

# Firm Value Enhancement

Applied to DCF Framework

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*Sources:*

Investm. Valuation 3<sup>rd</sup> ed. (2012) by Damadoran, NYU  
Analyst Guide (2018) by Stockholm Business School  
Valuation 6<sup>th</sup> ed. (2015) by McKinsey & Company

# 1

## Learning Objective

Impact of Public Information Releases on Fundamental Drivers of Firm Value

# Understanding Value Impact of Public Information

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1. Understand the **fundamental value drivers** of shareholder/firm value
2. **Filter those drivers** from new releases of public information
3. **Translate qualitative factors** related to businesses & their environment into quantitative (accounting) metrics used in valuation
4. Evaluate the **economic impact** of the filtered information on value drivers and shareholder/firm value

# Translate Qualitative Into Quantitative Information

Strategic Changes in Qualitative Factors	Changes in Quantitative Factors
vertical integration in supply chain	cost reduction → profit margin increase
cross-selling through business acquisitions or partnerships	sales increase → earnings increase
strengthening competitive advantage by building brand name	sales price increase → profit margin increase
sustaining first mover advantage through effective R&D investments and continuous early product launches	sales increase → earnings increase
hiring successful managers with outstanding mgmt. record in: <ul style="list-style-type: none"> <li>– smart capital allocation to high NPV investment projects</li> <li>– stock buybacks at depressed valuations</li> <li>– deleveraging for more fin. resilience during downturns</li> </ul>	less (re)investment needs → FCFF increase ROIC increase → higher sustainable growth rate less shares outstanding → higher EPS lower financing risk → cost of capital reduction

# Focused Reading of Public Information

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- » Check corporate news and the MD&A section of quarterly & annual financial statements on topics related to firms':
  - » Change in product pricing policy
  - » Technological improvements of production (e.g. automatization)
  - » Compatibility with competitors' software
  - » Investments into existing or new businesses/regions
  - » Launch of large S&M campaigns & partnerships (to build brand name)
  - » New product patents
  - » Deleveraging
  - » Economies of scale & cost cutting

# 2

## Preliminary Summary

Direction of Impact of Each Value Driver, Challenges

# Direction of Impact of Each Value Driver

## Connecting Narrative with Numbers

- » Determine the effect of qualitative changes (slide 5) initiated by firm mgmt. on quantitative/accounting numbers
- » Base your profitability and growth assumptions on aspects like:
  - » Strong brand name
  - » Patent protection
  - » Unique (hard-to-copy) business models

	Value effect
Sales (growth)	↑
- Operating expenses (COGS, SG&A, D&A)	↓
= EBIT	
- Taxes	↓
= NOPAT	
- Fixed assets invest. (CapEx)	↓ ↑
- Current assets invest. (WC)	↓ ↑
= Free cash flows (FCFF)	
÷ Cost of capital (WACC)	↓
= Firm value	

CapEx = capital expenditures | WC = working capital



# Direction of Impact of Each Value Driver

Potential Value Drivers	Impact on Firm Value
Higher Sales Growth	
Change in pricing New or improved products or services	Ambiguous Positive
Higher Operating Margin	
Cost cutting Increasing operating efficiency	Positive Positive
Higher Earnings Growth	
ROIC increase Higher (re)investment rate	Positive Ambiguous

# Direction of Impact of Each Value Driver

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Potential Value Drivers	Impact on Firm Value
Longer High Earnings Growth	Positive
Higher Corporate Tax Rate	Negative
Higher Cost of Capital	Negative

# Challenges in Increasing Share Price Consistently

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» Why only very few managers are able to enhance firm value consistently:

## Cost Cutting Reluctancy

- » Requires **hard decisions** on layoffs and other cost cuts
- » Must **analyze new investments** with more care
- » The larger the firm or bigger the cost cuts, the longer it will take to cut costs

## Need For Interdepartmental Cooperation

- » Increasing sales → requires sales & marketing
- » Reducing costs → requires operating mgrs. & HR
- » Increasing return on investments → requires strategic & fin. planers

