



Sustainable Business Valuation

Webcast No. 2 | Illustrative integration of ESG into business valuation

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Introduction presenter



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Agenda



1 Introduction



2 Identification of material ESG risks and opportunities



3 Peer Group Benchmarking



4 Consideration in the Cashflow Simulation Analysis



5 Cost of capital



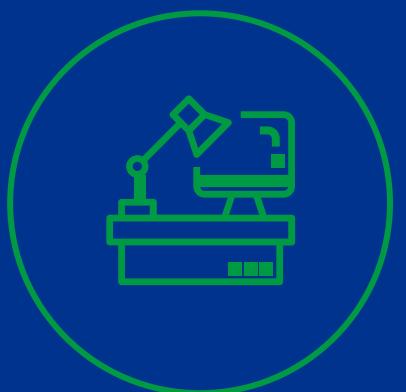
6 Long-term effects - Strategy versus Value



7 Q&A



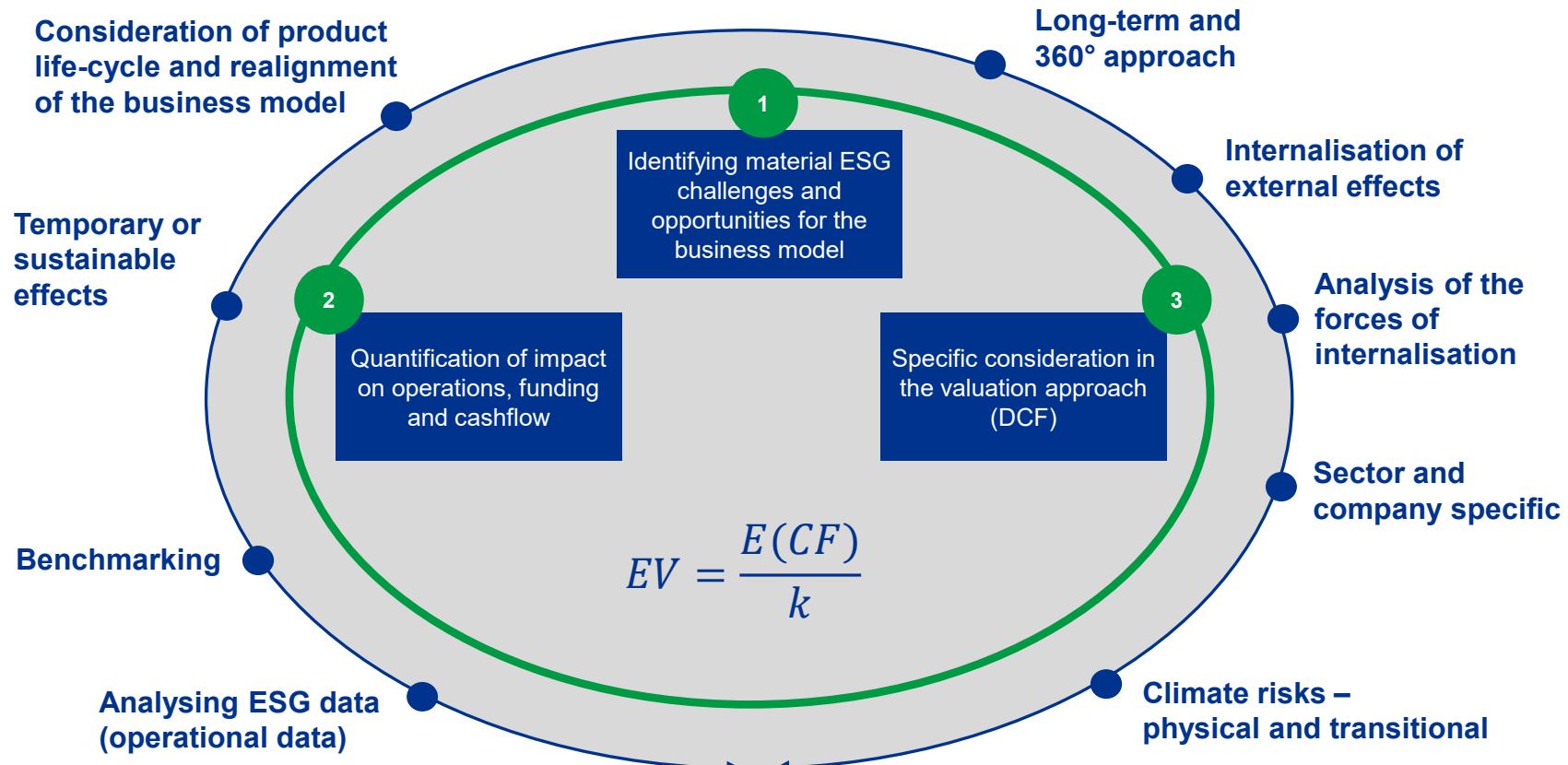
1 | Introduction



Remember fundamentals of business valuations and expand your perspective of the future



Following guidelines can help to assess the future relevance and impact of ESG effects and sustainable trends



Sustainable Business Valuation - not the simple way but a complete toolkit for reducing complexity and uncertainty



The specific situation of the individual company must be taken into account

- | | |
|--|--|
| <p>1 Consideration of ESG effects in cashflow (360° approach, simulation based)</p> | |
| <p>2 Consideration of physical and transformational (climate-)risks (and opportunities)</p> | |
| <p>3 Extension of the detailed planning period (e.g. until 2030 and more)</p> | |
| <p>4 Additional emphasis on terminal value and review of going concern assumption (finite planning and valuation models)</p> | |
| <p>5 Special values: Return on future investments; future liabilities ("debt")</p> | |
| <p>6 Consideration of different scenarios and related probabilities</p> | |
| <p>7 Different approach for established and new segments (e.g. default probabilities, simulations/scenarios)</p> | |
| <p>8 Considering ESG data in peer group analysis (e.g. for beta analysis)</p> | |
| <p>9 Consideration of changing beta factors for changing business model</p> | |
| <p>10 Consideration of simulation results within the risk assessment</p> | |



2 | Identification of material ESG risks and opportunities



Comprehensive business valuations require focus on relevant and material ESG topics



Different sources supply a wide range of information – even now

ESG Ratings

- + Weighting of particularly relevant factors provide guidance
- + Industry reports may identify sector-relevant issues
- + Material issues are flagged as key areas
- License for access required
- Material theoretical and methodological differences between rating providers (low correlation between different ESG ratings)
- Changes in methodology impact past scores

Company reports

- + Inside-perspectives on the most relevant ESG factors
- + The reports are often structured in accordance to developed standards, such as GRI or SASB
- + Reports are publicly available
- Reports are often a communication and marketing vehicle (lack of transparency and comparability)

External materiality assessments

- + Several institutions publish materiality assessments with the most relevant factors for industries
- + GRI with specific sector standards and SASB with materiality map as one of the most prominent ones
- + Access dependent on the provider of the reports

Markets & Analyst reports

- + Besides traditional financial analyses, market and analyst reports also increasingly incorporate ESG-related analyses in their reports
- + Good analysts are able to provide the linkage between strategic and ESG rationals
- + Some of the reports also include summaries of the company belonging ESG ratings
- Access dependent on the provider of the reports

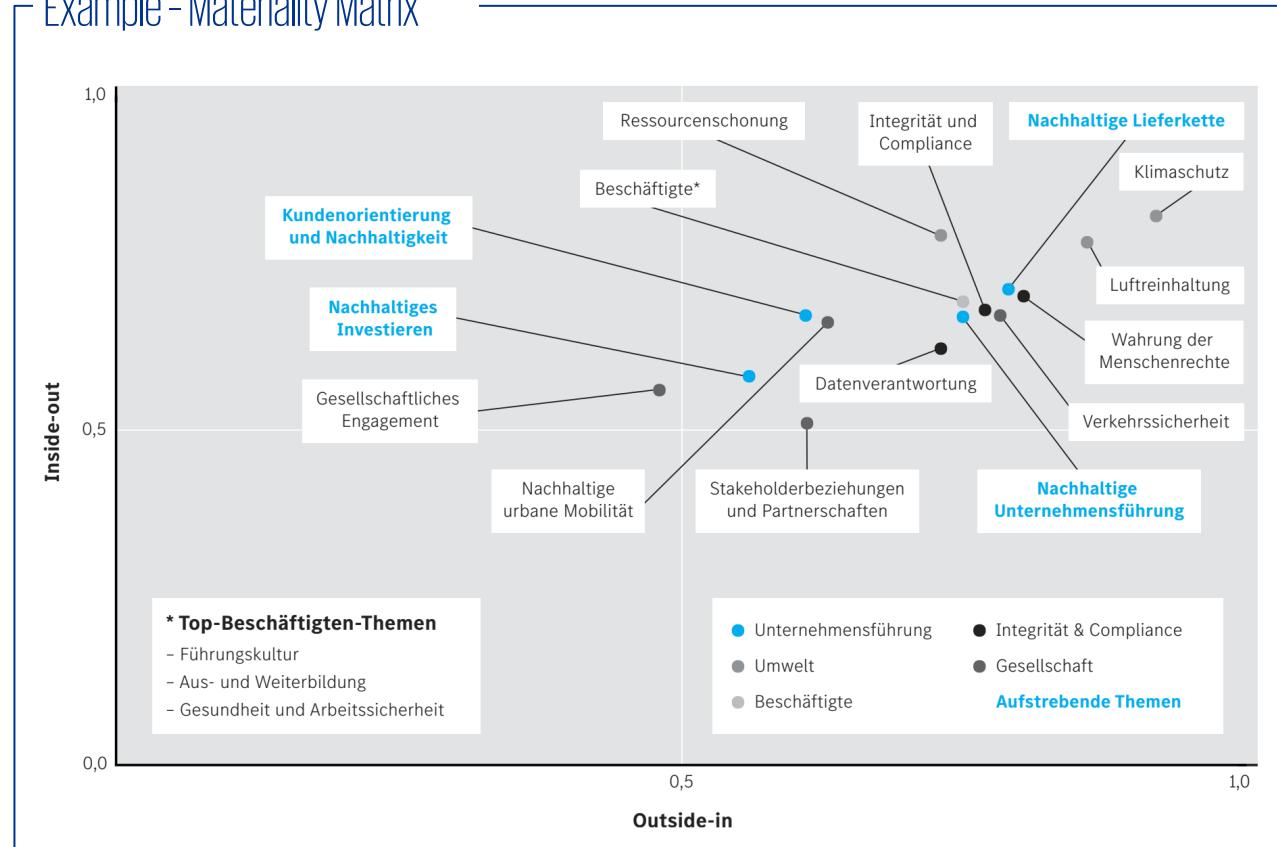
Final judgement (based on sector expertise)

