

A large, metallic, three-dimensional Volkswagen logo is centered in the upper half of the image. The logo is a circular emblem with a 'V' stacked on top of a 'W'. The background is a blurred, industrial-looking setting with metallic surfaces.

Volkswagen Supplier Financial Stress

October 2015

Executive Summary

- **Scale**– Over 11 million vehicles worldwide will need to be retrofitted. 2016 diesel models are not permitted to be sold in the United States or European Union.
- **Emissions Impact**– Software in the vehicles detects testing environments to comply with emissions requirements. When not in a test environment, NOx emissions are 10-40x permitted levels.
- **Supplier Savings**– Volkswagen has initiated a plan to capture 3 Billion Euros in savings from its supply base.
- **Supplier Comments**– Some VW suppliers have already seen an impact on their business, while others are unsure about the potential impact of new diesel regulations.
- **Supplier Exposure**– VW accounts for over 40% of some suppliers' revenue. Significant decreases in sales of VW vehicles, or diesel vehicles in general, will have a material impact.
- **Supplier Risk**– Public and Private suppliers' financials should be reviewed to determine exposure to VW, cash reserves, and available means of mitigation.

1. VW Background & Supplier Impact

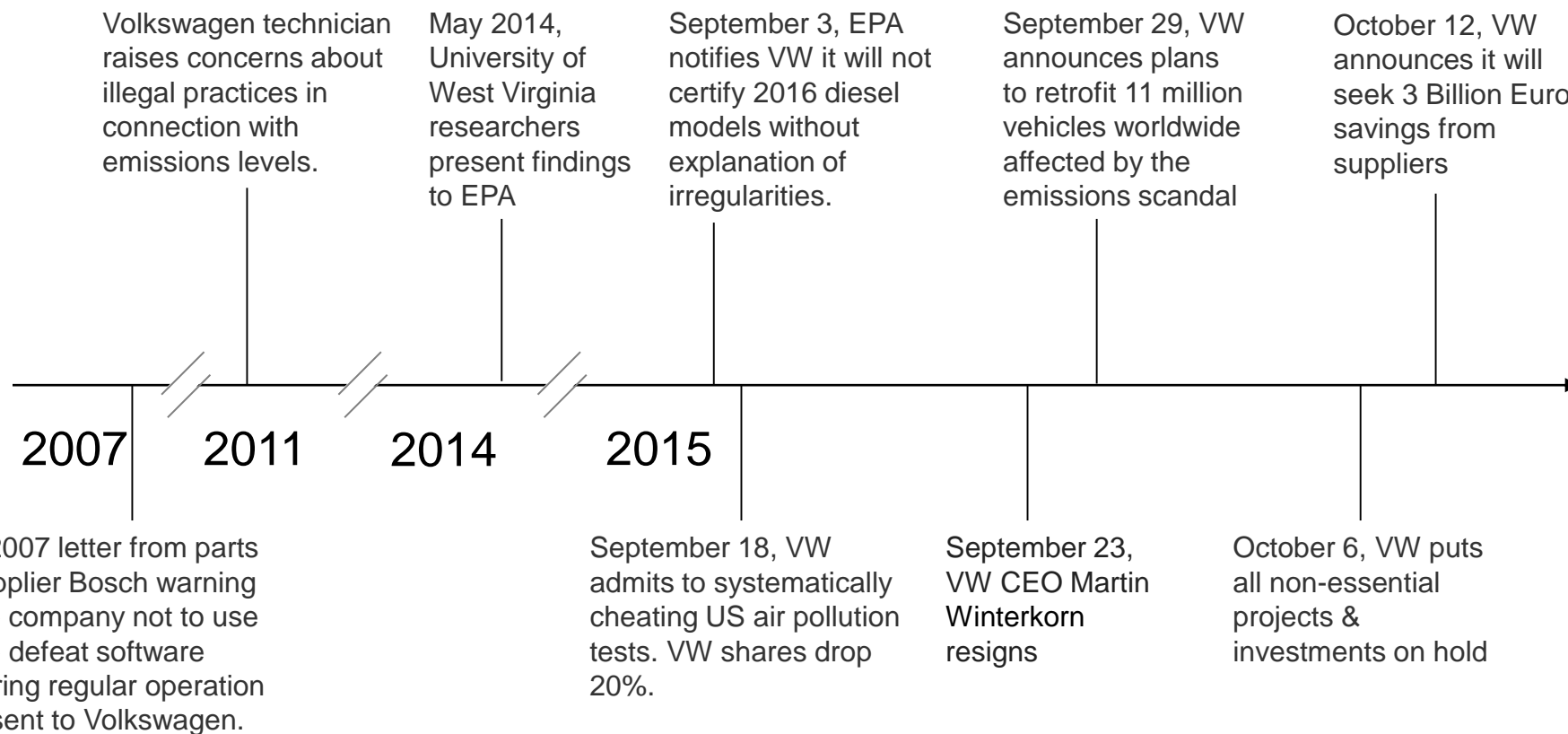
2. Cost & Capital Supplier Risk Approach