# Challenges in Increasing Share Price Consistently

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## Firm-Specific Value Improvement

- » Diagnosing the **specific problems** of a firm and tailoring a response to these problems

## Delayed Market Price Reaction

- » Taking all the right value-enhancing actions may **not necessarily be rewarded immediately** by financial markets through an increase in share price
- » Managers who took these actions may not be around to share in the rewards and are thus more **reluctant to initiate bigger changes**

# 3

## Value Drivers in DCF Model

Sales, Op. Margin, Taxation, Reinvestments, Cost of Capital, High-Growth Period

# Key Financial Contributors to Intrinsic Value

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» The intrinsic value of a firm can be raised by:

1. Increasing **free cash flows** from assets in place
2. Increasing expected **growth** while preserving **excess returns** ( $ROIC > WACC$ )
3. Increasing **length of high-growth** period
4. Lowering **cost of capital** through operating & financing risk reduction

# Key Financial Contributors to Intrinsic Value



FCFF = free cash flows to the firm

# Key Financial Contributors to Intrinsic Value

$$\text{Present firm value} = \frac{\text{Current FCFF} * (1 + \text{SGR})}{\text{Cost of capital} - \text{SGR}}$$

Increase Sales Growth    Increase Operating Margin

Lower Costs of Financing    Increase Growth Rate

$$\text{FCFF} = \text{EBIT} * (1 - t) + \text{Noncash charges} - \text{Net capital expenditures} - \text{Change in noncash working capital}$$

Lower Tax Rate

Lower (Re)investments

$$\text{SGR} = \text{Reinvestment rate} * \text{ROIC}$$

Increase (Re)investments

Increase ROIC

t = marginal tax rate | SGR = sustainable growth rate



# Higher Sales Growth

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$$\text{Sales growth} = (1 + \text{Sales price growth}) * (1 + \text{Sales volume growth}) - 1$$

## Strategic Changes

» Change in pricing:

1. Price increase → sales volume ↓ → sales growth ↑↓
2. Price decrease → sales volume ↑ → sales growth ↑↓

» Sales growth paths:

» Best value outcome

» Creating customer demand through new products → all competitors benefit

» Av./moderate value outcome

» Gaining market share in fast growing markets → competitors can still grow

# Higher Sales Growth

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- » Sales growth paths (cont'd):
  - » Below av. value outcome
    - » Gaining market shares from rivals → competitors replicate products & price wars

## Caution

- » The increase in sales price must be larger than the decrease in volume from the price increase (the drop in volume depends on elasticity of demand for a product)
- » For volume growth through sales price decrease, the firm needs a cost advantage over its competitors to prevent price wars and increase sales sufficiently to compensate for lower margins

# Operating Margin Improvement

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» Increasing the operating margin on existing assets

## Strategic Changes

1. Cutting operating costs (COGS, SG&A)
2. Higher operating efficiency
  - » Identify bottlenecks in production
  - » Simplify processes by eliminating redundant steps
  - » Minimize waste by making more use of inputs

## Caution

- » Cut only resources that do not contribute sufficiently to current operating income or future earnings growth

# Operating Margin Improvement

## Example

Reducing packaging costs (GOGS)



# Lower Corporate Tax Burden

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» Lower effective tax rate produces higher NOPAT (after-tax CF)

## Strategic Changes

1. Moving income to **lower-tax jurisdictions** (e.g. through intracompany sales)
2. Using **net operating losses** to shield future earnings from taxes
3. Shifting higher income during cyclical peaks to troughs (**income smoothing**) to avoid exposure to higher tax brackets during peaks

# Higher Earnings Growth

» Increasing pre-/after-tax operating income (EBIT/NOPAT)

## Strategic Changes

1. Improving **return on invested capital** (ROIC) on existing & new investment projects to generate excess returns (ROIC > cost of capital) → EBIT/NOPAT ↑

$$\text{ROIC} \uparrow = \frac{\text{NOPAT} \uparrow}{\text{Invested Capital}} = \frac{\text{EBIT} \uparrow * (1 - t)}{\text{Equity} + \text{Debt}}$$