Example - Company reporting (1/2)



Materiality assessment often requires a deep dive into the sustainability reportings

Example - Materiality Matrix



Source: Company information.

Key facts

- Sustainability Report of 294 pages
- Climate Protection** (25 pages) can be split up into
 - climate protection with regards to vehicles and services,
 - climate protection in the value chain,
 - climate protection in the production cycle
- Climate targets:**
 - Reduction of CO₂ fleet emissions by 40% by 2030
 - Carbon neutral new vehicle fleet by 2039
 - GHG Scope 1 and 2 reductions 50% by 2030
 - Investments of € 60 billion between 2022 and 2026
 - Information about GHG Fleet Emissions

Example - Company reporting (2/2)



Relevance for reporting does not mean relevance for business valuation

Identified Material Topics and their Boundaries

	Supply chain	Production	Group value creation chain
			Sales and utilisation, recycling and disposal
Human rights	++	+	+
Combatting corruption and anti-competitive behaviour	++	++	++
Product safety			++
Fuel efficiency and vehicle CO₂ emissions			++
Vehicle pollutant emissions			++
Alternative drivetrain technologies			++
Design for Recycling			++
Connected and autonomous driving			++
Mobility concepts and services			++
Energy efficiency and CO₂ emissions in the value chain	++	+	+
Environmental and social standards in the supply chain	++		
Occupational health and safety	++	++	++
Attractive workplace, talent identification and retention	+	++	+
Employee development, training and education	+	++	+
Diversity and equal opportunity	+	++	+

++ High impact + Low impact

↗ GRI 102-47

Source: Company information.

Example - SASB materiality finder (1/2)



Some standard setters like SASB and GRI provide quick guidance per sector ...

Relevant Issues

Environment	Social Capital	Human Capital	Business Model & Innovation	Leadership & Governance
GHG Emissions	Human Rights & Community Relations	Labor Practices ⓘ	Product Design & Lifecycle Management ⓘ	Business Ethics
Air Quality	Customer Privacy	Employee Health & Safety	Business Model Resilience	Competitive Behavior
Energy Management	Data Security	Employee Engagement, Diversity & Inclusion	Supply Chain Management	Management of the Legal & Regulatory Environment
Water & Wastewater Management	Access & Affordability		Materials Sourcing & Efficiency ⓘ	Critical Incident Risk Management
Waste & Hazardous Materials Management	Product Quality & Safety ⓘ		Physical Impacts of Climate Change	Systemic Risk Management
Ecological Impacts	Customer Welfare			
	Selling Practices & Product Labeling			

Source: SASB materiality finder.

Example - SASB materiality finder (2/2)



... next to company reports these sources are a good starting point

Product Quality & Safety

- Driving is a risky activity [...] and accidents can also be caused by defective vehicles, and failure to detect defects before vehicles are sold can have significant financial repercussions for auto manufacturers. Defective vehicles [...] must be recalled and repaired or replaced at the manufacturer's cost. Recalls can result in reputational damage [...]. Ensuring vehicle safety and responding in a timely manner when defects are identified can protect companies from regulatory action or customer lawsuits, [...] companies can enhance their brand value [...].

Labor Practices

- Many workers in the Automobiles industry are covered under collective bargaining agreements [...], which are among basic worker rights. [...], due to the global nature of the industry, auto companies may also operate in countries where worker rights are not adequately protected. Effective management [...] can prevent conflicts with workers [...]. Auto manufacturers that manage workers in a way that protects worker rights may face higher labor costs in the short term, but may [...] ensure the long-term financial sustainability of their operations [...].

Product Design & Lifecycle Management

- The combustion of petroleum-based fuels by motor vehicles [...] significant [...] contribute to global climate change. It also generates local air pollutants [...], which can threaten human health and the environment. [...], vehicle emissions are increasingly of concern to consumers and regulators [...] More stringent emissions standards and changing consumer demands are driving the expansion of markets for electric vehicles and hybrids, as well as for conventional vehicles with high fuel efficiency. [...].

Materials Sourcing & Efficiency

- [...] Automobiles industry commonly rely on rare earth metals and other critical materials as key inputs. [...] inputs have few or no available substitutes and [...] subject to geopolitical uncertainty. Other sustainability impacts related to climate change, land use, resource scarcity, and conflict in regions [...] growing global demand [...] can result in price increases and supply risks. [...] Companies that are able to limit the use of critical materials, secure their sourcing, and develop alternatives will protect [...].

Source: [Find Industry Topics - SASB](#)

Example - ESG ratings



Details behind ESG ratings (weightings, industry reports and company reports) provide insights

ESG Rating Scorecard

As of May 31, 2022

KEY ISSUE	WEIGHT	INDUSTRY AVERAGE	SCORE (0-10)	CHANGE	EXPLANATION
Weighted-Average Key Issue Score		4.3	4.8		
> ENVIRONMENT	30%	6.4	7.1		
Product Carbon Footprint	17%	7.2	8.3		<ul style="list-style-type: none"> Strong initiatives to reduce carbon intensity of products across value chain
Opportunities in Clean Tech	13%	5.5	5.6		<ul style="list-style-type: none"> Robust clean tech strategy relative to peers
> SOCIAL	37%	3.5	4.3		
Product Safety & Quality	21%	3.5	4.5		<ul style="list-style-type: none"> Involved in moderate controversies Supply chain oversight processes include trainings on quality management, but scope appears limited to a small portion of suppliers
Labor Management	16%	3.6	4.0		<ul style="list-style-type: none"> Robust compensation practices compared to peers, including stock-based awards
> GOVERNANCE	33%	3.2	3.4	▼0.6	
Corporate Governance		4.4	4.3	▼0.6	<ul style="list-style-type: none"> The company falls into the lower scoring range relative to global peers, reflecting key areas of concern related to the board and ownership structure.
Corporate Behavior		3.8	4.7		<ul style="list-style-type: none"> Involved in moderate controversies Evidence of detailed policies on business ethics and corruption