3. Reference Cases

Emissions Scope & Impact

- Largest business scandal in company's 78 year history
- Emissions testing defeat software is installed on 11 million vehicles globally
- Vehicles emit up to 40x the legal limit of NOx
- US diesel cars represent 1% of total sales, however 54% of new vehicles sold in the EU have diesel engines
- VW is not currently permitted to sell affected diesel vehicles in the United States or European Union
- Recalls are underway with hardware and software fixes being engineered by VW
- EPA may fine up to \$37,500 per vehicle, which would imply a potential 18 BUSD penalty in the United States alone
- Texas and other states have started to file lawsuits, while consumer class-action suits are being organized in the US and investigations by other countries are underway

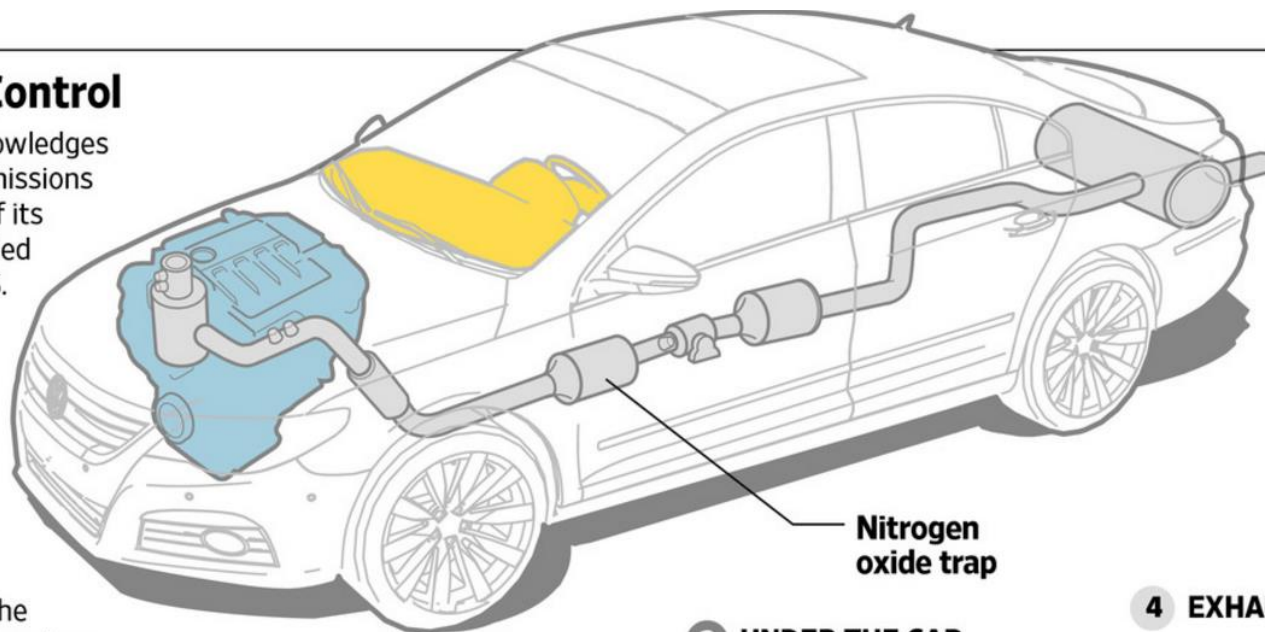
Emissions Issue Timeline



Emissions Issue Overview

Emissions Control

Volkswagen acknowledges irregularities in emissions output on some of its diesel cars as it tried to meet tough U.S. standards



1 ENGINE

Volkswagen said the software discrepancy has occurred on Type EA 189 engines used in around 11 million vehicles. Diesel engines use a complex mix of sensors and filtration methods to track and limit emission levels

Note: Diagram not to scale
Sources: the company; U.S. Regulators;
Center for Automotive Research

2 CONTROLS

Information gathered by sensors measuring steering and accelerator pedal inputs are suspected to have been used to determine when the cars are being tested for emissions, triggering more thorough treatment of exhaust.