2. Raising **(re)investment rate** while preserving excess returns → EBIT/NOPAT ↑

$$\text{SGR} \uparrow = \text{Reinvestment rate} \uparrow * \text{ROIC}$$

(sl. 14)

# Higher Earnings Growth

## Caution

- » **New competitors** will enter the market, making it more difficult to sustain sales growth and high operating margins → EBIT/NOPAT growth ↓ → ROIC growth ↓

$$g_{\text{ROIC}} \downarrow = \frac{g_{\text{NOPAT}} \downarrow}{g_{\text{Invested capital}}}$$

- » Investments in **new businesses which are far more risky** than firm's existing business increases its cost of capital over-proportionally

$$\text{Present firm value} = \frac{\text{Current FCFF} * (1 + \text{SGR} \uparrow)}{\text{Cost of capital} \uparrow\uparrow - \text{SGR} \uparrow} \quad (\text{sl. 15})$$

# Higher Earnings Growth

» Higher (re)investment rate usually results in higher **expected future growth** but at the expense of lower current free cash flows → net effect of trade-off determines whether firm value increases/decreases

» Standard formula: (sl. 15)

$$\text{Present firm value } \uparrow\downarrow = \frac{\text{Current FCFF } \downarrow * (1 + \text{SGR } \uparrow)}{\text{Cost of capital} - \text{SGR } \uparrow}$$

$$\text{Current FCFF } \downarrow = \text{EBIT} * (1 - t) - (\text{Re})\text{investments } \uparrow \quad (\text{neg. effect})$$

$$\text{SGR } \uparrow = \text{Reinvestment rate } \uparrow * \text{ROIC} \quad (\text{pos. effect})$$

» Alternative formula:

$$\text{Present firm value } \uparrow\downarrow = \frac{\text{Exp. NOPAT} * (1 - \frac{\text{SGR } \uparrow}{\text{ROIC}})}{\text{Cost of capital} - \text{SGR } \uparrow}$$



# Longer High Earnings Growth

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- » Lengthening high-growth period with excess returns

## Strategic Changes

- » Generating new **competitive advantages** or augmenting existing ones:
  - » Brand name
  - » Product innovation & differentiation
  - » Patent, licenses & other legal protections
  - » Cost advantage

## Caution

- » Assumes some **barriers to entry** which secure profits & excess returns that prevail
- » No firm should be able to earn **excess returns for an unlimited length** of time in a competitive product market

# Less (Re)investment Needs

» Reducing (re)investment requirements in fixed assets (I-t) and noncash current assets (s-t)

» Tradeoff: sacrificing I-t growth (SGR ↓) for higher s-t growth (current FCFF ↑)

$$\text{Present firm value } \uparrow\downarrow = \frac{\text{Current FCFF } \uparrow * (1 + \text{SGR } \downarrow)}{\text{Cost of capital} - \text{SGR } \downarrow} \quad (\text{sl. 23})$$

$$\text{Current FCFF } \uparrow = \text{EBIT} * (1 - t) - \text{Net CapEx } \downarrow - \Delta\text{noncash NWC } \downarrow \quad (\text{pos. effect})$$

$$\text{SGR } \downarrow = \text{Reinvestment rate } \downarrow * \text{ROIC} \quad (\text{neg. effect})$$

$$\text{Reinvestment rate } \downarrow = \frac{\text{Net CapEx } \downarrow + \Delta\text{noncash NWC } \downarrow}{\text{EBIT} * (1 - t)}$$

# Less (Re)investment Needs

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## Strategic Changes

- » Cutting back noncash NWC by:
  - » Reducing inventory
  - » Lowering sales on credit
  - » Higher trade payables
- » Avoiding new or liquidate existing unprofitable investment projects with neg. NPV

