and the capital structure of the company being valued.

[23] Business Risk

- The end user must indicate the level of business risk of the company as “High”, “Medium”, or “Low”. This risk should reflect the degree of certainty of the company’s cash flows.
- The “High”, “Medium”, and “Low” signals are stored in the “Drop Down List Items” tab.

[24] Current Capital Structure

- Formula:
$$=([122] \text{ Short Term Debt} + [124] \text{ Current Portion of LT Debt} + [241] \text{ Current Year BV LTD} + [132] \text{ Operating Leases}) / ([122] \text{ Short Term Debt} + [124] \text{ Current Portion of LT Debt} + [241] \text{ Current Year BV LTD} + [132] \text{ Operating Leases} + [22] \text{ Book Value of Equity})$$
- Translation
 - o This formula combines all interest bearing debt (including operating leases) and divides it by the total capital.
- This calculation can be used as a proxy for [25] Target Capital Structure; otherwise it is not used elsewhere in the model

[25] Target Capital Structure

- The Target Capital Structure is the historical average of stable level capital structures (as calculated in [24] Current Capital Structure). In the event that this figure is not provided, the user can use [24] Current Capital Structure as a proxy.

[26] Implied Financial Risk

- This cell gives the Implied Financial Risk of the company being valued based on the Business Risk and the Target Capital Structure. If the company’s Target Capital Structure falls within the normal range for its respective Business Risk Level, the company’s Implied Financial Risk is “Medium”. If the Target Capital Structure is over or under the normal range, the Implied Financial Risk levels of “High” and “Low” are given respectively.

Business Risk	Target Capital Structure		
Low	<50%	50% <= X < 70%	>70%
Medium	<30%	30% <= X < 50%	>50%
High	<10%	10% <= X < 30%	>30%
Implied Financial Risk	Low	Medium	High

- Formula:
$$=IF([23] \text{ Business Risk} = "High", IF([25] \text{ Target Capital Structure} < 0.1, "Low", IF([25] \text{ Target Capital Structure} >= 0.3, "High", "Medium")), IF([23] \text{ Business Risk} = "Medium", IF([25] \text{ Target Capital Structure} < 0.3, "Low", IF([25] \text{ Target Capital Structure} >= 0.5, "High", "Medium")), IF([25] \text{ Target Capital Structure} < 0.5, "Low", IF([25] \text{ Target Capital Structure} >= 0.7, "High", "Medium"))))$$
- Translation

RNFC: Value Investing Technical Report

- This formula first checks whether the business risk is high.
 - If it is, the formula checks if the target capital structure is lower than 10%.
 - If it is, then “Low” is given for implied financial risk.
 - If not, the formula checks if the target capital structure is higher than or equal to 30%
 - If it is, then “High” is given for implied financial risk
 - If not, then “Medium” is given for implied financial risk.
 - If not, the formula checks if the business risk is medium
 - If it is, the formula checks if the target capital structure is lower than 30%.
 - If it is, then “Low” is given for implied financial risk.
 - If not, the formula checks if the target capital structure is higher than or equal to 50%
 - If it is, then “High” is given for implied financial risk
 - If not, then “Medium” is given for implied financial risk.
 - If not, the formula checks if the target capital structure is lower than 50%.
 - If it is, then “Low” is given for implied financial risk.
 - If not, the formula checks if the target capital structure is higher than or equal to 70%
 - If it is, then “High” is given for implied financial risk
 - If not, then “Medium” is given for implied financial risk.

[27] Implied Credit Rating

- This cell gives the Implied Credit Rating of the company being valued based on the Business Risk and Financial Risk as shown below.

Bus. Risk \ Fin. Risk	Low	Medium	High
Low	AA-AAA	A-AA	BBB-A
Medium	A-AA	BBB-A	BB-BBB
High	BBB-A	BB-BBB	C-BB

- Formula: =IF([23] Business Risk ="Low", IF([26] Implied Financial Risk ="Low", "AA-AAA", IF([26] Implied Financial Risk ="High", "BBB-A", "A-AA")), IF([23] Business Risk ="Medium", IF([26] Implied Financial Risk ="Low", "A-AA", IF([26] Implied Financial Risk ="High", "BB-BBB", "BBB-A")), IF([23] Business Risk ="Low", "BBB-A", IF([26] Implied Financial Risk ="High", "C-BB", "BB-BBB"))))
- Translation
 - This formula first checks whether the business risk is low.
 - If it is, the formula checks if the implied financial risk is low.
 - If it is, then “AA-AAA” is given for implied credit rating.
 - If not, the formula checks if the implied financial risk is high
 - If it is, then “BBB-A” is given for implied credit rating
 - If not, then “A-AA” is given for implied credit rating
 - If not, the formula checks if the business risk is medium
 - If it is, the formula checks if the implied financial risk is low.

RNFC: Value Investing Technical Report

- If it is, then “A-AA” is given for implied financial risk.
- If not, the formula checks if the implied financial risk is high
 - If it is, then “BB-BBB” is given for implied financial risk
 - If not, then “BBB-A” is given for implied financial risk.
- If not, the formula checks if the implied financial risk is low.
 - If it is, then “BBB-A” is given for implied financial risk.
 - If not, the formula checks if the implied financial risk is high
 - If it is, then “C-BB” is given for implied financial risk
 - If not, then “BB-BBB” is given for implied financial risk.

[28] Cost of Debt

- If the company’s debt is trading in the market, the user should input the Yield-To-Maturity for the company’s subordinated debt.
- If the company’s debt is not trading in the market, return on long-term corporate bonds with credit rating that matches the Implied Credit Rating should be used.
- Board of Governors of the Federal Reserve System (website: <http://www.federalreserve.gov/releases/h15/data.htm>) has historic and current information on corporate bond returns for Aaa and Baa rated bonds.

[29] Tax Rate

- =[18] Tax Rate

[30] Cost of Debt (After Tax)

- The tax is applied to pre-tax Cost of Debt to give the After Tax Cost of Debt.
- Formula: =[28] Cost of Debt * (1-[29] Tax Rate)

[31] Equity Risk Premium

- This cell gives the Equity Risk Premium of the company being valued based on the Business Risk and Financial Risk as shown below.

Bus. Risk \ Fin. Risk	Low	Medium	High
Low	2%	3%	3.9%
Medium	4%	5%	5.9%
High	6%	7%	7.9%

- Formula: =IF([23] Business Risk =”Low”, IF([26] Implied Financial Risk =”Low”, 2%, IF([26] Implied Financial Risk =”Medium”, 3%, 3.9%)), IF([23] Business Risk =”Medium”, IF([26] Implied Financial Risk =”Low”, 4%, IF([26] Implied Financial Risk =”Medium”, 5%, 5.9%)), IF([26] Implied Financial Risk =”Low”, 6%, IF([26] Implied Financial Risk =”Medium”, 7%, 8%)))
- Translation
 - This formula first checks whether the business risk is low.
 - If it is, the formula checks if the implied financial risk is low.
 - If it is, then “2%” is given for equity risk premium.
 - If not, the formula checks if the implied financial risk is medium
 - If it is, then “3%” is given for equity risk premium

RNFC: Value Investing Technical Report

- If not, then “3.9%” is given for equity risk premium
- If not, the formula checks if the business risk is medium
 - If it is, the formula checks if the implied financial risk is low.
 - If it is, then “4%” is given for equity risk premium.
 - If not, the formula checks if the implied financial risk is medium
 - If it is, then “5%” is given for equity risk premium
 - If not, then “5.9%” is given for equity risk premium
 - If not, the formula checks if the implied financial risk is low.
 - If it is, then “6%” is given for implied financial risk.
 - If not, the formula checks if the implied financial risk is medium
 - If it is, then “7%” is given for equity risk premium
 - If not, then “8%” is given for equity risk premium

[32] Cost of Equity

- Equity Risk Premium is added on top of the Cost of Debt.
- Formula: $= [28] \text{ Cost of Debt} + [31] \text{ Equity Risk Premium}$

[33] Weight of Debt

- For the purpose of calculating WACC, the Target Capital Structure is used as the Weight of Debt
- $= [25] \text{ Target Capital Structure}$

[34] Weight of Equity

- $= 1 - [25] \text{ Target Capital Structure}$

[35] WACC

- $= [30] \text{ Cost of Debt (After Tax)} * [33] \text{ Weight of Debt} + [32] \text{ Cost of Equity} * [34] \text{ Weight of Equity}$

RNFC: Value Investing Technical Report

Section 3: Return on Invested Capital (ROIC)

This section calculates First Pass ROIC based on basic financial statement items and Second Pass ROIC based on NAV calculations. The ROIC is compared with WACC to draw implications.

If ROIC > WACC:

- the company is NPV positive
- implies $EPV > NAV$, since the assets are yielding higher returns than their cost

If ROIC = WACC:

- implies $EPV = NAV$

If ROIC < WACC:

- the company is NPV negative
- implies $NAV > EPV$, since the returns generated by the assets are lower than their cost of capital

First Pass ROIC

[36] Operating Profit

- The end user must provide the operating profit (\$) figure.

[37] Tax

- =[18] Tax Rate

[38] NOPLATPA

- Net Operating Profit Less Adjusted Taxes Plus Amortization (NOPLATPA)
- Formula: =[36] Operating Profit * (1-[37] Tax) + [270] Add: Amortization for Goodwill
- Translation:
 - o As the name suggests, this formula subtracts tax from operating profit and adds amortization of goodwill (if analyzing a company prior to 2001).

Method 1: Bottom-Up

[39] Current Assets

- The end user must provide the book value of total current assets.