3 UNDER THE CAR

Modern diesel cars use a mix of devices to meet pollution limits, but they can hamper fuel consumption and other performance, automotive engineers say. Nitrogen oxides in some circumstances could be filtered more heavily based on car configuration.

Nitrogen
oxide trap

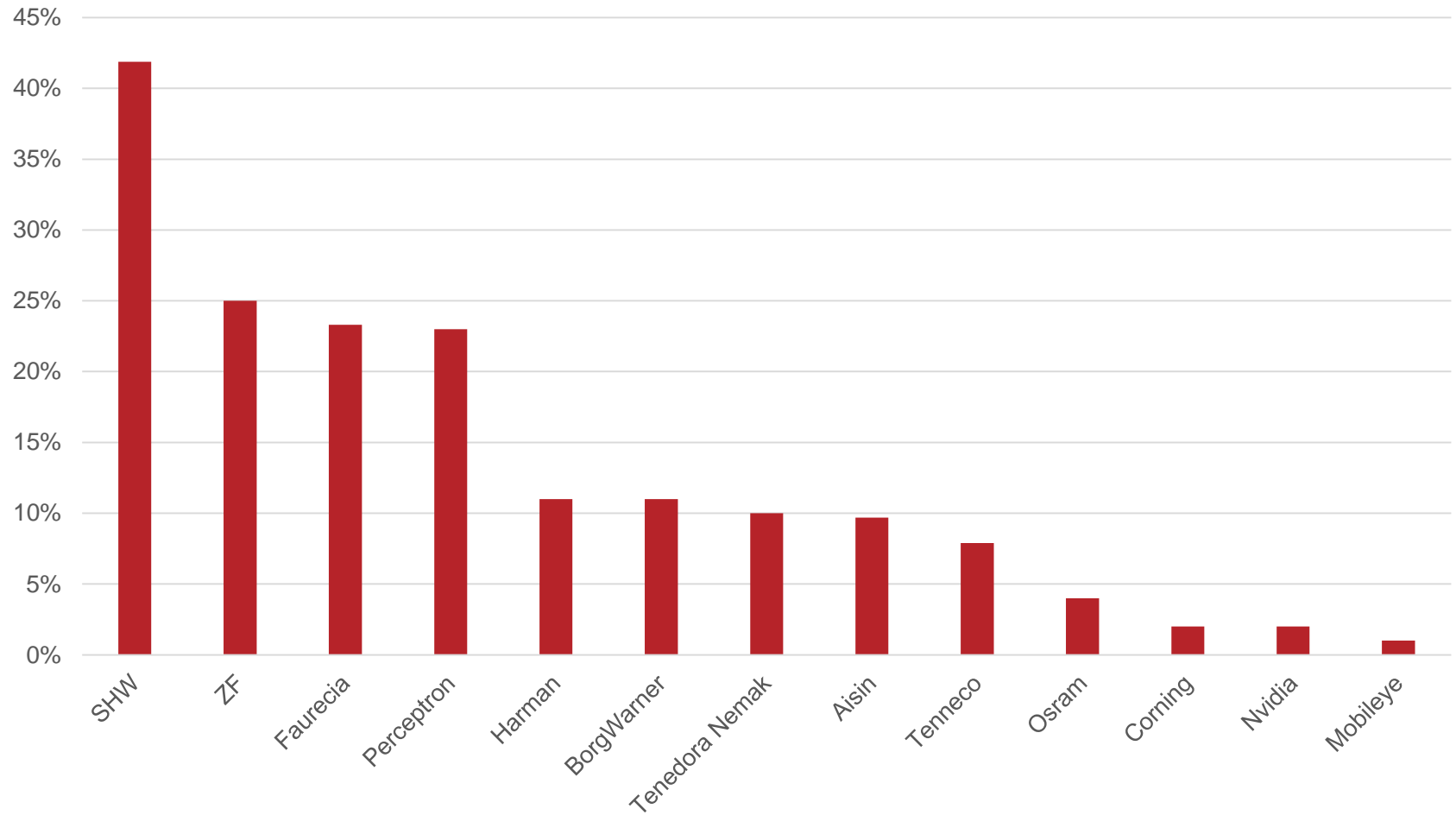
4 EXHAUST

Regulators and the Center for Alternative Fuels, Engines and Emissions at West Virginia University detected variations in emissions on Volkswagen cars when they were being operated on the road to those emitted when being tested.