* denotes company-specific Key Issue

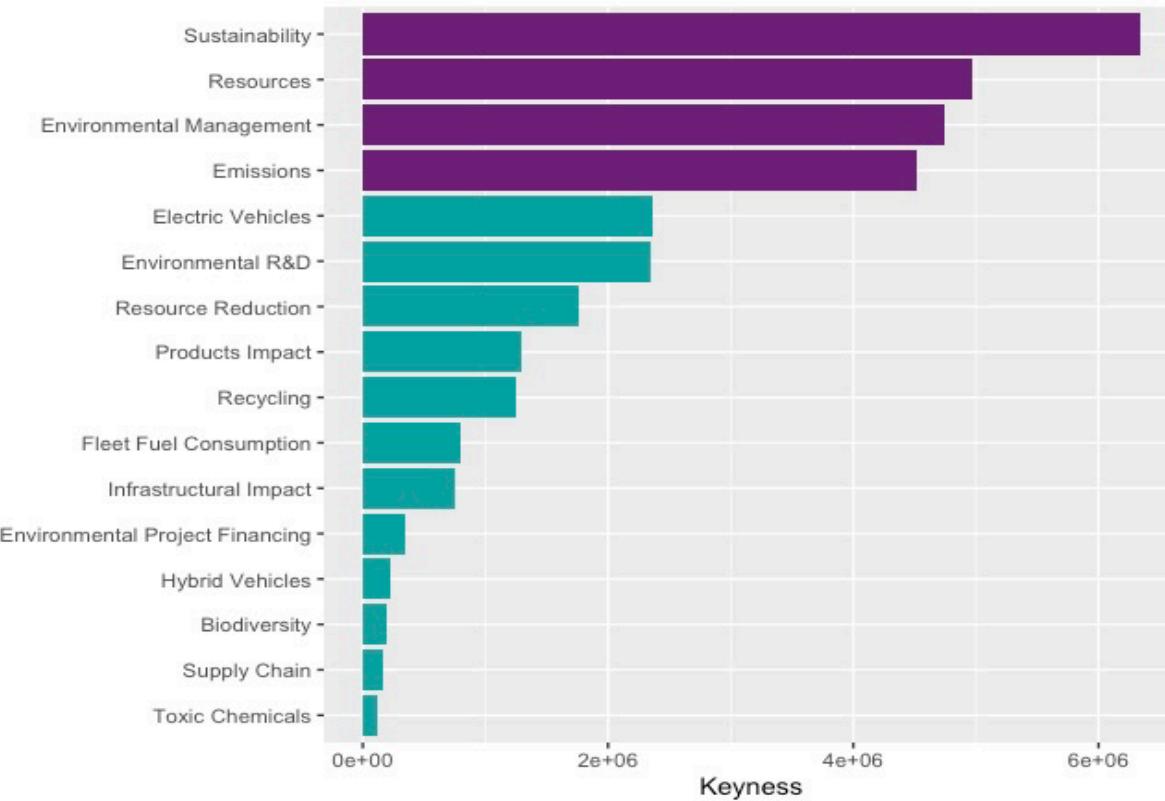
This table shows the Key Issue scores and weights contributing to the company's ESG Rating and any changes to those scores since the last ESG Rating action. The range of possible scores is 0-10, where 10 is best and 0 is worst.

Source: MSCI.

Example - Company, market and analyst reports



Buzz words and boilerplate language need to be transferred in relevant topics



Example - Summary



Material ESG topics need to be quantified in a second step and its materiality assessed for valuation

Illustrative example

Environmental

Climate Change & Emissions / Clean Tech

- Scope 1, 2, 3 emissions
- Industry targets for fleet-wide reduction of CO2 emissions → importance of development of electric

Resources, Circularity & Efficiency

- The procurement, usage, disposal and recycling of resources is a material issue for car manufacturers

Climate Change Adoption

- Physical risks (acute and chronic incl. socioeconomic impacts)
- Transition risks (in relationship to general strategy and above mentioned topics)

Social

Labor Management

- Attractive and safe working environment is of great relevance due to increasing shortage of skilled workforce
- Increasing importance of human rights in the value chain
- High turnover of employees may lead to higher costs for hiring and training of new employees

Health & Safety

- The health and safety of the company's products are key factors determining the reputation and consequently the ability to generate long term shareholder value
- Cyber security and data protection

Governance

Corporate Governance

- A good governance will ensure that board members and executives act in the best interest of its long-term shareholders.
- The most material metrics are
 - cultural and gender diversity of the board,
 - corruption and anti-competitive behavior as well as
 - a well-defined CSR strategy.
- High transparency in reporting but also governance structure

Prevalence of the environmental pillar in the current public discussion:

Environmental
63.99%

Social
20.86%

Governance
15.15%



3 | Peer Group Benchmarking



Operational (ESG) data improve benchmarking quality



Making industry differences visible – not only for financials but also for operational/ESG data

Illustrative example

ESG Benchmarking												
Company	Environment						Social			Governance		
	Energy		Water		CO2		Employee		Employee		Reporting Scope	
	Total Energy Use / Revenue \$m	Use / Revenue \$m	Total Water	Total CO2 Emissions / Revenue \$m	Scope 3 emissions / Revenue \$m	Fleet CO2 Emissions	Total Waste / Revenue \$m	Employee Satisfaction %	Trade Union Representation %	Turnover of Employees %	Diversity of Exec. Members	ESG Reporting Scope %
OEM 1	339	41	20	8	285	0	--	--	60%	14%	96%	
Target Group	204	47	7	646	119	8	98%	117%	4%	15%	84%	
OEM 2	170	39	6	538	99	6	82%	98%	4%	13%	70%	
OEM 3	341	123	23	2.747	187	8	--	72%	--	18%	100%	
OEM 4	371	209	35	--	193	12	--	64%	11%	9%	100%	
OEM 5	333	246	36	2.147	190	11	70%	85%	6%	0%	32%	
OEM 6	256	199	25	981	93	5	67%	68%	4%	0%	59%	
OEM 7	--	--	22	--	71	--	--	83%	3%	0%	37%	
OEM 8	186	63	13	--	104	5	--	--	6%	22%	100%	
OEM 9	772	693	69	--	116	3	--	--	1%	2%	7%	
OEM 10	2.680	66	--	--	-	8	--	0%	--	0%	51%	
OEM 11	252	--	20	1.433	96	--	--	--	3%	0%	21%	
OEM 12	286	153	26	1.355	100	9	82%	--	--	17%	100%	

Data help to analyze success of transformation (1/3)

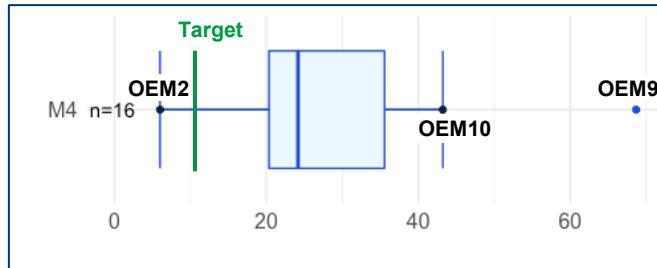


Analyzing data is not enough – understanding interaction and business model is key

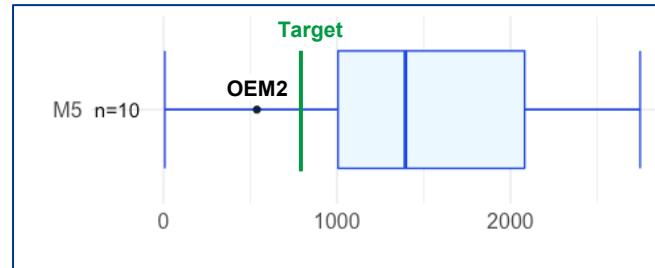
Illustrative example

Environmental

Total CO₂ Emissions/Million in Revenue \$



CO₂ Equivalent Emissions Indirect (Scope 3)/Million in Revenue \$



- Total CO₂ Emissions = direct (Scope 1) + indirect (Scope 2)
- **Most of today's CO₂ emissions** for automotive manufacturers are emitted during the use-phase of a car (**Scope 3**).
- This **proportion** is expected to **change significantly** with the **electrification** of the automotive sector, making a cars production more energy intensive (Scope 1 and 2), while use-phase emissions (Scope 3) are reduced substantially.
- A carbon-efficient way to produce electric vehicles will be a crucial capability for future growth and profitability, considering the increasing CO₂ emission prices aiming to internalize the negative environmental effects

Data help to analyze success of transformation (2/3)

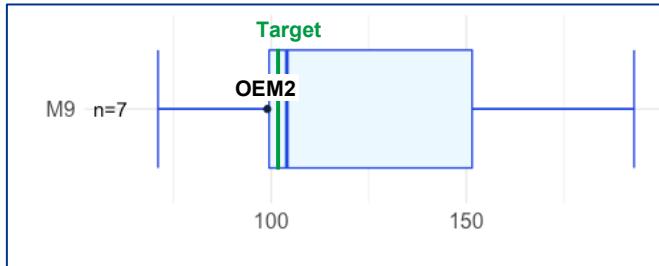


Analyzing data is not enough – understanding interaction and business model is key

Illustrative example

Environmental

Fleet CO2 Emissions g/km



- CO2 emissions of the manufacturer's vehicle fleet range from 70 to 190 g CO2/km (OEM 7 and OEM 9)
- Fleet CO2 emissions regarding passenger cars are mostly driven by regional regulations and standards
- As of 2020, fleet-wide CO2 emissions targets for passenger cars are set at 95 g CO2 /km with a 15% reduction due in 2025 and a further 37,5% reduction from 2030 onwards
- These general guidelines are subject to company-specific adjustments based on further criteria such as the average vehicle weight
- EU – excess emission premium of 95 EUR per g/km for each newly registered vehicle of that year

Data help to analyze success of transformation (3/3)

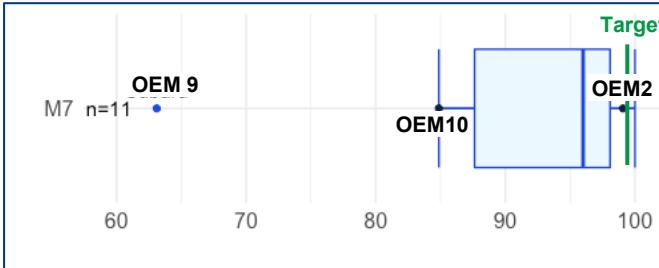


Analyzing data is not enough – understanding interaction and business model is key