[40] Less: ECMS

- The end user must provide the book value of Excess Cash & Marketable Securities.

[41] Current Liabilities

- The end user must provide the book value of total current liabilities.

[42] Short-Term Debt

- The end user must provide the sum of book value of short term debt and current portion of LT debt.

Operating Fixed Assets

[43] PP&E (BV)

- =[178] BV Operating PP&E

[44] Goodwill

- The end user must provide the book value of goodwill.

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[45] Intangibles

- The end user must provide the book value of intangibles.

[46] Other Assets

- The end user must provide the book value of other operating assets.

[47] Total Operating Fixed Assets

- This cell sums up the operating fixed assets.
- Formula: $= [43] \text{ PP\&E (BV)} + [44] \text{ Goodwill} + [45] \text{ Intangibles} + [46] \text{ Other Assets}$

[48] Invested Capital

- This cell calculates the invested capital.
- Formula: $= ([39] \text{ Current Assets} - [40] \text{ Less: ECMS}) - ([41] \text{ Current Liabilities} - [42] \text{ Short-Term Debt}) + [47] \text{ Total Operating Fixed Assets}$
- Translation
 - o The operating assets are summed up and non-interest-bearing short term liabilities are subtracted to give the net operating asset value.

Method 2: Top Down

[49] Total Assets

- The end user must provide the book value of total assets.

[50] ECMS

- $= [40] \text{ Less: ECMS}$

[51] Current Liabilities

- $= [41] \text{ Current Liabilities}$

[52] Short-Term Debt

- $= [42] \text{ Short-Term Debt}$

[53] Non-Operating Fixed Assets

- This cell sums up book value of all non-operating fixed assets
- Formula: $= [107] \text{ Investments and Advances Book Value} + [110] \text{ Non-taxable NOFA \#1} + [111] \text{ Non-taxable NOFA \#2} + [112] \text{ Non-taxable NOFA \#3} + [114] \text{ Excess Real Estate}$

[54] Invested Capital

- This cell calculates the invested capital.
- Formula: $= [49] \text{ Total Assets} - [50] \text{ ECMS} - ([51] \text{ Current Liabilities} - [52] \text{ Short-Term Debt}) - [53] \text{ Non-Operating Fixed Assets}$
- Translation
 - o The non-operating assets are subtracted from the total asset figure, only leaving the operating assets.

[55] First Pass ROIC – Check

- This cell checks if the two methods of calculating invested capital have yielded the same result. This cell displays the difference between the values calculated by the two approaches, and should equal 0.
- Formula: $= [48] \text{ Invested Capital} - [54] \text{ Invested Capital}$

[56] First Pass ROIC – Annual

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- This cell gives the current year's first pass ROIC.
- Formula: $\text{=[38] NOPLATPA} / \text{[54] Invested Capital}$

[57] First Pass ROIC (Two-Year Avg)

- Ideally, the end user should provide a two-year average ROIC. If this is not calculated, the end user may use the current year ROIC as a proxy ([56] First Pass ROIC – Annual).

Second Pass ROIC

[58] Adjusted NOPLATPA

- Adjusted Net operating Profit Less Adjusted Taxes Plus Amortization (NOPLATPA) is the “return” part of second pass ROIC.
- $\text{= [271] 1. Zero Growth Adjusted NOPLATPA}$

Method 1: Bottom-Up

[59] Total Current Assets

- This cell links to the NAV adjusted value of total current assets.
- $\text{= [89] Total Current Assets}$

[60] ECMS

- This cell links to the NAV adjusted value of Excess Cash & Marketable Securities.
- $\text{= [80] Cash \& Cash Equivalents} + \text{[81] Marketable Securities}$

[61] Current Liabilities

- This cell links to the NAV adjusted value of all of the current liabilities.
- $\text{= [130] Total Current Liabilities}$

[62] Short-Term Debt

- This cell links to the NAV adjusted values of short term debt and current portion of LT debt.
- $\text{= [122] Short Term Debt} + \text{[124] Current Portion of LT Debt}$

Operating Fixed Assets

[63] Adjusted PP&E Value

- This cell links to the NAV adjusted value of total PP&E assets.
- $\text{= [175] Total NAV PP\&E}$

[64] Intangibles (incl. Goodwill)

- This cell links to the NAV adjusted value of all of the intangibles.
- $\text{= [98] Goodwill} + \text{[102] Other Intangibles (Gross)}$

[65] Other Assets

- This cell links to the NAV adjusted value of all of the other assets.
- $\text{= [105] Other Operating Fixed Assets}$

[66] Customer Relations

- This cell links to the NAV adjusted value of the customer relations hidden asset.
- $\text{= [234] Customer Relations}$

[67] Product Portfolio

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- This cell links to the NAV adjusted value of the product portfolio hidden asset.
- = [226] Product Portfolio

[68] Licenses

- This cell links to the NAV adjusted value of the licenses.
- = [101] Government Licenses.

[69] Operating Leases

- This cell links to the NAV adjusted value of the operating leases.
- = [96] Operating Leases

[70] Total Operating Fixed Assets

- This cell sums up the operating fixed assets.
- Formula: = [63] Adjusted PP&E Value + [64] Intangibles (incl. Goodwill) + [65] Other Assets + [66] Customer Relations + [67] Product Portfolio + [68] Licenses + [69] Operating Leases

[71] Invested Capital

- This cell calculates the invested capital.
- Formula: = ([59] Total Current Assets - [60] ECMS) - ([61] Current Liabilities - [62] Short-Term Debt) + [70] Total Operating Fixed Assets
- Translation
 - o The operating assets are summed up and non-interest-bearing short term liabilities are subtracted to give the net operating asset value.

Method 2: Top-Down

[72] Total Assets

- This cell links to the NAV adjusted value of the total assets.
- = [120] Total Assets

[73] ECMS

- = [60] ECMS

[74] Current Liabilities

- = [61] Current Liabilities

[75] Short-Term Debt

- = [62] Short-Term Debt

[76] Non-Operating Fixed Assets

- This cell links to the NAV adjusted value of all of the non-operating fixed assets.
- = [118] Total NOFA

[77] Invested Capital

- This cell calculates the invested capital.
- Formula: = [72] Total Assets - [73] ECMS - ([74] Current Liabilities - [75] Short-Term Debt) - [76] Non-Operating Fixed Assets
- Translation
 - o The non-operating assets are subtracted from the total asset figure, only leaving the operating assets.

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[78] Second Pass ROIC - Check

- This cell checks if the two methods of calculating invested capital have yielded the same result. This cell displays the difference between the values calculated by the two approaches, and should equal 0.
- Formula: $= [71] \text{ Invested Capital} - [77] \text{ Invested Capital}$

[79] Second Pass ROIC

- This cell gives the current year's first pass ROIC.
- Formula: $= [58] \text{ Adjusted NOPLATA} / [71] \text{ Invested Capital}$.

RNFC: Value Investing Technical Report

Section 4: Net Asset Value (NAV)

This section calculates the net asset value of the company by estimating the replacement cost of the firm's assets and subtracting liability and equity items that are not common stock.

ASSETS

[80] Cash & Cash Equivalents

- The end user must provide the book value of cash and cash equivalents.

[81] Marketable Securities

- The end user must provide the book value of marketable securities.

[82] Net Accounts Receivable

- The end user must provide the book value of net accounts receivable.

[83] Plus: Allowance for Doubtful Accounts

- The end user must provide the book value of allowance for doubtful accounts, which can be found in the note section of the company's annual report.

[84] Gross Accounts Receivable

- This cell is the book value of gross accounts receivable. The gross accounts receivable value is used instead of the net accounts receivable value for NAV calculation since the gross accounts receivable is a more accurate representation of the replacement cost of accounts receivables.
- Formula: $= [82] \text{ Net Accounts Receivable} + [83] \text{ Allowance for Doubtful Accounts}$

[85] Inventories (FIFO)

- The end user must provide the book value of inventories, recorded using FIFO. If the inventory was recorded using another method, the end user must convert it to FIFO using information given in the notes of the company's annual report.

[86] Prepaid Expenses

- The end user must provide the book value of prepaid expenses.

[87] Current Deferred Tax Assets

- The end user must provide the book value of deferred tax assets.

[88] Other Current Assets

- The end user must provide the book value of other current assets.

[89] Total Current Assets

- This cell is the sum of the current assets.
- Formula: $= [80] \text{ Cash \& Cash Equivalents} + [81] \text{ Marketable Securities} + [84] \text{ Gross Accounts Receivable} + [85] \text{ Inventories (FIFO)} + [86] \text{ Prepaid Expenses} + [87] \text{ Deferred Tax Assets} + [88] \text{ Other Current Assets}$

Operating Fixed Assets (OFA): This section adds all fixed assets that are currently contributing to the active operation of the company.

[90] Land

- This cell links to the NAV adjusted value of the land.

RNFC: Value Investing Technical Report

- =[156] Value

[91] Building and Improvements

- This cell links to the NAV adjusted value of the building and improvements.
- =[162] Value

[92] Equipment & Machinery

- This cell links to the NAV adjusted value of the equipment & machinery.
- =[165] Value

[93] Other PP&E #1,

[94] Other PP&E #2, and

[95] Other PP&E #3

- These cells link to the NAV adjusted value of the Other PP&E #1, 2, and 3. Different companies will have different kinds of other PP&E assets.
- =[168] Value, [171] Value, and [174] Value respectively.

[96] Operating Leases

- This cell links to the NAV adjusted value of the Operating Lease Assets.
- =[218] Operating Lease Obligation

[97] Goodwill

- The end user must provide the book value of goodwill.