THE WALL STREET JOURNAL.

VW Share of Suppliers' Business

VW accounts for over 40% of some suppliers' revenue.



Recent Statements

Some VW suppliers have already seen an impact on their business, while others are unsure about the potential impact of new diesel regulations.

Historically, Puebla has represented about 10% of our total finished vehicle volume. **We've already seen a slight decrease in the production from this facility.** And the industry news also suggests the company-wide cost cutting measures, which could potentially impact production at a number of the facilities. If the Puebla plant experiences substantial production cutbacks, we will redirect the use of the excess automotive equipment to support the other plants in our Mexican automotive customer base.

- Brian Hancock, EVP & CMO of KCS

Tenneco's revenue from the VW MQB platform was approximately **\$310 million in 2014** including clean air and ride performance components.

- Tenneco Corporate Press Release

"We see **BorgWarner and Tenneco** having the most exposure given their specific involvement with VW's diesel engine production and emissions control technology,"

- Douglas Karson, Analyst at Bank of America Merrill Lynch

We have made some small estimates, **I would not say it is immaterial**, but for the moment our consideration is that if something happens, materiality would be very limited.

- Michel Favre, CFO of Faurecia

The VW affair has introduced a factor of uncertainty that **affects the solidity of our planning.**

- Leoni Corporate Statement

When we see what our releases look like for Volkswagen, we don't see anything that looks like it's changing in the near term. And we don't expect anything in the long term to change strategically about how they're positioned.

Steve Downing, CFO of Gentex

The automotive market is not going to become any because consumers are going to buy the same number of cars. It is **possible they won't be buying quite as many Volkswagens** but, there isn't a vehicle in the world that doesn't have Bosch parts.