Illustrative example

Environmental

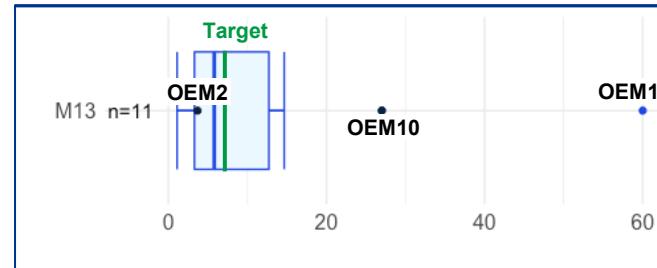
Waste Recycled/Total Waste



- Peer group reach a high percentage of recycled waste with an industry median of around 96%
- In the EU 85% of vehicle needs to be recyclable
- A notable outlier is Subaru with only 63,2% of waste recycled
- Looking into the future with the automotive sector shifting towards electric vehicles, recycling will become a material issue (batteries)

Social

Turnover of Employees %



- Employee turnover refers to the total number of workers who leave a company over the period of one fiscal year.
- Hiring and training cost may occur to onboard new employees



4 | Consideration in the Cashflow Simulation Analysis

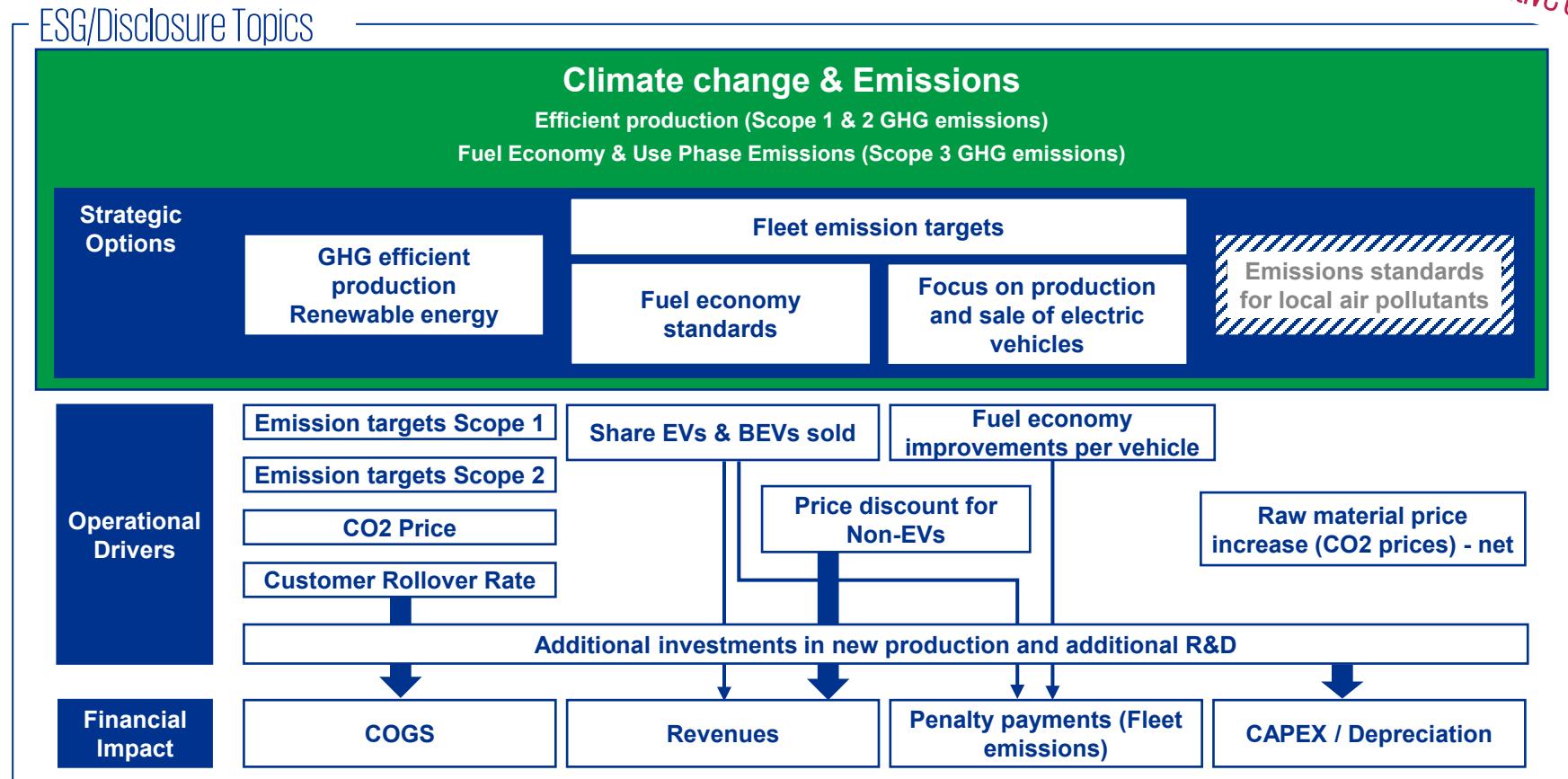


Connecting ESG topics and metrics with operational and financial business drivers