[98] Product Portfolio

- This cell links to the NAV adjusted value of the Product Portfolio.
- =[226] Product Portfolio

[99] Customer Relations

- This cell links to the NAV adjusted value of the Customer Relations.
- =[234] Customer Relations

[100] Government Licenses

- The end user must provide the private market value of government licenses, if any. The private market value can be calculated by looking at recent transactions of similar licenses and applying a multiple.

[101] Other Intangibles (Gross)

- The end user must provide the gross book value of intangible assets. The gross intangibles value is used instead of the net intangibles value for NAV calculation since the gross intangibles is a more accurate representation of the replacement cost of intangibles.

[102] Less: Intangibles Related to Hidden Assets

- The end user must provide the book value of intangibles related to hidden assets, which can be found in the notes of the company's annual report. These intangibles are subtracted since hidden assets are separately calculated in [Section 7: Product Portfolio](#) and [Section 8: Customer Relations](#).

[103] Other Intangibles (Net)

- This cell is the gross book value of intangibles that are not related to hidden assets.
- Formula: =[102] Other Intangibles (Gross) - [103] Less: Intangibles Related to Hidden Assets

RNFC: Value Investing Technical Report

[104] Other Operating Fixed Assets

- The end user must provide the book value of other operating fixed assets.

[105] Total OFA

- This cell is the sum of all operating fixed assets.
- Formula: $= [90] \text{ Land and Improvements} + [91] \text{ Building and Improvements} + [92] \text{ Equipment \& Machinery} + [93] \text{ Other PP\&E \#1} + [94] \text{ Other PP\&E \#2} + [95] \text{ Other PP\&E \#3} + [96] \text{ Operating Leases} + [97] \text{ Non-Current DTAs} + [98] \text{ Goodwill} + [99] \text{ Product Portfolio} + [100] \text{ Customer Relations} + [101] \text{ Government Licenses} + [104] \text{ Other Intangibles (Net)} + [105] \text{ Other Operating Fixed Assets}$

Non-Operating Fixed Assets (NOFA): This section adds all fixed assets that are not used for active business.

[106] Investments and Advances Book Value

- The end user must provide the book value of investments and advances (ownership of shares in other businesses).

[107] Investments and Advances PMV Override

- The end user has the option of providing the market value of investments and advances if such figure is available.

[108] Investments and Advances

- This cell chooses the market value for investments and advances instead of the book value if the market value is available.
- Formula: $= \text{IF}([107] \text{ Investments and Advances PMV Override} > 0, [107] \text{ Investments and Advances PMV Override}, [106] \text{ Investments and Advances Book Value})$
- Translation:
 - o This formula checks whether the Investments and Advances PMV Override has been provided
 - If the [108] Investments and Advances MV Override is greater than 0, the [108] Investments and Advances MV Override is chosen.
 - Otherwise, the [106] Investments and Advances Book Value is chosen.

[109] Non-taxable NOFA #1,

[110] Non-taxable NOFA #2, and

[111] Non-taxable NOFA #3

- These cells represent different kinds of non-taxable, non-operating fixed assets that the company might have, such as Construction-in-Progress.

[112] Non-Current DTAs

- This cell links to the NAV adjusted value of the Non-Current DTAs.
- [181] Value

[113] Non-taxable NOFA

- This cell sums up all non-taxable NOFA.
- Formula: $= [109] \text{ Investments and Advances} + [110] \text{ Non-taxable NOFA \#1} + [111] \text{ Non-taxable NOFA \#2} + [112] \text{ Non-taxable NOFA \#3}$

[114] Excess Real Estate

- This cell calculates the sum of real estate properties that are not being used for active business.
- Formula: $= [152] \text{ Less: Excess RE} + [158] \text{ Less: Excess RE}$

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[115] Implied MV of Excess Real Estate

- This cell calculates how much the excess real estate is implied to be worth, using the same assumptions applied to operating real estate in Section 5: Fixed Asset Adjustment.
- Formula: $= [114] \text{ Excess Real Estate} * (1 + [155] \text{ Adjustment Factor}) ^ [154] \text{ Years}$

[116] MV of Excess Real Estate

- This cell is the market value of real estate if the market value of excess real estate is disclosed.

[117] Taxable NOFA (A/T)

- Since disposition of taxable NOFA incurs capital gains tax, after-tax value of taxable NOFA is calculated.
- Formula: $= \text{IF}([116] \text{ MV of Excess Real Estate} > 0, \text{IF}([116] \text{ MV of Excess Real Estate} > [114] \text{ Excess Real Estate}, [116] \text{ MV of Excess Real Estate} - ([116] \text{ MV of Excess Real Estate} - [114] \text{ Excess Real Estate}) * ([18] \text{ Tax Rate} / 2), [116] \text{ MV of Excess Real Estate}), [115] \text{ Implied MV of Excess Real Estate} - ([115] \text{ Implied MV of Excess Real Estate} - [114] \text{ Excess Real Estate}) * ([18] \text{ Tax Rate} / 2))$
- Translation
 - o This formula first checks whether the market value of excess real estate is provided by the end user
 - If the market value has been provided, then the formula checks whether the market value is larger than the book value of excess real estate
 - If the market value is larger than the book value, then the capital gains tax on the difference between the market value and the book value is subtracted to arrive at the ending value of Taxable NOFA
 - If the market value is smaller or equal to the book value, there is no capital gains tax and the market value is used
 - If the market value is not provided, then the formula checks whether the implied market value is larger than the book value of excess real estate
 - If the implied market value is larger than the book value, then the capital gains tax on the difference between the implied market value and the book value is subtracted to arrive at the ending value of Taxable NOFA
 - If the implied market value is smaller or equal to the book value, there is no capital gains tax and the implied market value is used

[118] Total NOFA

- This cell adds taxable and non-taxable non-operating fixed assets.
- Formula: $= [113] \text{ Non-taxable NOFA} + [117] \text{ Taxable NOFA (A/T)}$

[119] Total Fixed Assets

- This cell sums up operating and non-operating fixed assets.
- Formula: $= [106] \text{ Total OFA} + [118] \text{ Total NOFA}$

[120] Total Assets

- This cell sums up current and fixed assets.
- Formula: $= [89] \text{ Total Current Assets} + [119] \text{ Total Fixed Assets}$

LIABILITY & EQUITY (EXCL. COMMON SHARES)

[121] Accounts Payable

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- The end user must provide the book value of accounts payable.

[122] Short Term Debt

- The end user must provide the book value of short term debt.

[123] Interest Payable

- The end user must provide the book value of interest payable.

[124] Current Portion of LT Debt

- The end user must provide the book value of current portion of long term debt.

[125] Income Tax Payable

- The end user must provide the book value of income tax payable.

[126] Accrued Liabilities

- The end user must provide the book value of accrued liabilities.

[127] Deferred Revenues

- The end user must provide the book value of deferred revenues.

[128] Current Deferred Tax Liabilities

- The end user must provide the book value of current deferred tax liabilities.

[129] Deferred Transaction Costs

- The end user must provide the book value of deferred transaction costs.

[130] Total Current Liabilities

- This cell sums up the current liabilities.
- Formula: $= [121] \text{ Accounts Payable} + [122] \text{ Short Term Debt} + [123] \text{ Interest Payable} + [124] \text{ Current Portion of LT Debt} + [125] \text{ Income Tax Payable} + [126] \text{ Accrued Liabilities} + [127] \text{ Deferred Revenues} + [128] \text{ Current Deferred Income Taxes} + [129] \text{ Deferred Transaction Costs}$

[131] Long Term Debt

- This cell links to the market value of long-term debt.
- $= [245] \text{ MV Long Term Debt}$

[132] Operating Leases

- This cell links to the NAV adjusted value of the operating lease obligation.
- $= [218] \text{ Operating Lease Obligation}$

[133] Capital Lease Obligations

- The end user must provide the book value of capital lease obligations.

[134] Non-current DTLs

- This cell links to the NAV adjusted value of the Non-Current DTLs.
- $[184] \text{ Value}$

[135] Deferred Revenues

- The end user must provide the book value of deferred revenues.

[136] Accrued Expenses

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- The end user must provide the book value of accrued expenses.

[137] Non-controlling Interest

- The end user must provide the book value of non-controlling interest.

[138] Preferred Stock

- The end user must provide the market value of preferred stocks.
- If a class of preferred shares is not traded in the market, the end user may estimate the cost of debt or calculate the implied cost of debt from another class of preferred shares of the same company that is trading in the market. The user can then use this rate and the dividends on the non-trading class of preferred shares to find the market value.

[139] Underfunded Pension Plan

- The end user must provide the book value of underfunded pension plan.

[140] Underfunded Pension Plan (A/T)

- Since pension is taxed when the money is taken out of the plan, the after-tax value of the underfunded pension plan is calculated for NAV.
- Formula: $= [139] \text{ Underfunded Pension Plan} * (1 - [18] \text{ Tax Rate})$

[141] ESOs and Warrants

- The end user must provide the market value of employee stock options and warrants. The end user can use the Black-Scholes option pricing model calculated the implied market value.

[142] ESOs and Warrants Adjusted

- This cell adjusts the ESOs and Warrants, since the Black-Scholes model is normally used for options that are traded on the market. This discounts the value of the options for illiquidity.
- Formula: $= [141] \text{ ESOs and Warrants} * 0.9$

[143] Other LT Liabilities

- The end user must provide the book value of other long term liabilities.