## Caution

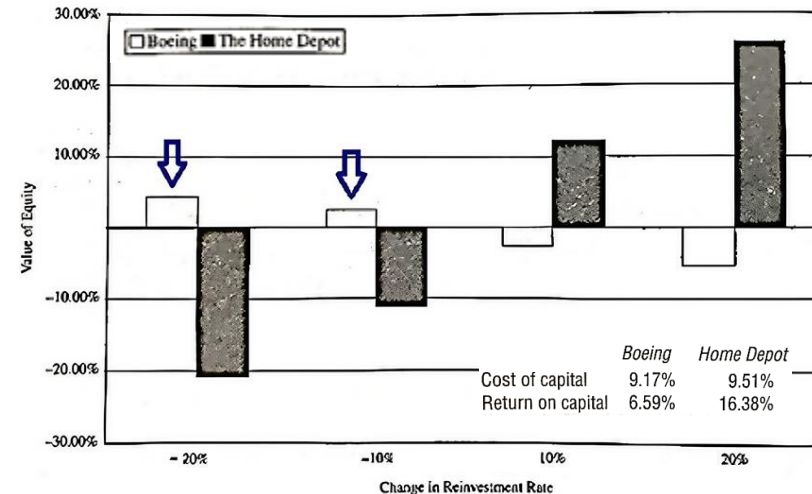
- » Keep sufficient inventory stock to avoid losses from not satisfying customer orders
- » Grant sufficient sales receivables in order to not reduce sales by too much
- » Limit trade payables demanded from suppliers to keep relationships intact
- » Assets deplete at a faster rate when reducing maintenance CapEx

# Value Destructive Path of (Re)investing

- » Non-profitable investment projects with negative NPV ( $ROIC < WACC$ )
- » 35% of all global companies generated composite returns on capital lower than their cost of capital (2011)

## Strategic Changes

1. Full/partial liquidation of businesses with neg. earnings



2. Higher ROIC by increasing sales & operating efficiency → sales-to-capital ratio ↑ & operating margins ↑ → EBIT/NOPAT ↑

Graph: Damadoran, A. (2012) Investment Valuation 3<sup>rd</sup> ed.

# Lower Cost of Capital

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$$\text{WACC} = \text{Cost of equity} * \frac{E}{E + D} + \text{Cost of debt} * (1 - t) * \frac{D}{E + D}$$

$$\text{Cost of equity} = \text{Riskless return} + \text{Beta} * (\text{ERP} + \text{Country risk premium})$$

» Composite cost of debt and equity financing can be reduced by lowering the firm's operating and financing risks:

1. Operating risk (degree of cyclicality)
2. Operating leverage (proportion of fixed costs)
3. Choice of financing (equity vs. debt)

# Lower Cost of Capital

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## Strategic Changes

### 1. Reducing operating risks

- » Building **competitive advantages** to make firm's products or service less discretionary to its customers

### 2. Reducing fixed operating costs

- » **Tying operating expenses to sales** (customer demand) by:
  - » Outsourcing production
  - » Hiring outside contractors (freelancers)

### 3. Optimizing financing

- » Finding the **optimal debt ratio** ( $D/D+E$ ) that minimizes cost of capital
  - » *Tradeoff*: debt is generally cheaper due to tax-deductibility & seniority **but** raises cost of equity as a result of higher default risk (b/c of *fixed* debt repayment & interest schedule)
- » Matching debt repayment & interest schedule with assets' cash flows