Detailed financial model is the backbone of a reasonable analysis and valuation

Illustrative example

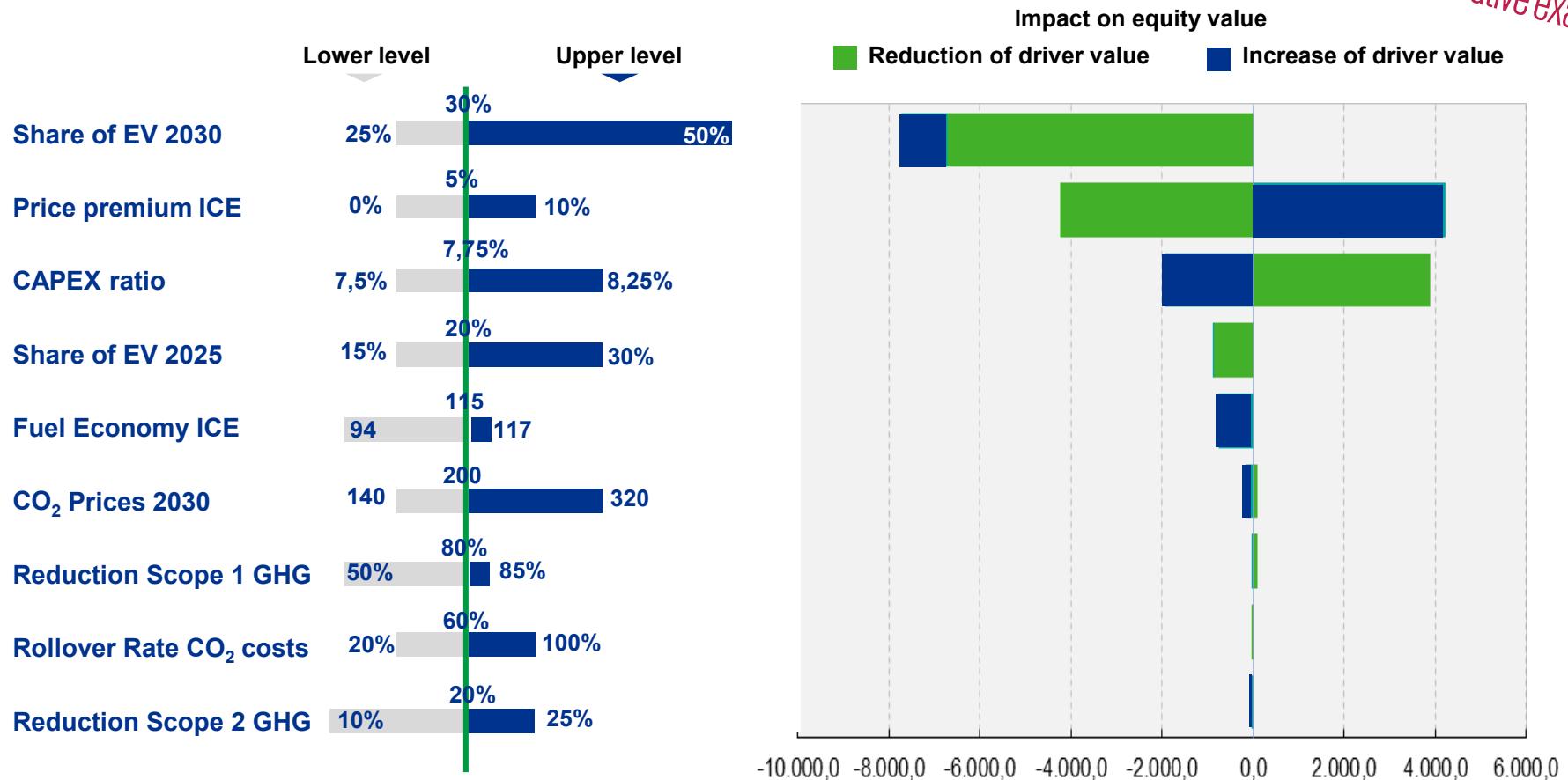


Sensitivity analyses help to focus on the main value drivers



Analyzing materiality and impact with sensitivity analyses

Illustrative example

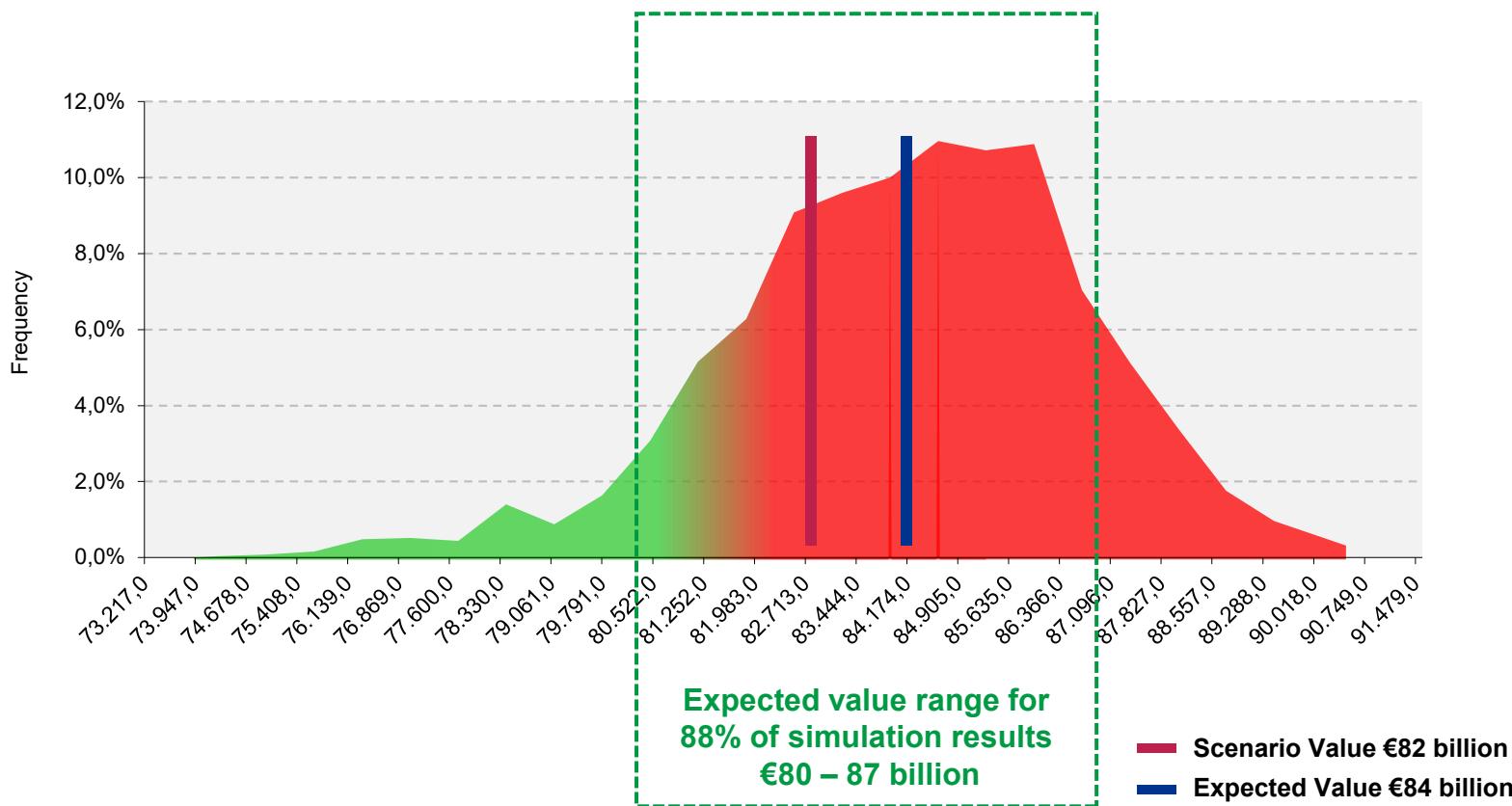


Simulation analysis - working with uncertainty



Scenario and simulation analysis should be applied for generating expected cashflow

Illustrative example

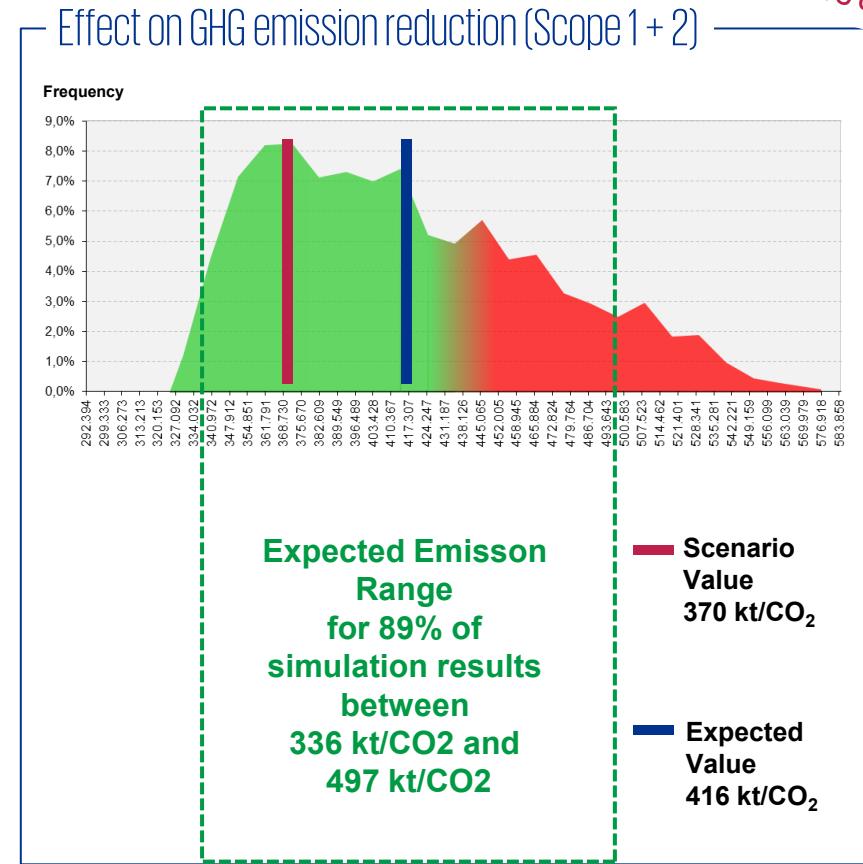
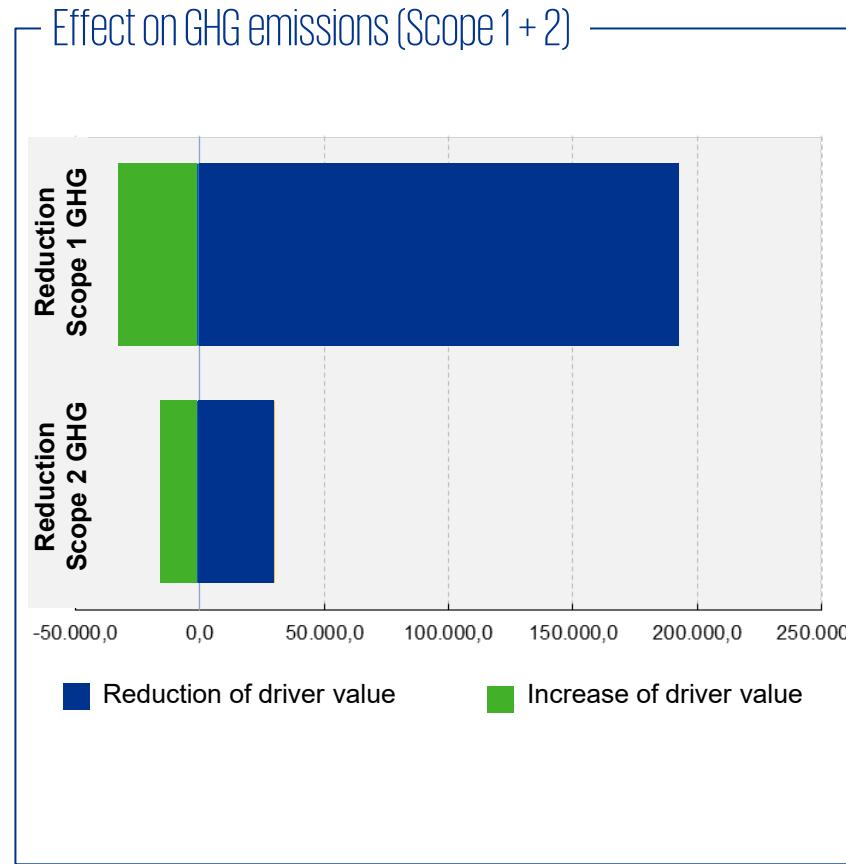


ESG targets are important - and needs to part of the analysis



Do not only look on financial KPIs – key strategic parameters can also be challenge