[144] Total LT Liabilities & Equities (Excl. Common Shares)

- This cell is the sum of long term liabilities and equities excluding common shares.
- Formula: $= [131] \text{ Long Term Debt} + [132] \text{ Operating Leases} + [133] \text{ Capital Lease Obligations} + [134] \text{ Non-current DTLs} + [135] \text{ Deferred Revenues} + [136] \text{ Accrued Expenses} + [137] \text{ Non-controlling Interest} + [138] \text{ Preferred Stock} + [140] \text{ Underfunded Pension Plan (A/T)} + [142] \text{ ESOs and Warrants Adjusted} + [143] \text{ Other LT Liabilities}$

[145] Total Liabilities & Equities (Excl. Common Shares)

- This cell is the sum of current and long term liabilities and equities excluding common shares.
- Formula: $= [130] \text{ Total Current Liabilities} + [144] \text{ Total LT Liabilities \& Equities (Excl. Common Shares)}$

NAV

[146] NAV

- The net asset value is calculated by subtracting the total liabilities & equities from total assets.
- Formula: $= [120] \text{ Total Assets} - [145] \text{ Total Liabilities \& Equities (Excl. Common Shares)}$

[147] Basic Shares Outstanding

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- $=[19]$ Shares Outstanding

[148] Less: Treasury Stock

- $=[20]$ Treasury Stock (#)

[149] Adjusted Basic Shares Outstanding

- The treasury stocks are subtracted from basic shares to calculate the outstanding shares held by parties other than the corporation itself.
- Formula: $=[147]$ Basic Shares Outstanding - [148] Less: Treasury Stock

[150] NAV Implied Share Price

- The NAV value is divided by the number of shares to give the implied share price.
- Formula: $=[146]$ NAV / [149] Adjusted Basic Shares Outstanding

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Section 5: Fixed Asset Adjustment

This section provides the adjusted fixed asset figures for the NAV calculation. The purpose of these adjustments is to convert the book values of fixed assets to estimated market values.

PP&E Value

Land

[151] Original Cost

- The end user must provide the original cost of land.

[152] Less: Excess RE

- The end user must provide the original cost of excess land.

[153] Operating Land

- This cell is the book value of operating land.
- Formula: =[151] Original Cost - [152] Less: Excess RE

[154] Years

- The end user must provide an input that represents the number of years that the company held the land for. 15-20 years are common for this variable.

[155] Adjustment Factor

- This cell represents the annual nominal growth in value. 3% is the default.

[156] Value

- The implied market value of land is calculated.
- Formula: =[153] Operating Land * (1+ [155] Adj. Factor) ^ [154] Years

Building and Improvements

[157] Original Cost,

[158] Less: Excess RE,

[159] Operating Building and Improvements,

[160] Years,

[161] Adjustment Factor, and

[162] Value

- Same process as the land adjustment. One difference is that 10-15 years are common for this variable.

Equipment & Machinery

[163] Original Cost

- The end user must provide the original cost of equipment & machinery.

[164] Adjustment Factor

- The end user must assign an adjustment factor based on how quickly the asset becomes obsolete and loses value. For example, a high tech asset that may become obsolete in 2 years should be given an adjustment factor of 0.5 to reflect the rapid depreciation of value ($1 - 1/2 \text{ years} = 0.5$). On the other hand, a low tech asset with a useful life of 10 years should be given an adjustment factor of 0.9 to reflect the slow depreciation of value ($1 - 1/10 \text{ years} = 0.9$).

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[165] Value

- The implied market value of equipment & machinery is calculated.
- Formula: $= [163] \text{ Original Cost} * [164] \text{ Adjustment Factor}$

Other PP&E #1

[166] Original Cost,

[167] Adjustment Factor, and

[168] Value

- Same process as equipment & machinery adjustment.

Other PP&E #2

[169] Original Cost,

[170] Adjustment Factor, and

[171] Value

- Same process as equipment & machinery adjustment.

Other PP&E #3

[172] Original Cost,

[173] Adjustment Factor, and

[174] Value

- Same process as equipment & machinery adjustment.

[175] Total NAV PP&E

- This cell is a sum of adjusted values of all PP&E assets.
- Formula: $= [156] \text{ Value} + [162] \text{ Value} + [165] \text{ Value} + [168] \text{ Value} + [171] \text{ Value} + [174] \text{ Value}$

[176] Original Cost PP&E

- This cell is a sum of original costs of all PP&E assets.
- Formula: $= [151] \text{ Original Cost} + [157] \text{ Original Cost} + [163] \text{ Original Cost} + [166] \text{ Original Cost} + [169] \text{ Original Cost} + [172] \text{ Original Cost}$

[177] Less: Accumulated Depreciation

- The end user must provide the book value of accumulated depreciation.

[178] BV Operating PP&E

- This cell is the book value of all PP&E assets.
- Formula: $= [176] \text{ Original Cost PP\&E} - [177] \text{ Less: Accumulated Depreciation}$

DTA and DTL Adjustment

Deferred Tax Asset

[179] Book Value

- The end user must provide the book value of non-current deferred tax asset.

[180] Adjustment Factor

- The purpose of this cell is to conservatively estimate the realizable value of the DTA.

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- Sample Formula: =IF(C4>2000,0.9,0.8)
- Translation:
 - o If the valuation year found in the Fiscal Year row of the model is after 2000, the adjustment factor is 0.9.
 - o If the valuation year is dated before 2000, the adjustment factor is 0.8.

[181] Value

- The adjustment factor is applied to the book value to calculate the replacement cost.
- Formula: =[179] Book Value * [180] Adjustment Factor

Deferred Tax Liability

[182] Book Value,

[183] Adjustment Factor, and

[184] Value

- Same process as for deferred tax asset.

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Section 6: Operating Lease Obligation

This section calculates the discounted cash flow of operating lease obligations, in order to treat them like capital lease obligations in our valuation.

Obligation

[185] Years 1 – [189] Years 5

- The end user must provide the book values of future operating lease obligations, which are provided in the company's annual report.

[190] Year 1-5 Average Obligation

- This cell calculates the average operating lease obligation in the years 1-5. This value will be used to separate out the lump sum value in [191] Beyond.
- Formula: =AVERAGE(SUM([185] Years 1: [189] Years 5))

[191] Beyond

- The end user must provide the book value of future operating lease obligations beyond 5 years, stated in the company's annual report.

[192] Beyond: Year 6

- The beyond calculations attempt to separate the lump sum beyond value into yearly cash flows that will then be discounted to present day.
- This cell selects the lower of [190] Year 1-5 Average Obligation and [191] Beyond. The rationale is that the company is likely to carry on the similar level of operating lease obligation as the first five years.
- Formula: =MIN([190] Year 1-5 Average Obligation, [191] Beyond)

[193] Beyond: Year 7 – [201] Beyond: Year 15

- This cell selects the lower of [190] Year 1-5 Average Obligation and what is left of [191] Beyond balance after subtracting the previous obligations starting from year 6.
- For example, what is left of [191] Beyond balance in year 7 would be [191] Beyond – [192] Beyond: Year 6. For year 8, the leftover balance would be [191] Beyond - [192] Beyond: Year 6 - [193] Beyond: Year 7, and so on.
- Sample Formula: =MIN([190] Year 1-5 Average Obligation, [191] Beyond - SUM([192] Beyond: Year 6 : [192] Beyond: Year 7))

Discounted

[202] Year 1 – [216] Year 15

- These cells calculate the discounted values for operating lease in Year 1 to 15.
- Sample Formula: =[185] Years 1 / (1 + [217] Discount Rate) ^ Number of Year(s))
- The number of year(s) in these calculations is linked to the heading column from Year 1 to Year 15.

[217] Discount Rate

- =[28] Cost of Debt

[218] Operating Lease Obligation

- This cell is the total discounted future operating lease obligations.
- Formula: =SUM([202] Year 1 : [216] Year 15)

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[219] Adjustment for Operating Leases

- This cell represents the implicit interest expense that the company is paying on the operating lease in the current year.
- Formula: $= [218] \text{ Operating Lease Obligation} * [217] \text{ Discount Rate}$

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Section 7: Product Portfolio

This section estimates the value of the product portfolio hidden asset. Companies that compete on product innovation will show a high product portfolio value.

[220] Sales

- = [16] Revenue (Current Fiscal Year)

[221] R&D Expenditure

- The end user must provide the R&D expenditure that the company incurred in the current fiscal year.

[222] R&D Ratio (Annual)

- This cell is the R&D expenditure as a percentage of sales in the current year.
- Formula: $= [221] \text{ R\&D Expenditure} / [220] \text{ Sales}$

[223] Average R&D Ratio

- The end user must provide the average of R&D ratios in the last 5-8 years.

[224] Normalized R&D Expense

- Normalized R&D is found by applying the average R&D ratio to the current year's sales.
- Formula: $= [220] \text{ Sales} * [223] \text{ Average R\&D Ratio}$

[225] Multiplier

- There are two things to consider when determining this multiplier.
 - o Average R&D Ratio – Companies that sell products that have short shelf-lives will generally have a higher R&D ratio. 2% R&D ratio corresponds with a multiple of 15 (years) and 15% R&D ratio corresponds with a multiple of 2 (years).
 - o Useful life of the actual product before being replaced can be used as a proxy for an adequate multiplier value as well.
- The end user must provide the multiplier (between 0x to 15x) based on how important R&D spending is to the company's competitiveness in the market.