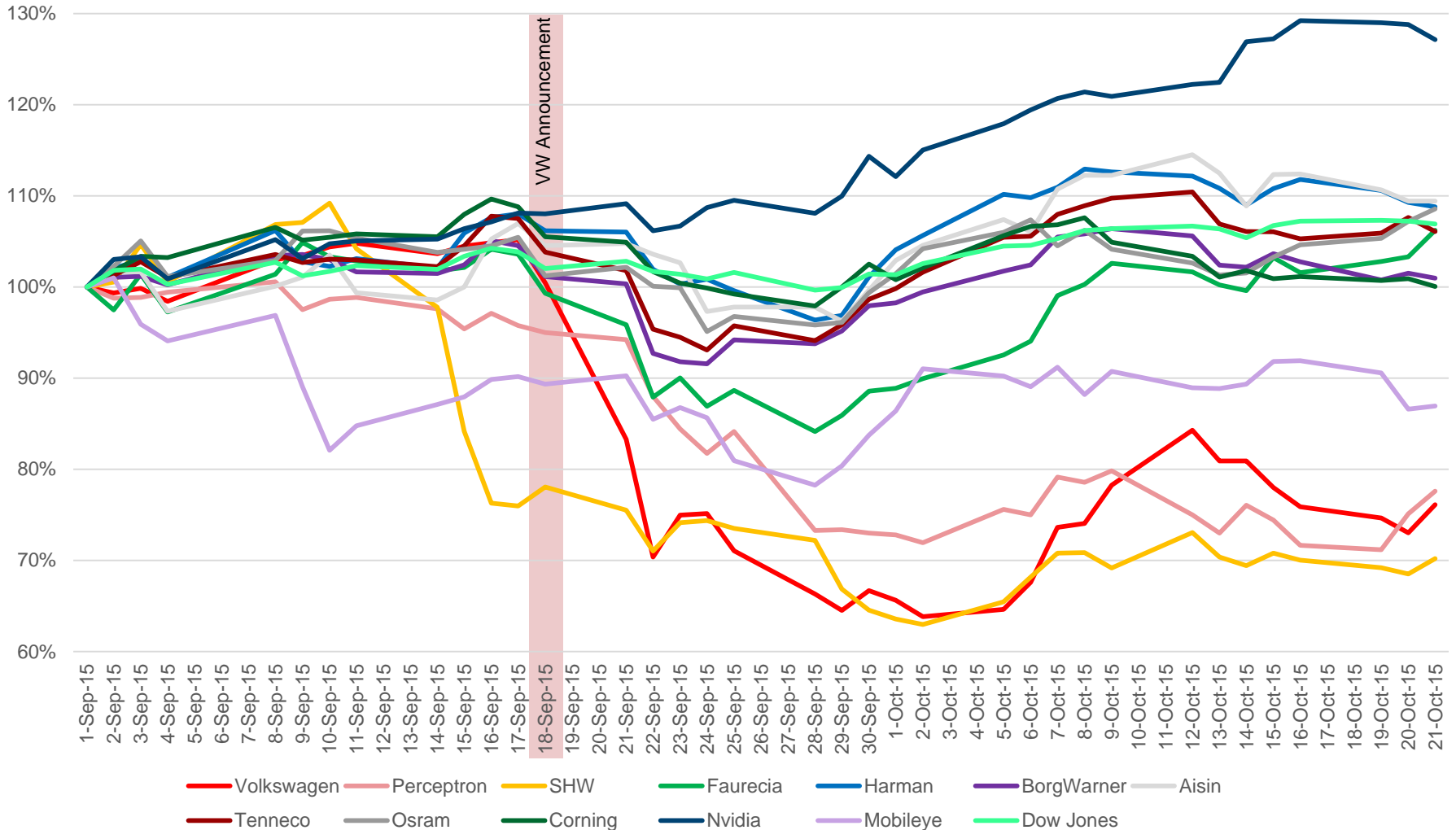
- René Schlegel, President Bosch Mexico

It is **too early to evaluate the impact** of tighter diesel emissions regulation over the long term.

- Jacques Aschenbroich, CEO of Valeo

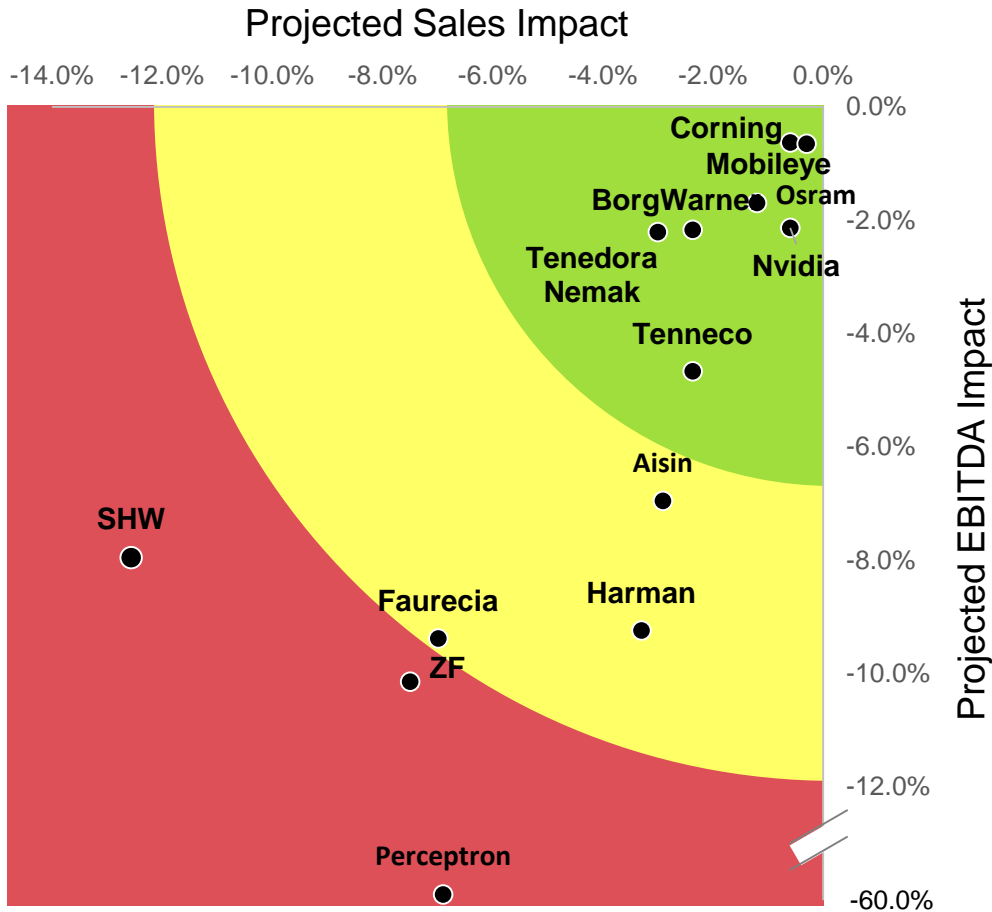
Stock Development

VW, SHW and Perceptron have seen the largest decline in their stock prices since September 1, 2015.