Illustrative example





5 | Cost of capital

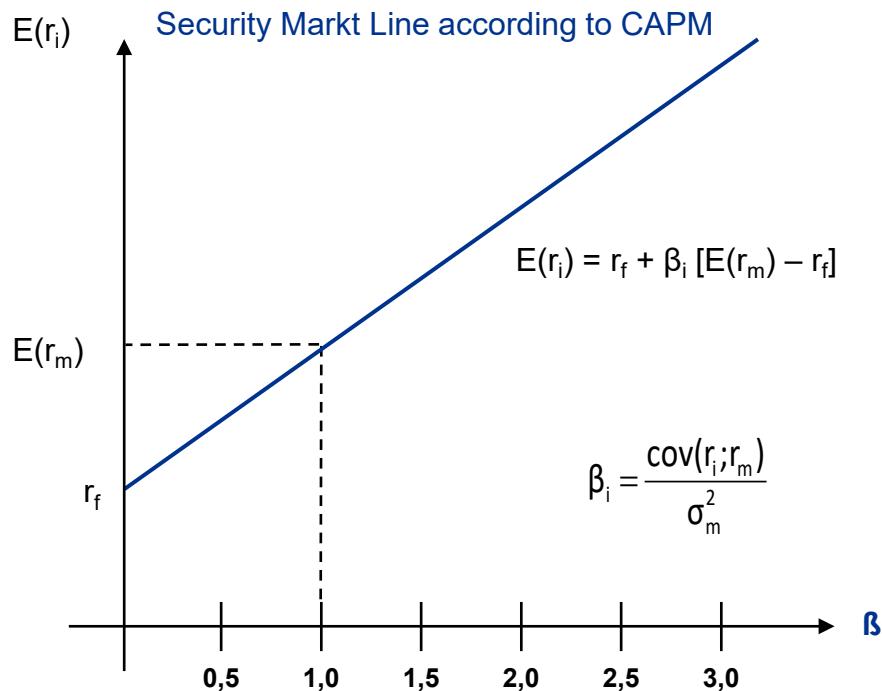


Implications on cost of capital - Theory versus practice



Traditional cost of capital analysis combined with ESG data and simulation results

Theoretical backbone - CAPM



Practical approach

$$k = r_f + \beta_i MRP$$

- The impact of ESG performance on the cost of capital remains dynamic and needs to be constantly assessed
- Peer group and beta analysis should include operational ESG data to ensure a high degree of comparability
- Sectors and business models in transformation need to be analyzed in detail (trends)
- Results from simulation analysis should be combined with beta analysis

Beta Analysis based on the Peer Group approach



Using capital market data is still gold standard, but ...

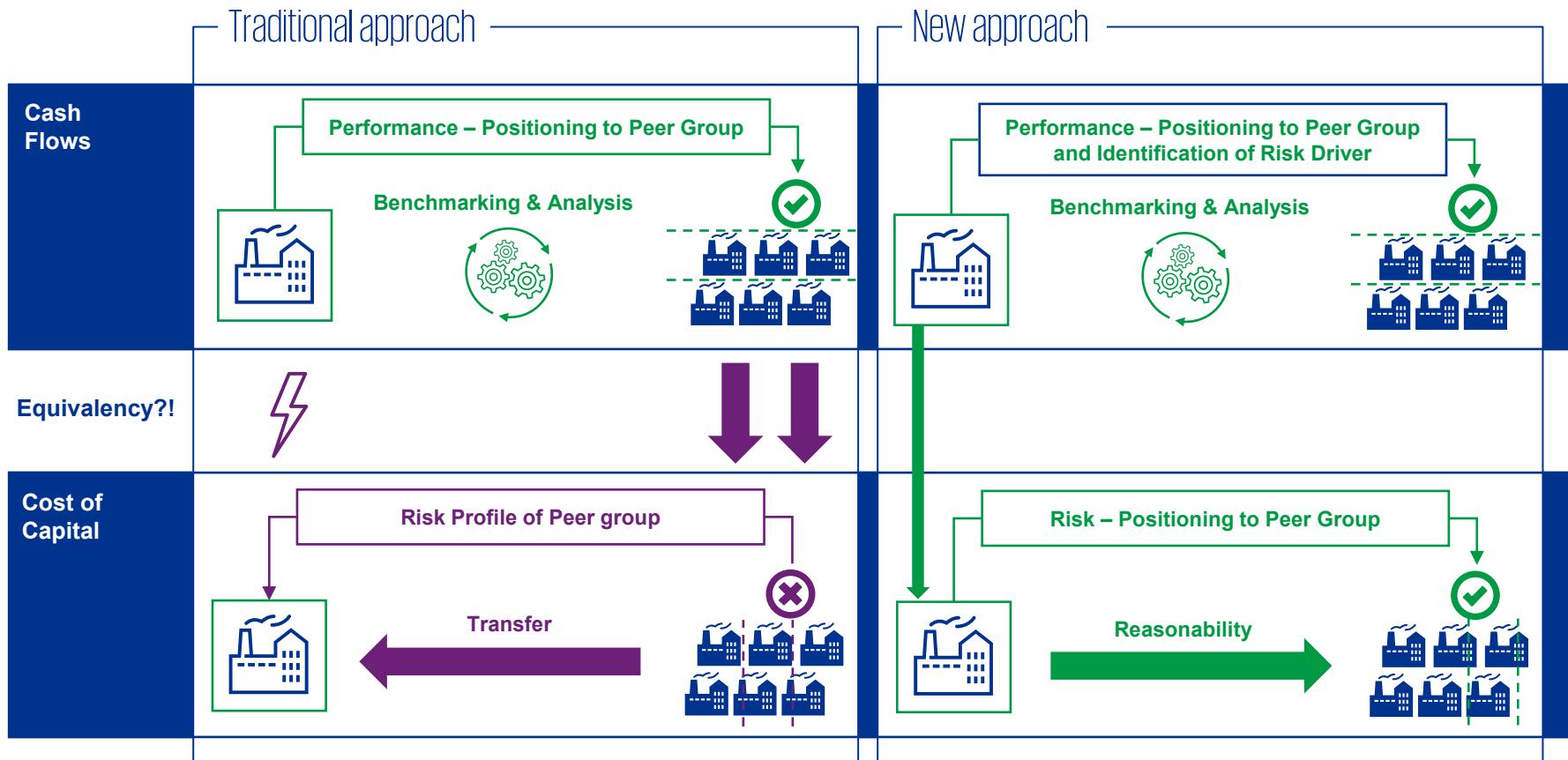
Illustrative example

Unlevered betas						5-year period			2-year period	
Name	2021	2020	2019	2018	2017	Average 2017-2021	30 September 2021	30 September 2021	30 September 2019	
OEM 2	1,02	0,88	0,84	0,93	1,18	0,97	0,98	1,04	0,81	
Target Group	1,22	1,05	1,01	1,12	1,41	1,16	1,18	1,25	0,97	
OEM 3	0,94	1,10	0,62	0,67	1,28	0,92	0,87	1,18	0,62	
OEM 4	0,82	0,96	0,71	0,57	1,00	0,81	0,76	1,03	0,68	
OEM 5	1,21	1,03	1,26	0,98	1,31	1,16	1,08	1,13	1,15	
OEM 6	1,32	1,25	0,82	n/a	n/a	1,13	1,07	1,27	0,65	
OEM 7	1,67	1,50	0,93	n/a	1,02	1,28	1,56	1,60	n/a	
OEM 9	1,22	1,09	1,56	0,90	n/a	1,19	1,57	1,18	1,26	
OEM 13	1,34	1,06	1,08	0,72	1,02	1,05	1,39	1,13	0,99	
OEM 14	1,54	1,24	0,89	0,68	0,97	1,06	1,36	1,39	0,79	
OEM 10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
OEM 11	1,11	0,97	0,98	1,00	1,13	1,04	0,96	1,02	1,03	
OEM 12	0,85	0,74	0,76	0,84	0,76	0,79	0,80	0,90	0,76	
Minimum	0,82	0,74	0,62	0,57	0,76	0,79	0,76	0,90	0,62	
25-percentile	1,00	0,97	0,80	0,69	1,00	0,96	0,93	1,04	0,72	
Median	1,21	1,05	0,91	0,87	1,08	1,06	1,07	1,16	0,81	
Mean	1,19	1,07	0,95	0,84	1,11	1,05	1,13	1,18	0,88	
75-percentile	1,33	1,13	1,03	0,97	1,26	1,16	1,37	1,25	1,01	
Maximum	1,67	1,50	1,56	1,12	1,41	1,28	1,57	1,60	1,26	

Benchmarking should also be applied in the cost of capital context



... it is not sufficient



Peer Group Analysis with ESG Data



ESG ratings and metrics can be used in order to improve comparability of peer group companies