[226] Product Portfolio

- The multiplier is applied to the normalized R&D expense to produce the estimated value of the product portfolio.
- Formula: $= [224] \text{ Normalized R\&D Expense} * [225] \text{ Multiplier}$

[227] Growth R&D Expense

- If the growth scenario is chosen, the growth portion of company's R&D expense is taken out of the EPV valuation.
- Formula: $= \text{IF}([316] \text{ Growth Model Enable} = "Yes", ([226] \text{ Product Portfolio} / [220] \text{ Sales}) * ([16] \text{ Revenue (Current Fiscal Year)} - [17] \text{ Revenue (Last Fiscal Year)}), 0)$
- Translation
 - o This formula checks whether the growth scenario has been enabled
 - If the growth model is enabled, the growth R&D expense is calculated by multiplying the product portfolio to sales ratio by the change in sales.
 - Otherwise, it's 0.

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Section 8: Customer Relations

This section estimates the value of the customer relations hidden asset. Companies that compete on relationships and networks established with their clients will show a high customer relations value.

[228] Sales

- = [16] Revenue (Current Fiscal Year)

[229] SG&A Expenditure / 2

- The end user must provide the SG&A expenditure that the company incurred in the current fiscal year, divided by 2 to arrive at a proxy for expenditure related to building customer relations.

[230] SG&A Expenditure / 2 Ratio (Annual)

- This cell is the SG&A expenditure / 2 as a percentage of sales in the current year.
- Formula: =[229] SG&A Expenditure / 2 / [229] Sales

[231] Average SG&A Expenditure / 2 Ratio

- The end user must provide the average of SG&A / 2 ratios in the last 5-8 years.

[232] Normalized Customer Relations Expense

- Normalized customer relations expense is found by applying the average SG&A expenditure / 2 ratio to the current year's sales.
- Formula: =[229] Sales * [231] Average SG&A Expenditure / 2 Ratio

[233] Multiplier

- The end user must indicate an appropriate multiplier based on the importance of customer relations to the company.
 - o 0x – 1x : Commodity product
 - o 1x – 2x : Differentiated product
 - o 2x – 3x : Concentrated market

[234] Customer Relations

- The multiplier is applied to the normalized customer relations expense to produce the estimated value of the customer relations.
- Formula: =[232] Normalized Customer Relations Expense * [233] Multiplier

[235] Growth CR Expense

- If the growth scenario is chosen, growth customer relations expense is taken out of the EPV valuation.
- Formula: =IF([316] Growth Model Enable ="Yes", ([234] Customer Relations / [228] Sales) * ([16] Revenue (Current Fiscal Year) - [17] Revenue (Last Fiscal Year)), 0)
- Translation
 - o This formula checks whether the growth scenario has been enabled
 - If the growth model is enabled, the growth CR expense is calculated by multiplying the customer relations to sales ratio by the change in sales.
 - Otherwise, it's 0.

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Section 9: Long Term Debt Value

This section calculates the market value of the company's long term debt.

[236] LTD Interest Expense

- The end user must provide the current year interest expense related to the long term debt.

[237] Current Year BV LTD + CP

- The end user must provide the book value of current year's long term debt, including the current portion of long term debt.

[238] Previous Year BV LTD + CP

- The end user must provide the book value of previous year's long term debt, including the current portion.

[239] Average BV Debt

- This cell calculates the average book value of long term debt.
- Formula: =AVERAGE([237] Current Year BV LTD + CP : [238] Previous Year BV LTD + CP)

[240] Coupon Rate

- This cell calculates the coupon rate on the long term debt.
- Formula: =[236] LTD Interest Expense / [239] Average BV Debt

[241] Current Year BV LTD

- =[237] Current Year BV LTD + CP

[242] Cost of Debt

- =[28] Cost of Debt

[243] MV Long Term Debt

- The ratio between the coupon rate and the cost of debt is applied to current year BV LTD to calculate the market value of long term debt.
- Formula: =([240] Coupon Rate / [242] Cost of Debt) * [241] Current Year BV LTD

[244] MV Long Term Debt Override

- The end user may provide an override value if the long term debt is trading in the market or if it has a floating interest rate.

[245] MV Long Term Debt

- This cell selects the market value override if it is available. Otherwise, this cell selects the calculated estimate.
- Formula =IF([244] MV Long Term Debt Override > 0, [244] MV Long Term Debt Override, [243] MV Long Term Debt)

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Section 10: Capital Expenditures

This section calculates the zero growth capital expenditure of the company.

[246] Net PP&E

- This cell sums up all net PP&E assets, including non-merger related intangibles. Operating lease is also included, since it is capitalized under NAV.
- Formula: $= [178] \text{ BV Operating PP\&E} + [45] \text{ Intangibles} + [101] \text{ Government Licenses} + [96] \text{ Operating Leases}$

[247] Sales

- $= [16] \text{ Revenue (Current Fiscal Year)}$

[248] Net PP&E/Sales (Annual)

- This cell finds the ratio between net PP&E assets and current year's sales.
- Formula: $= [246] \text{ Net PP\&E} / [247] \text{ Sales}$

[249] Net PP&E/Sales

- The end user may choose to provide the average of net PP&E / sales ratio for the last 5-8 years.

[250] Change in Sales

- This cell represents the change in sales from previous year to current year.
- Formula: $= [16] \text{ Revenue (Current Fiscal Year)} - [17] \text{ Revenue (Last Fiscal Year)}$

[251] Growth CapEx

- This cell calculates how much capital expenditure the company ought to have incurred, based on how much the sales grew by.
- If the average Net PP&E/Sales is provided, this figure is used in the calculations. Otherwise, the Net PP&E/Sales (Annual) figure is used.
- Formula: $= \text{IF}([249] \text{ Net PP\&E/Sales} > 0, [249] \text{ Net PP\&E/Sales} * [250] \text{ Change in Sales}, [248] \text{ Net PP\&E/Sales (Annual)} * [250] \text{ Change in Sales})$

[252] CapEx

- The end user must provide the current year's capital expenditure found on the company's cash flow statement.

[253] Zero Growth CapEx

- This is the portion of the capital expenditure that is used for maintenance. Generally, this figure will be close to depreciation.
- Formula: $= [252] \text{ CapEx} - [258] \text{ Growth CapEx}$

[254] Zero Growth CapEx Override (Threshold Difference = 10%)

- The zero growth CapEx should match the depreciation expense. If the difference between the zero growth CapEx and the depreciation is too large, depreciation expense is used instead to represent the zero growth CapEx.
- Formula: $= \text{IF}(\text{ABS}([253] \text{ Zero Growth CapEx} - [273] \text{ Add: Depreciation of Fixed Assets and Intangibles}) < 0.1 * [273] \text{ Add: Depreciation of Fixed Assets and Intangibles}, 0, [273] \text{ Add: Depreciation of Fixed Assets and Intangibles})$
- Translation
 - o This formula checks whether the difference between the zero growth CapEx and the depreciation is smaller than 10% of depreciation.

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- If the difference is smaller than 10%, then no override is required and the cell returns 0.
- If the difference is larger than 10%, this cell uses the depreciation figure as an override.

[255] Zero Growth CapEx

- This cell selects the zero growth capex override value if it is available. Otherwise, the calculated value is selected.
- Formula: =IF([254] Zero Growth CapEx Override (Threshold Difference = 10%) = 0, [253] Zero Growth CapEx, [254] Zero Growth CapEx Override (Threshold Difference = 10%))

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Section 11: Earnings Power Value (EPV)

This section calculates the earnings power value of the company by estimating the future cash flow of the firm's operating assets and making adjustments for the non-operating items.

[256] Sales

- $\text{=[16] Revenue (Current Fiscal Year)}$

[257] Operating Margin (Annual)

- This cell shows the operating margin for the current year.
- Formula: $\text{=[36] Operating Profit / [256] Sales}$

[258] Average Operating Margin

- The end user must provide the average of operating margin over a business cycle (last 5-8 years).

[259] Normalized Operating Profits

- Normalized Operating Profits is calculated by applying the average operating margin to current year sales.
- Formula: $\text{=[256] Sales * [258] Average Operating Margin}$

[260] Less: One-time Adjustments

- $\text{=[307] Total One-time Adjustments}$

[261] Add: Adjustment for Operating Leases

- The implicit interest expense that the company is paying on the operating lease in the current year is added back. The rationale is that the interest expense is a financing cost, which is already included in cost of capital.
- $\text{=[219] Adjustment for Operating Leases}$

[262] Add: Stock Option Expense

- The end user must provide the stock option expense found on the company's cash flow statement. This expense is added back since it is not a cash expense for value investing purposes and ESOs are accounted for separately.

[263] 1. Zero Growth Adjusted EBIT

- This cell applies the adjustments to the normalized operating profits.
- Formula: $\text{=[259] Normalized Operating Profits - [260] Less: One-time Adjustments + [261] Add: Adjustment for Operating Leases + [262] Add: Stock Option Expense}$

[264] Add: Growth R&D and Marketing Expense

- If the growth scenario is chosen, growth R&D and customer relations expenses are taken out to give a more accurate picture of EPV with zero growth.
- Formula: $\text{=[227] Growth R\&D Expense + [235] Growth CR Expense}$

[265] 2. Growth Adjusted EBIT

- This cell applies the growth R&D and marketing expense to the zero growth adjusted EBIT.
- Formula: $\text{=IF([316] Growth Model Enable ="Yes", [263] 1. Zero Growth Adjusted EBIT + [264] Add: Growth R\&D and Marketing Expense, 0)}$

[266] Less: Taxes on EBIT

- The tax rate is applied to EBIT to calculate the projected steady future tax.