# 4

## Speed of Value Enhancement Execution

Short, Medium, Long Term Changes & Effects on Firm Value

# Quick And Long-Term Fixes to Firm Value

	<i>Firm Is More In Control</i>		<i>Firm Is Less In Control</i>
	<b>Quick Fixes/Payoff</b>	<b>Odds On*</b>	<b>Long Term Fix/Payoff</b>
<b>Increasing Cash Flows</b>	<ul style="list-style-type: none"> <li>- eliminate op. expenses that generate no sales (growth)</li> <li>- take adv. of local tax law differences to lower taxes</li> </ul>	<ul style="list-style-type: none"> <li>- reducing inventory and accounts receivables</li> <li>- increasing accounts payables</li> <li>- reduce capital maintenance expenditures</li> </ul>	<ul style="list-style-type: none"> <li>- increase pricing</li> <li>- move to more efficient technology for operations to reduce expenses</li> </ul>
<b>Higher Expected Growth</b>	<ul style="list-style-type: none"> <li>- eliminate <u>new</u> investments planned that earn less than their cost of capital</li> </ul>	<ul style="list-style-type: none"> <li>- increase reinvestment rate in firm's <u>existing</u> businesses that earn more than their cost of capital</li> <li>- increase marginal return on capital in firm's <u>existing</u> businesses</li> </ul>	<ul style="list-style-type: none"> <li>- find &amp; increase investments in <u>new</u> businesses that earn more than their cost of capital</li> </ul>

\* changes lean more toward a positive (than negative) tradeoff outcome for firm value in the near or medium term



# Quick And Long-Term Fixes to Firm Value

	<i>Firm Is More In Control</i>		<i>Firm Is Less In Control</i>
	<b>Quick Fixes/Payoff</b>	<b>Odds On*</b>	<b>Long Term Fix/Payoff</b>
<b>Longer High-Growth Period</b>	<ul style="list-style-type: none"> <li>- protect products or services with patents</li> </ul>	<ul style="list-style-type: none"> <li>- use economies of scale or cost advantages to create or maintain high return on capital</li> </ul>	<ul style="list-style-type: none"> <li>- build up brand name</li> <li>- reduce costs of switching from competitors' to own products</li> </ul>
<b>Lower Cost of Capital</b>	<ul style="list-style-type: none"> <li>- move firm's capital structure toward its optimal debt ratio (D/A)</li> </ul>	<ul style="list-style-type: none"> <li>- make cost structure more flexible/variable to reduce operating leverage (lower fixed cost %)</li> </ul>	<ul style="list-style-type: none"> <li>- make products less discretionary to customers to reduce operating risk</li> </ul>

\* changes lean more toward a positive (than negative) tradeoff outcome for firm value in the near or medium term

# Thank you for staying to the end.

If this was interesting to you, join SBM!



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# Appendix

Glossary, About the Presenter

## Appendix

# Glossary

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<b>av.</b>	Average	<b>l-t</b>	Long-term
<b>b/c</b>	Because	<b>MD&amp;A</b>	Management discussion & analysis
<b>CapEx</b>	Capital expenditure	<b>mgmt.</b>	Management
<b>CF</b>	Cash flow	<b>mgrs.</b>	Margins
<b>COGS</b>	Costs of goods sold	<b>NOPAT</b>	Net operating profit after taxes
<b>D</b>	Debt	<b>NPV</b>	Net present value
<b>D&amp;A</b>	Depreciation & ammortization	<b>NWC</b>	Net working capital
<b>DCF</b>	Discounted cash flow	<b>Op. margin</b>	Operating margin
<b>E</b>	Equity	<b>ROIC</b>	Return on invested capital
<b>EBIT</b>	Earnings before interest & taxes	<b>S&amp;M</b>	Sales & marketing
<b>ERP</b>	Equity risk premium	<b>SG&amp;A</b>	Sales, general & administrative expenses
<b>Exp.</b>	Expected	<b>SGR</b>	Sustainable growth rate
<b>FCFF</b>	Free cash flow to the firm	<b>s-t</b>	Short-term
<b>fin.</b>	Financial	<b>WC</b>	Working capital
<b>HR</b>	Human Resources		

# About the Presenter

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**Alexander Neumann** plays an active role in managing the SBM fund. At present, he completes his master's degree in finance and enjoys meeting like-minded people who share his passion for investing.

For his master's thesis, he is conducting an empirical comparison of the statistical accuracy of dividend-, free cash flow-, and earnings-based equity valuation models for mid-to-large cap public stocks, traded on German stock exchanges.

He has also passed the CFA level 2 exam. Current GPA: 1.5/1.0