Illustrative example

Company Name	Industry	Sales, USD billion	Market Cap. in USD billion	Employees	Country	Sales Cars in %	ESG-Score	E-Score	S-Score	G-Score
OEM 8	Passenger Cars	191,0	76,3	288.481	Germany	62,0%	93,2	96,0	89,0	96,0
OEM 5	Passenger Cars	119,0	52,8	211.374	Japan	65,0%	89,0	90,0	89,0	87,0
OEM 12	Passenger Cars	272,3	108,2	662.575	Germany	72,0%	88,6	94,0	93,0	73,0
Target Group	Passenger Cars	145,1	69,8	144.871	Country	82,8%	87,2	95,0	87,0	75,5
OEM 2	Passenger Cars	120,9	58,1	120.726	Germany	69,0%	85,7	96,0	81,0	78,0
OEM 11	Passenger Cars	245,8	289,2	366.283	Japan	90,0%	83,1	87,0	81,0	81,0
OEM 13	Passenger Cars	71,0	19,2	132.324	Japan	87,0%	79,8	83,0	70,0	92,0
OEM 3	Passenger Cars	136,3	72,5	183.000	United States	93,0%	79,5	92,0	88,0	47,0
OEM 4	Passenger Cars	127,0	67,3	157.000	United States	80,0%	74,9	65,0	88,0	67,0
OEM 9	Passenger Cars	13,1	3,8	30.091	Japan	99,0%	71,4	86,0	63,0	64,0
OEM 7	Passenger Cars	58,8	24,9	35.424	Korea	91,0%	64,9	83,0	61,0	45,0
OEM 10	Passenger Cars	53,8	909,4	99.290	United States	94,8%	63,1	71,0	56,0	64,0
OEM 6	Passenger Cars	98,9	36,2	71.504	Korea	78,0%	61,1	75,0	67,0	31,0
OEM 14	Passenger Cars	28,7	18,8	68.739	Japan	93,0%	56,1	83,0	42,0	43,0
OEM 15	Passenger Cars	2,4	0,9	7.053	Malaysia	78,7%	55,8	47,0	62,0	58,0
OEM 16	Passenger Cars	25,6	12,2	36.070	Japan	93,0%	45,5	69,0	36,0	28,0
OEM 1	Passenger Cars	1,5	1,5	2.342	United Kingdom	88,3%	44,3	40,0	51,0	38,0

Coming soon
ESG ratings in the KPMG
Valuation Data Source

Linking simulation results and capital market data increases quality



Benchmarking of observable beta factors

Illustrative example

Peer Group Analysis											
Unlevered betas											
Name	2021	2020	2019	2018	2017	Average 2017-2021	5-year period	2-year period	2-year period	30 September 2021	30 September 2021
GEM 2	1.02	0.88	0.84	0.83	1.18	0.91	1.18	1.04	1.04	1.04	1.04
Target Group	1.22	1.05	1.01	1.12	1.41	1.16	1.22	1.05	1.01	1.12	1.41
GEM 3	0.94	1.10	0.62	0.67	1.28	0.92	0.97	1.18	0.62	0.67	1.28
GEM 4	0.96	0.96	0.97	0.97	0.91	0.97	0.96	0.96	0.96	0.96	0.96
GEM 5	1.21	1.03	1.26	0.98	1.31	1.16	1.08	1.13	1.15	1.08	1.13
GEM 6	1.32	1.25	0.82	n/a	n/a	1.10	1.07	1.27	0.65	1.32	1.25
GEM 7	1.67	1.50	0.93	n/a	1.02	1.26	1.56	1.60	n/a	1.67	1.50
GEM 8	1.22	1.09	1.00	0.90	1.04	1.14	1.27	1.19	1.05	1.27	1.19
GEM 13	1.34	1.06	1.00	0.72	1.02	1.05	1.39	1.13	0.98	1.34	1.06
GEM 14	1.54	1.24	0.80	0.68	0.97	1.06	1.36	1.39	0.70	1.54	1.24
GEM 10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
GEM 11	1.11	0.92	0.94	1.01	1.11	1.04	0.96	1.02	1.02	1.11	1.11
GEM 12	0.85	0.74	0.76	0.84	0.76	0.70	0.90	0.90	0.90	0.85	0.74
Minimum	0.82	0.74	0.62	0.57	0.76	0.70	0.76	0.90	0.62	0.82	0.74
25-percentile	1.00	0.97	0.90	0.89	1.00	0.96	1.00	1.04	0.85	1.00	0.97
Median	1.19	1.07	0.95	0.84	1.11	1.05	1.13	1.18	0.88	1.19	1.07
Mean	1.19	1.07	0.95	0.84	1.11	1.05	1.37	1.25	1.01	1.19	1.07
75-percentile	1.33	1.13	1.03	0.97	1.28	1.16	1.37	1.30	0.97	1.33	1.13
Maximum	1.67	1.50	1.06	1.12	1.41	1.20	1.87	1.50	1.06	1.67	1.50

Case 1: Observable Beta is reasonable											
Name	2021	2020	2019	2018	2017	Average 2017-2021	5-year period	2-year period	2-year period	30 September 2021	30 September 2021
GEM 2	1.02	0.88	0.84	0.83	1.18	0.91	1.18	1.04	1.04	1.04	1.04
Target Group	1.22	1.05	1.01	1.12	1.41	1.16	1.22	1.05	1.01	1.12	1.41
GEM 3	0.94	1.10	0.62	0.67	1.28	0.92	0.97	1.18	0.62	0.67	1.28
GEM 4	0.96	0.96	0.97	0.97	0.91	0.97	0.96	0.96	0.96	0.96	0.96
GEM 5	1.21	1.03	1.26	0.98	1.31	1.16	1.08	1.13	1.15	1.08	1.13
GEM 6	1.32	1.25	0.82	n/a	n/a	1.10	1.07	1.27	0.65	1.32	1.25
GEM 7	1.67	1.50	0.93	n/a	1.02	1.26	1.56	1.60	n/a	1.67	1.50
GEM 8	1.22	1.09	1.00	0.90	1.04	1.14	1.27	1.19	1.05	1.27	1.19
GEM 13	1.34	1.06	1.00	0.72	1.02	1.05	1.39	1.13	0.98	1.34	1.06
GEM 14	1.54	1.24	0.80	0.68	0.97	1.06	1.36	1.39	0.70	1.54	1.24
GEM 10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
GEM 11	1.11	0.92	0.94	1.01	1.11	1.04	0.96	1.02	1.02	1.11	1.11
GEM 12	0.85	0.74	0.76	0.84	0.76	0.70	0.90	0.90	0.90	0.85	0.74
Minimum	0.82	0.74	0.62	0.57	0.76	0.70	0.76	0.90	0.62	0.82	0.74
25-percentile	1.00	0.97	0.90	0.89	1.00	0.96	1.00	1.04	0.85	1.00	0.97
Median	1.19	1.07	0.95	0.84	1.11	1.05	1.13	1.18	0.88	1.19	1.07
Mean	1.19	1.07	0.95	0.84	1.11	1.05	1.37	1.25	1.01	1.19	1.07
75-percentile	1.33	1.13	1.03	0.97	1.28	1.16	1.37	1.30	0.97	1.33	1.13
Maximum	1.67	1.50	1.06	1.12	1.41	1.20	1.87	1.50	1.06	1.67	1.50

Case 2: Observable Beta is unreasonable											
Name	2021	2020	2019	2018	2017	Average 2017-2021	5-year period	2-year period	2-year period	30 September 2021	30 September 2021
GEM 2	1.02	0.88	0.84	0.83	1.18	0.91	1.22	1.05	0.83	1.18	0.91
Target Group	1.22	1.05	1.01	1.12	1.41	1.16	1.22	1.05	1.01	1.12	1.41
GEM 3	0.94	1.10	0.62	0.67	1.28	0.92	0.97	1.18	0.62	0.67	1.28
GEM 4	0.96	0.96	0.97	0.97	0.91	0.97	0.96	0.96	0.96	0.96	0.96
GEM 5	1.21	1.03	1.26	0.98	1.31	1.16	1.08	1.13	1.15	1.08	1.13
GEM 6	1.32	1.25	0.82	n/a	n/a	1.10	1.07	1.27	0.65	1.32	1.25
GEM 7	1.67	1.50	0.93	n/a	1.02	1.26	1.56	1.60	n/a	1.67	1.50
GEM 8	1.22	1.09	1.00	0.90	1.04	1.14	1.27	1.19	1.05	1.27	1.19
GEM 13	1.34	1.06	1.00	0.72	1.02	1.05	1.39	1.13	0.98	1.34	1.06
GEM 14	1.54	1.24	0.80	0.68	0.97	1.06	1.36	1.39	0.70	1.54	1.24
GEM 10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
GEM 11	1.11	0.92	0.94	1.01	1.11	1.04	0.96	1.02	1.02	1.11	1.11
GEM 12	0.85	0.74	0.76	0.84	0.76	0.70	0.90	0.90	0.90	0.85	0.74
Minimum	0.82	0.74	0.62	0.57	0.76	0.70	0.76	0.90	0.62	0.82	0.74
25-percentile	1.00	0.97	0.90	0.89	1.00	0.96	1.00	1.04	0.85	1.00	0.97
Median	1.19	1.07	0.95	0.84	1.11	1.05	1.13	1.18	0.88	1.19	1.07
Mean	1.19	1.07	0.95	0.84	1.11	1.05	1.37	1.25	1.01	1.19	1.07
75-percentile	1.33	1.13	1.03	0.97	1.28	1.16	1.37	1.30	0.97	1.33	1.13
Maximum	1.67	1.50	1.06	1.12	1.41	1.20	1.87	1.50	1.06	1.67	1.50

Transfer and Link to Business Plan Analysis

Reasonability

0,96 – 1,16

Observable Beta: 1,16
Simulation based: 1,10

Transfer

Why?
0,96 – 1,16
0,78 – 1,28

?