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- Formula: $=IF([263] \text{ 1. Zero Growth Adjusted EBIT} > 0, [18] \text{ Tax Rate} * [263] \text{ 1. Zero Growth Adjusted EBIT}, 0)$
- Translation
 - o The equation first checks whether there is positive adjusted EBIT
 - If the adjusted EBIT is positive, then the tax rate is applied to find the tax expense
 - If the adjusted EBIT is 0 or negative, there is no tax

[267] 1. Zero Growth Adjusted NOPLAT

- Adjusted Net Operating Profit Less Adjusted Taxes subtracts the tax from the adjusted EBIT
- Formula: $= [263] \text{ 1. Zero Growth Adjusted EBIT} - [266] \text{ Less: Taxes on EBIT}$

[268] Less: Taxes on EBIT

- Same process as [266] Less: Taxes on EBIT, but with growth adjusted EBIT.
- Formula: $= IF([265] \text{ 2. Growth Adjusted EBIT} > 0, [18] \text{ Tax Rate} * [265] \text{ 2. Growth Adjusted EBIT}, 0)$

[269] 2. Growth Adjusted NOPLAT

- Same process as [267] 1. Zero Growth Adjusted NOPLAT, but with growth adjusted EBIT and tax.
- Formula: $= [265] \text{ 2. Growth Adjusted EBIT} - [268] \text{ Less: Taxes on EBIT}$

[270] Add: Amortization for Goodwill

- The end user can provide the amortization for goodwill if applicable. Although goodwill is no longer allowed to be amortized under IFRS, this may be used for analyzing past time periods.

[271] 1. Zero Growth Adjusted NOPLATPA

- Amortization for goodwill is added to adjusted NOPLAT, since it is not a cash expense.
- Formula: $= [267] \text{ 1. Zero Growth Adjusted NOPLAT} + [270] \text{ Add: Amortization for Goodwill}$

[272] 2. Growth-Adjusted NOPLATPA

- Same process as [271] 1. Zero Growth Adjusted NOPLATPA, but with growth adjusted NOPLAT.
- Formula: $= [269] \text{ 2. Growth Adjusted NOPLAT} + [270] \text{ Add: Amortization for Goodwill}$

[273] Add: Depreciation of Fixed Assets and Intangibles

- The end user must provide the current year depreciation and amortization figure.

[274] Add: Income from Non-Consolidated Subs

- If equity method is used for subsidiary consolidation, the company's share of the subsidiary's after tax income should be recorded here.
- If cost method is used for subsidiary consolidation, the dividends received from the subsidiary should be recorded here.

[275] Less: Zero-Growth CapEx

- $= [255] \text{ Zero Growth CapEx}$

[276] 1. Zero Growth FCFs

- Zero growth free cash flows are calculated by adding depreciation of fixed assets and intangibles and income from non-consolidated subsidiaries to zero growth adjusted NOPLATPA and subtracting zero growth capital expenditure.
- Formula: $= [271] \text{ 1. Zero Growth Adjusted NOPLATPA} + [273] \text{ Add: Depreciation of Fixed Assets and Intangibles} + [274] \text{ Add: Income from Non-Consolidated Subs} - [275] \text{ Less: Zero-Growth CapEx}$

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[277] 2. Growth FCFs

- Same process as [276] 1. Zero Growth FCFs, but with growth adjusted NOPLATPA
- Formula: $= [272] \text{ 2. Growth Adjusted NOPLATPA} + [273] \text{ Add: Depreciation of Fixed Assets and Intangibles} + [274] \text{ Add: Income from Non-Consolidated Subs} - [275] \text{ Less: Zero-Growth CapEx}$

[278] WACC

- $= [35] \text{ WACC}$

[279] 1. Zero Growth EPV

- Zero growth earnings power value is calculated by dividing the zero growth FCFs by WACC. The rationale is to find the present value of future cash flows under the assumption that the FCFs will continue into perpetuity.
- Formula: $= [276] \text{ 1. Zero Growth FCFs} / [278] \text{ WACC}$

[280] 2. Growth EPV

- Same process as [279] Zero Growth EPV, but with growth FCFs.
- Formula: $= [277] \text{ 2. Growth FCFs} / [278] \text{ WACC}$

Add:

[281] Non-Operating Current Assets (ECMS)

- This cell links to the book values of excess cash and marketable securities.
- Formula: $= [80] \text{ Cash \& Cash Equivalents} + [81] \text{ Marketable Securities}$

[282] Non-Operating Fixed Assets

- $= [118] \text{ Total NOFA}$

Less:

[283] Non-Operating Current Liabilities

- This cell links to the book values of short term debt and current portion of long term debt.
- Formula: $= [122] \text{ Short Term Debt} + [124] \text{ Current Portion of LT Debt}$

[284] LT Liabilities & Equities (Excl. Common Shares)

- $= [144] \text{ Total LT Liabilities \& Equities (Excl. Common Shares)}$

[285] 1. Zero Growth Equity Value

- This cell calculates the implied equity value in the zero growth scenario by adjusting zero growth EPV by non-operating items.
- Formula: $= [279] \text{ 1. Zero Growth EPV} + [281] \text{ Non-Operating Current Assets (ECMS)} + [282] \text{ Non-Operating Fixed Assets} - [283] \text{ Non-Operating Current Liabilities} - [284] \text{ LT Liabilities \& Equities (Excl. Common Shares)}$

[286] 2. Growth Equity Value

- Same process as [285] 1. Zero Growth Equity Value, but with growth EPV.
- Formula: $= \text{IF}([280] \text{ 2. Growth EPV} > 0, [280] \text{ 2. Growth EPV} + [281] \text{ Non-Operating Current Assets (ECMS)} + [282] \text{ Non-Operating Fixed Assets} - [283] \text{ Non-Operating Current Liabilities} - [284] \text{ LT Liabilities \& Equities (Excl. Common Shares)}, 0)$
- Translation:

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- This function first checks whether [280] 2. Growth EPV is higher than 0. [280] 2. Growth EPV higher than 0 would mean that the growth scenario has been triggered.
 - If [280] 2. Growth EPV > 0, then the cell calculates the implied equity value in the growth scenario by adjusting growth EPV by non-operating items.
 - If [280] 2. Growth EPV ≤ 0, then the cell gives 0.

[287] Shares Outstanding

- = [149] Adjusted Basic Shares Outstanding

[288] 1. Zero Growth EPV Implied Share Price

- The zero growth equity value is divided by the shares outstanding to produce the implied share price.
- Formula: = [285] 1. Zero Growth Equity Value / [287] Shares Outstanding

[289] 2. Growth EPV Implied Share Price

- Same process as [288] 1. Zero Growth EPV Implied Share Price, but with growth equity value.
- Formula: = [286] 2. Growth Equity Value / [287] Shares Outstanding

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Section 12: One-Time Adjustments

This section normalizes recurring one-time expenses so that they can be included in EBIT.

[290] Sales
- = [256] Sales

OTA #1

[291] Frequency

- The end user must provide the frequency of this one-time expense. This cell represents how often the one-time adjustment item occurred in the last 10 years. For example, if it occurred every year for the past 10 years, the frequency would be 1 or 100%; if it occurred 5 years out of the 10 years, the frequency would be 50%. (If information for 10 years is not available, simply use the maximum number of years available and find the proportional frequency.)

[292] OTA Ratio (Annual)

- The end user must provide the current year one-time expense as a percentage of current year sales.

[293] Average OTA Ratio

- The end user should provide the average of annual OTA Ratios in the last 10 years.

[294] OTA #1

- This cell calculates the normalized one-time adjustment #1 expense.
- Formula: = [290] Sales * [291] Frequency * [293] Average OTA Ratio

OTA #2

[295] Frequency,

[296] OTA Ratio (Annual),

[297] Average OTA Ratio, and

[298] OTA #2

- Same process as Items [291] - [294]

OTA #3

[299] Frequency,

[300] OTA Ratio (Annual),

[301] Average OTA Ratio, and

[302] OTA #3

- Same process as Items [291] - [294]

OTA #4

[303] Frequency,

[304] OTA Ratio (Annual),

[305] Average OTA Ratio, and

[306] OTA #4

- Same process as Items [291] - [294]

[307] Total One-time Adjustments

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- This cell sums up results from all OTA items.
- Formula: $= [294] \text{ OTA \#1} + [298] \text{ OTA \#2} + [302] \text{ OTA \#3} + [306] \text{ OTA \#4}$

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Section 13: Growth Extension

This section calculates the value of a company's future growth should the company meets the three criteria for growth.

Value of Growth Criteria

[308] 1. Real Growth

- If all three growth measures (growth in revenue/share, EBIT/share, EPS/share) are positive, the company satisfies the first criterion for growth.
- Formula: =IF(AND([309] Average Real Growth (Revenue/Share) > 0, [310] Average Real Growth (EBIT/Share) > 0, [311] Average Real Growth (EPS/Share) > 0)=TRUE, "Yes", "No")
- Translation
 - o This formula checks whether all three real growth metrics ([309] Average Real Growth (Revenue/Share), [310] Average Real Growth (EBIT/Share), and [311] Average Real Growth (EPS/Share)) are positive.
 - If they are all positive, this formula gives “Yes” to indicate the real growth criterion has been satisfied
 - If one or more real growth metrics are 0 or negative, this formula yields “No”.

[309] Average Real Growth (Revenue/Share)

- The end user must provide the Cumulative Average Growth Rate (CAGR) of revenue/share in the last 5-8 years.

[310] Average Real Growth (EBIT/Share)

- The end user must provide the Cumulative Average Growth Rate (CAGR) of EBIT/share in the last 5-8 years.

[311] Average Real Growth (EPS)

- The end user must provide the Cumulative Average Growth Rate (CAGR) of EPS in the last 5-8 years.