Observable Beta: 1,16
Simulation based: 1,40

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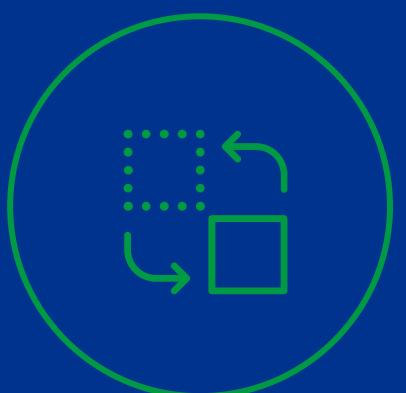
For discussion purposes only

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6 | Long-term effects

- Strategy vs. Value



Terminal Value: the later - the lower



Value effect of terminal value decreases significantly from 2030 onwards

Illustrative example

3-year business plan

Case 1 - until 2025

Year	2023	2024	2025	TV
Free Cash Flow	1.000	1.050	1.103	1.114
		5%	5%	1%
WACC	10%	10%	10%	10%
Present Value Factor	0,91	0,83	0,75	8,35
Present Value	909	868	828	9.296
				78%
Total Entity Value	11.901			Share TV of Entity Value

15-year business plan

Case 2 - until 2035

Year	2023	...	2026	...	2035	TV
Free Cash Flow	1.000	...	1.114	...	1.218	1.230
		...		1%	...	1%
WACC	10%	...	10%	...	10%	10%
Present Value Factor	0,91	...	0,68	...	0,29	3,22
Present Value	909	...	761	...	353	3.959
						33%
Total Entity Value	11.901					Share TV of Entity Value

30-year business plan

Case 3 - until 2050

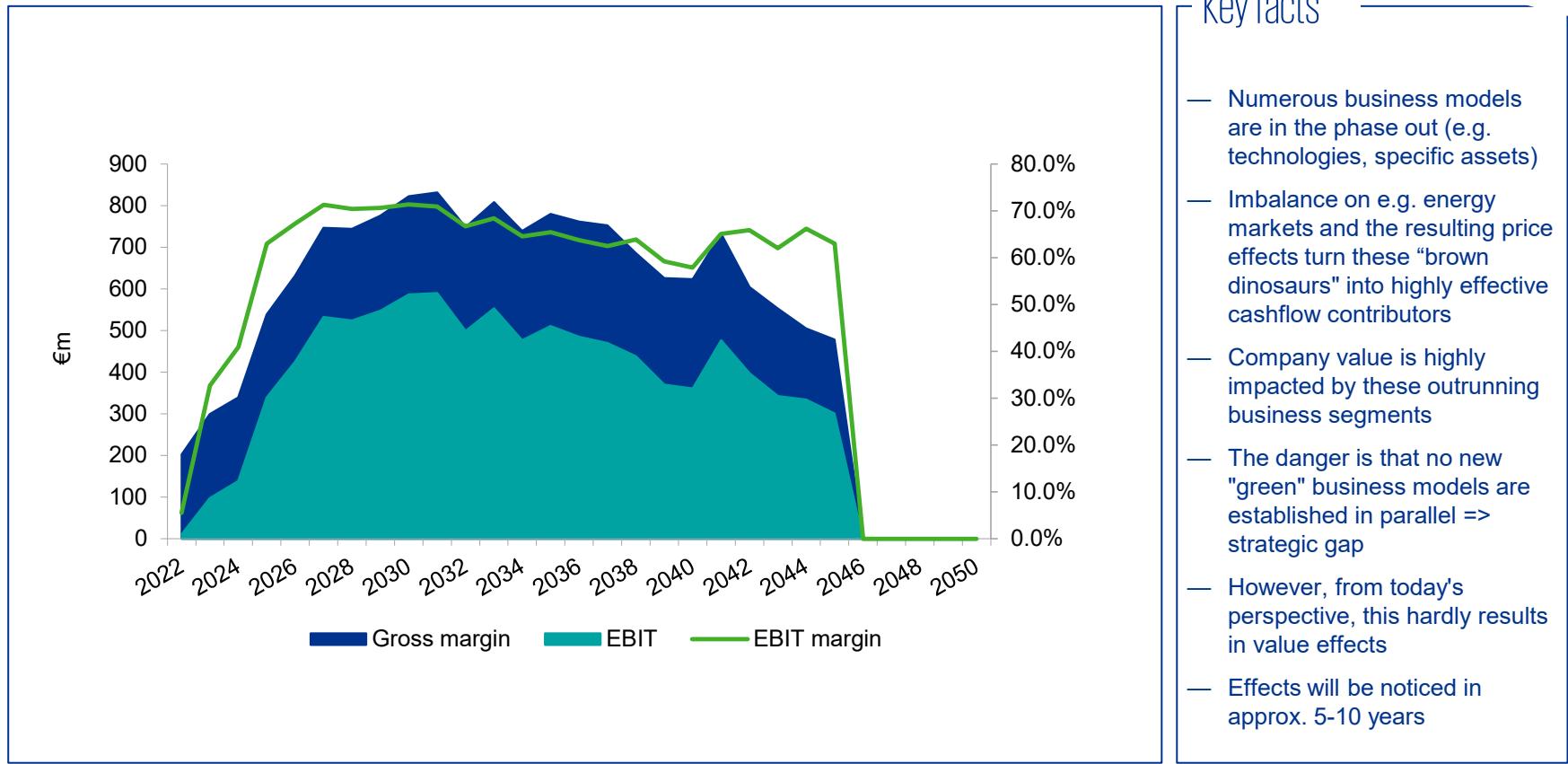
Year	2023	...	2026	...	2050	TV
Free Cash Flow	1.000	...	1.114	...	1.414	1.428
		...		1%	...	1%
WACC	10%	...	10%	...	10%	10%
Present Value Factor	0,91	...	0,68	...	0,07	0,77
Present Value	909	...	761	...	98	1.100
						9%
Total Entity Value	11.901					Share TV of Entity Value

Can the transformation wait?



Brown and no future – but highly profitable

Illustrative example



Source: Company information.

Can the transformation wait?



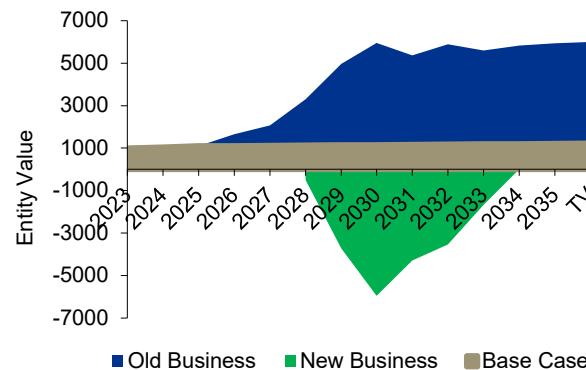
A gap between strategy and value

Illustrative example

15-year business plan

Case 2 - until 2035					
Year	2023	...	2030	...	2035
Free Cash Flow	1.000	...	0	...	6.140
			-100%	...	5%
WACC	10%	...	10%	...	10%
Present Value Factor	0,91	...	0,47	...	0,29
Present Value	909	...	0	...	1.836
					81%
Total Entity Value	25.542				Share TV of Entity Value
thereof old business	33.571	131%			
thereof new business	-8.029	-31%			

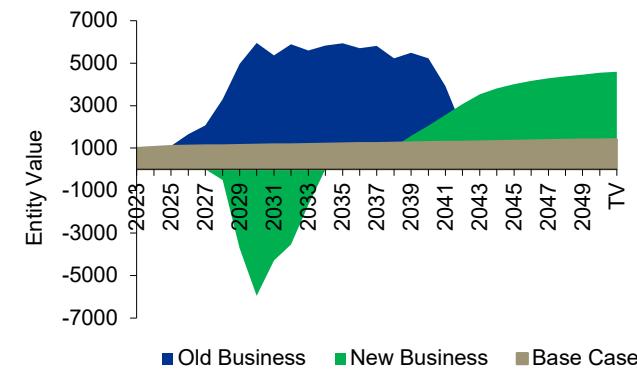
Free Cash Flow



30-year business plan

Case 3 - until 2050					
Year	2023	...	2040	...	2050
Free Cash Flow	1.000	...	7.269	...	4.553
			103%	...	2%
WACC	10%	...	10%	...	10%
Present Value Factor	0,91	...	0,18	...	0,07
Present Value	909	...	1.307	...	316
					12%
Total Entity Value	29.652				Share TV of Entity Value
thereof old business	29.546	100%			
thereof new business	106	0%			

Free Cash Flow





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