[312] 2. ROIC>WACC (Second Pass)

- This cell tests whether the second pass ROIC is higher than WACC.
- Formula: =IF([79] Second Pass ROIC > [35] WACC, "Yes", "No")
- Translation
 - o This formula checks whether the second pass ROIC is higher than WACC.
 - If ROIC is greater than WACC, this formula gives “Yes” to indicate the ROIC > WACC criterion has been satisfied.
 - Otherwise, the company fails this criterion and this formula yields “No”.

[313] 3. Sustainable Competitive Advantage (>=80% P(S))

- If the probability that the company can sustain its franchise is high (>=80%), then the company satisfies the third criterion.
- Formula: =IF(AND([7] Catalyst / Franchise = "Franchise", [8] Probability >= 80%), "Yes", "No")
- Translation:
 - o This formula checks for two conditions here: (1) does the company have franchise value, and (2) does the probability of sustaining that franchise equal to or exceed 80%.
 - If both conditions are satisfied, this formula gives “Yes” to indicate the sustainable competitive advantage criterion has been satisfied.

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- Otherwise, the company fails this criterion and is given a “No” status.

Growth Model Enabler

[314] Enable Growth Model Recommendation

- This cell decides whether the company has growth value based on the three criteria considered above.
- Formula: =IF(AND([308] 1. Real Growth = “Yes”, [312] 2. ROIC>WACC (Second Pass) = "Yes", [313] 3. Sustainable Competitive Advantage (>=80% P(S)) = "Yes"), "Yes", "No")
- Translation
 - This formula checks whether all three value of growth criteria have been met.
 - If all three criteria are satisfied, the recommendation is “Yes”,
 - Otherwise, it is “No”.

[315] Enable Growth Model Override

- The override cell provides the end user with the opportunity to exercise discretion regarding whether or not growth should be incorporated in the valuation of the company.
- The drop-down menu provides three options: “Yes”, “No”, “Off”. Choose “Yes” to turn on the growth model manually. Choose “No” to turn off the growth model manually. Choose “Off” to use the recommendation in [314] Enable Growth Model Recommendation. The default value is “Off”.

[316] Growth Model Enable

- This cell determines whether the growth model is enabled. In [315] Enable Growth Model Override: if “Yes” is selected, the value of growth calculations are activated. If “No” is selected, the value of growth is assumed to be 0. If “Off” is selected, the value of growth is calculated based on the recommendation provided in [314] Enable Growth Model Recommendation.
- Note that this is the cell that has been referenced to in other parts of the model in order to calculate the value of growth.
- Formula: =IF([315] Enable Growth Model Override = "Off", [314] Enable Growth Model Recommendation, [315] Enable Growth Model Override)
- Translation
 - This cell checks if an override has been provided and takes the appropriate value regarding enabling growth calculations.
 - If [315] Enable Growth Model Override equals “Off”, then [314] Enable Growth Model Recommendation is selected.
 - Otherwise, [315] Enable Growth Model Override is selected.

Growth Model

[317] Third Pass NOPLATPA

- =[272] 2. Growth-Adjusted NOPLATPA

[318] Third Pass Invested Capital

- =[77] Invested Capital
- If growth scenario is chosen, the end user should consider making discretionary changes to hidden asset multipliers to ensure consistency with growth assumption.

[319] Third Pass ROIC

- =[317] Third Pass NOPLATPA / [318] Third Pass Invested Capital

[320] WACC

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- =[35] WACC

[321] EPV/Share

- =[289] 2. Growth EPV Implied Share Price

[322] Assumed Margin of Safety

- =[10] Required Margin of Safety

Growth Scenarios

This section gives the end user an opportunity to perform sensitivity on various levels of growth. This section can assist the user in making the final growth rate assumption.

[323] [Growth Rate \(g\)](#)

- The end user must provide an assumed growth rate as an input.

[324] Value Growth Multiplier (VGM)

- This cell calculates the VGM based on the assumed growth rate, third pass ROIC, and WACC.
- Formula: =IFERROR((([319] Third Pass ROIC – [323] Growth Rate (g)) * [320] WACC) / (([320] WACC – [323] Growth Rate (g)) * [319] Third Pass ROIC),0)
- Translation
 - o VGM is calculated as (([319] Third Pass ROIC – [323] Growth Rate (g)) * [320] WACC) / (([320] WACC – [323] Growth Rate (g)) * [319] Third Pass ROIC)
 - o If this formula returns an error, such as the case when [316] Growth Model Enable = “No”, then VGM = 0.

[325] Value of Growth (Vg)

- The value of growth is calculated by multiplying the value growth multiplier to the EPV/share.
- Formula: =[324] Value Growth Multiplier (VGM) * [321] EPV/Share

[326] Adjusted Entry Price

- The adjusted entry price calculated by incorporating margin of safety to the value of growth. However, the adjusted entry price is capped at the EPV/share value.
- Formula: =MIN([325] Value of Growth (Vg) * (1-[322] Assumed Margin of Safety), [321] EPV/Share)

[327] [Growth Rate \(g\)](#),

[328] Value Growth Multiplier (VGM),

[329] Value of Growth (Vg), and

[330] Adjusted Entry Price

- Same process as [323] – [326] but with a different growth rate assumption.

[331] [Growth Rate \(g\)](#),

[332] Value Growth Multiplier (VGM),

[333] Value of Growth (Vg), and

[334] Adjusted Entry Price

- Same process as [323] – [326] but with a different growth rate assumption.

[335] [Growth Rate \(g\)](#),

[336] Value Growth Multiplier (VGM),

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[337] Value of Growth (Vg), and

[338] Adjusted Entry Price

- Same process as [323] – [326] but with a different growth rate assumption.

Breakeven Analysis

[339] Third Pass ROIC

- =[319] Third Pass ROIC

[340] Third Pass ROIC (Check)

- This cell limits the third pass ROIC to WACC + 10%, since it is unrealistic for a company to sustain that kind of franchise in the long term.
- Formula: =MIN([320] WACC + 0.1, [339] Third Pass ROIC)

[341] Breakeven VGM

- Breakeven VGM is the VGM at which the entry price equals the EPV valuation.
- Formula: =1 / (1 - [322] Assumed Margin of Safety)

[342] Breakeven Growth Rate

- This cell calculates the growth rate that produces the breakeven VGM.
- The value growth multiplier equation demonstrated in [324] Value Growth Multiplier (VGM) is rearranged to take [341] Breakeven VGM as an input and to calculate breakeven growth rate.
- Formula: =([340] Third Pass ROIC (Check) * [320] WACC * ([341] Breakeven VGM -1))/([341] Breakeven VGM * [340] Third Pass ROIC (Check) - [320] WACC)

Chosen Scenario

[343] Realistic Growth Rate (g)

- The end user must provide the final growth rate used to determine intrinsic value. The user can refer to the growth scenarios to get a sense of the sensitivity of entry price to growth rate assumptions.
- This value can be compared to [342] Breakeven Growth Rate to see whether the growth model will actually add value. If [343] Realistic Growth Rate (g) > [342] Breakeven Growth Rate, then the growth model adds value.

[344] VGM (Based on Realistic Growth Rate Chosen Above)

[345] Value of Growth (Vg), and

[346] Growth Entry Price

- Same process as [324] – [326] but with [343] Realistic Growth Rate (g)

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Appendix

Index	
[1]	First Pass ROIC
[2]	Second Pass ROIC
[3]	NAV
[4]	EPV - No Growth
[5]	EPV - Growth
[6]	Difference
[7]	Catalyst / Franchise
[8]	Probability
[9]	Realizable Differential Value
[10]	Required Margin of Safety
[11]	Intrinsic Value
[12]	Entry Price
[13]	Current Trading Price
[14]	Current Discount(Premium) to Entry Price
[15]	Buy / No Buy
[16]	Revenue (Current Fiscal Year)
[17]	Revenue (Last Fiscal Year)
[18]	Tax Rate
[19]	Shares Outstanding (Shares + RSUs)
[20]	Treasury Stock (#)
[21]	Market Capitalization
[22]	Book Value of Equity
[23]	Business Risk
[24]	Current Capital Structure
[25]	Target Capital Structure
[26]	Implied Financial Risk
[27]	Implied Credit Rating
[28]	Cost of Debt

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[29]	Tax Rate
[30]	Cost of Debt (After Tax)
[31]	Equity Risk Premium
[32]	Cost of Equity
[33]	Weight of Debt
[34]	Weight of Equity
[35]	WACC
[36]	Operating Profit
[37]	Tax
[38]	NOPLATPA
[39]	Current Assets
[40]	Less: ECMS
[41]	Current Liabilities
[42]	Short-Term Debt
[43]	PP&E (BV)
[44]	Goodwill
[45]	Intangibles
[46]	Other Assets
[47]	Total Operating Fixed Assets
[48]	Invested Capital
[49]	Total Assets
[50]	ECMS
[51]	Current Liabilities
[52]	Short-Term Debt
[53]	Non-Operating Fixed Assets
[54]	Invested Capital
[55]	First Pass ROIC - Check
[56]	First Pass ROIC - Annual
[57]	First Pass ROIC (Two-Year Avg)
[58]	Adjusted NOPLATPA
[59]	Total Current Assets

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[60]	ECMS
[61]	Current Liabilities
[62]	Short-Term Debt
[63]	Adjusted PP&E Value
[64]	Intangibles (incl. Goodwill)
[65]	Other Assets
[66]	Customer Relations
[67]	Product Portfolio
[68]	Licenses
[69]	Operating Leases
[70]	Total Operating Fixed Assets
[71]	Invested Capital
[72]	Total Assets
[73]	ECMS
[74]	Current Liabilities
[75]	Short-Term Debt
[76]	Non-Operating Fixed Assets
[77]	Invested Capital
[78]	Second Pass ROIC - Check
[79]	Second Pass ROIC
[80]	Cash & Cash Equivalents
[81]	Marketable Securities
[82]	Net Accounts Receivable
[83]	Plus: Allowance for Doubtful Accounts
[84]	Gross Accounts Receivable
[85]	Inventories (FIFO)
[86]	Prepaid Expenses
[87]	Current Deferred Tax Assets
[88]	Other Current Assets
[89]	Total Current Assets
[90]	Land

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[91]	Building and Improvements
[92]	Equipment & Machinery
[93]	Other PP&E #1
[94]	Other PP&E #2
[95]	Other PP&E #3
[96]	Operating Leases
[97]	Goodwill
[98]	Product Portfolio
[99]	Customer Relations
[100]	Government Licenses
[101]	Other Intangibles (Gross)
[102]	Less: Intangibles Related to Hidden Assets
[103]	Other Intangibles (Net)
[104]	Other Operating Fixed Assets
[105]	Total OFA
[106]	Investments and Advances Book Value
[107]	Investments and Advances PMV Override
[108]	Investments and Advances
[109]	Non-taxable NOFA #1
[110]	Non-taxable NOFA #2
[111]	Non-taxable NOFA #3
[112]	Non-Current DTAs
[113]	Non-taxable NOFA
[114]	Excess Real Estate
[115]	Implied MV of Excess Real Estate
[116]	MV of Excess Real Estate
[117]	Taxable NOFA (A/T)
[118]	Total NOFA
[119]	Total Fixed Assets
[120]	Total Assets
[121]	Accounts Payable

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[122]	Short Term Debt
[123]	Interest Payable
[124]	Current Portion of LT Debt
[125]	Income Tax Payable
[126]	Accrued Liabilities
[127]	Deferred Revenues
[128]	Current Deferred Tax Liabilities
[129]	Deferred Transaction Costs
[130]	Total Current Liabilities
[131]	Long Term Debt
[132]	Operating Leases
[133]	Capital Lease Obligations
[134]	Non-current DTLs
[135]	Deferred Revenues
[136]	Accrued Expenses
[137]	Non-controlling Interest
[138]	Preferred Stock
[139]	Underfunded Pension Plan
[140]	Underfunded Pension Plan (A/T)
[141]	ESOs and Warrants
[142]	ESOs and Warrants Adjusted
[143]	Other LT Liabilities
[144]	Total LT Liabilities & Equities (Excl. Common Shares)
[145]	Total Liabilities & Equities (Excl. Common Shares)
[146]	NAV
[147]	Basic Shares Outstanding
[148]	Less: Treasury Stock
[149]	Adjusted Basic Shares Outstanding
[150]	NAV Implied Share Price
[151]	Original Cost
[152]	Less: Excess RE

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[153]	Operating Land
[154]	Years
[155]	Adjustment Factor
[156]	Value
[157]	Original Cost
[158]	Less: Excess RE
[159]	Operating Building and Improvements
[160]	Years
[161]	Adjustment Factor
[162]	Value
[163]	Original Cost
[164]	Adjustment Factor
[165]	Value
[166]	Original Cost
[167]	Adjustment Factor
[168]	Value
[169]	Original Cost
[170]	Adjustment Factor
[171]	Value
[172]	Original Cost
[173]	Adjustment Factor
[174]	Value
[175]	Total NAV PP&E
[176]	Original Cost PP&E
[177]	Less: Accumulated Depreciation
[178]	BV Operating PP&E
[179]	Book Value
[180]	Adjustment Factor
[181]	Value
[182]	Book Value
[183]	Adjustment Factor

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[184]	Value
[185]	Year 1
[186]	Year 2
[187]	Year 3
[188]	Year 4
[189]	Year 5
[190]	Year 1-5 Average Obligation
[191]	Beyond
[192]	Year 6
[193]	Year 7
[194]	Year 8
[195]	Year 9
[196]	Year 10
[197]	Year 11
[198]	Year 12
[199]	Year 13
[200]	Year 14
[201]	Year 15
[202]	Year 1
[203]	Year 2
[204]	Year 3
[205]	Year 4
[206]	Year 5
[207]	Year 6
[208]	Year 7
[209]	Year 8
[210]	Year 9
[211]	Year 10
[212]	Year 11
[213]	Year 12
[214]	Year 13

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[215]	Year 14
[216]	Year 15
[217]	Discount Rate
[218]	Operating Lease Obligation
[219]	Adjustment for Operating Leases
[220]	Sales
[221]	R&D Expenditure
[222]	R&D Ratio (Annual)
[223]	Average R&D Ratio
[224]	Normalized R&D Expense
[225]	Multiplier
[226]	Product Portfolio
[227]	Growth R&D Expense
[228]	Sales
[229]	SG&A Expenditure / 2
[230]	SG&A/2 Ratio (Annual)
[231]	Average SG&A/2 Ratio
[232]	Normalized Customer Relations Expense
[233]	Multiplier
[234]	Customer Relations
[235]	Growth CR Expense
[236]	LTD Interest Expense
[237]	Current Year BV LTD + CP
[238]	Previous Year BV LTD + CP
[239]	Average BV Debt
[240]	Coupon Rate
[241]	Current Year BV LTD
[242]	Cost of Debt
[243]	MV Long Term Debt
[244]	MV Long Term Debt Override
[245]	MV Long Term Debt

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[246]	Net PP&E
[247]	Sales
[248]	Net PP&E/Sales (Annual)
[249]	Net PP&E/Sales (3-Yr Average)
[250]	Change in Sales
[251]	Growth CapEx
[252]	CapEx
[253]	Zero Growth CapEx
[254]	Zero Growth CapEx Override (Threshold Difference = 10%)
[255]	Zero Growth CapEx
[256]	Sales
[257]	Operating Margin (Annual)
[258]	Average Operating Margin
[259]	Normalized Operating Profits
[260]	Less: One-time Adjustments
[261]	Add: Adjustment for Operating Leases
[262]	Add: Stock Option Expense
[263]	1. Zero Growth Adjusted EBIT
[264]	Add: Growth R&D and Marketing Expense
[265]	2. Growth Adjusted EBIT
[266]	Less: Taxes on EBIT
[267]	1. Zero Growth Adjusted NOPLAT
[268]	Less: Taxes on EBIT
[269]	2. Growth Adjusted NOPLAT
[270]	Add: Amortization for Goodwill
[271]	1. Zero Growth Adjusted NOPLATPA
[272]	2. Growth-Adjusted NOPLATPA
[273]	Add: Depreciation of Fixed Assets and Intangibles
[274]	Add: Income from Non-Consolidated Subs
[275]	Less: Zero-Growth CapEx
[276]	1. Zero Growth FCFs

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[277]	2. Growth FCFs
[278]	WACC
[279]	1. Zero Growth EPV
[280]	2. Growth EPV
[281]	Non-Operating Current Assets (ECMS)
[282]	Non-Operating Fixed Assets
[283]	Non-Operating Current Liabilities
[284]	LT Liabilities & Equities (Excl. Common Shares)
[285]	1. Zero Growth Equity Value
[286]	2. Growth Equity Value
[287]	Shares Outstanding
[288]	1. Zero Growth EPV Implied Share Price
[289]	2. Growth EPV Implied Share Price
[290]	Sales
[291]	Frequency
[292]	OTA Ratio (Annual)
[293]	Average OTA Ratio
[294]	OTA #1
[295]	Frequency
[296]	OTA Ratio (Annual)
[297]	Average OTA Ratio
[298]	OTA #2
[299]	Frequency
[300]	OTA Ratio (Annual)
[301]	Average OTA Ratio
[302]	OTA #3
[303]	Frequency
[304]	OTA Ratio (Annual)
[305]	Average OTA Ratio
[306]	OTA #4
[307]	Total One-time Adjustments

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[308]	1. Real Growth
[309]	Average Real Growth (Revenue/Share)
[310]	Average Real Growth (EBIT/Share)
[311]	Average Real Growth (EPS)
[312]	2. ROIC>WACC (Second Pass)
[313]	3. Sustainable Competitive Advantage ($\geq 80\%$ P(S))
[314]	Enable Growth Model Recommendation
[315]	Enable Growth Model Override
[316]	Growth Model Enable
[317]	Third Pass NOPLATPA
[318]	Third Pass Invested Capital
[319]	Third Pass ROIC
[320]	WACC
[321]	EPV/Share
[322]	Assumed Margin of Safety
[323]	Growth Rate (g)
[324]	Value Growth Multiplier (VGM)
[325]	Value of Growth (Vg)
[326]	Adjusted Entry Price
[327]	Growth Rate (g)
[328]	Value Growth Multiplier (VGM)
[329]	Value of Growth (Vg)
[330]	Adjusted Entry Price
[331]	Growth Rate (g)
[332]	Value Growth Multiplier (VGM)
[333]	Value of Growth (Vg)
[334]	Adjusted Entry Price
[335]	Growth Rate (g)
[336]	Value Growth Multiplier (VGM)
[337]	Value of Growth (Vg)
[338]	Adjusted Entry Price

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[339]	Third Pass ROIC (Average)
[340]	Third Pass ROIC (Check)
[341]	Breakeven VGM
[342]	Breakeven Growth Rate
[343]	Realistic Growth Rate (g)
[344]	VGM (Based on Realistic Growth Rate Chosen Above)
[345]	Value of Growth (Vg)
[346]	Growth Entry Price