Production Cut Analysis

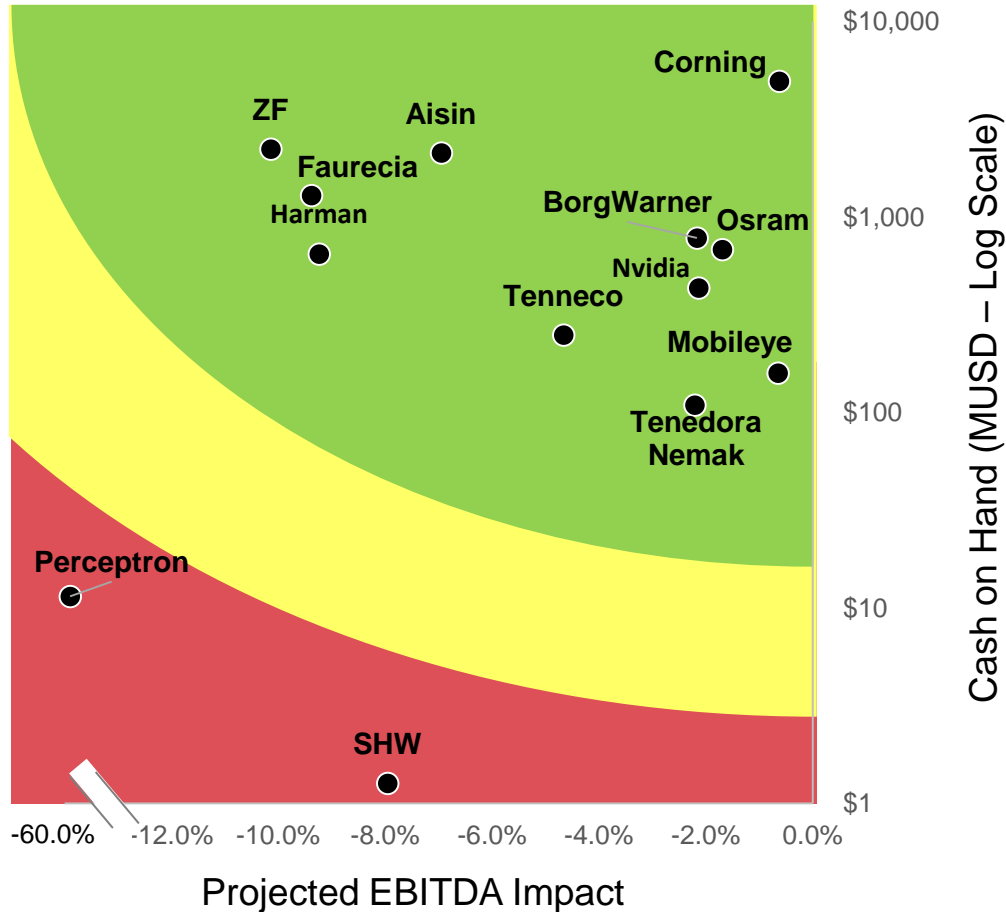
Suppliers will undergo varying degrees of stress if VW's volumes fell by 30% over the next year.



- A significant decline in VW's sales would have a material impact on many of its suppliers
- Perceptron would have the largest impact on EBITDA while SHW would see the biggest impact on sales
- Companies could incur additional charges if they are forced to reduce staffing levels or idle facilities

Production Cut Analysis

Suppliers will undergo varying degrees of stress if VW's volumes fell by 30% over the next year.



- Compared to the peer group, Perceptron and SHW have a limited amount of cash & equivalents on hand
- Companies that need to raise additional capital may risk violating credit covenants

1. VW Background & Supplier Impact

2. Cost & Capital Supplier Risk Approach

3. Reference Cases

Risk Identification

Risk Assessment

- Review financial statements and analyze key metrics determine level of supplier risk
- Rank suppliers in terms of potential short term and long term stress
- Identify actions to address with the supply base, depending on level of risk

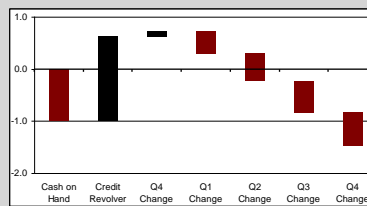
Cash Burn Walk Chart

Why: Based on the revenue and fixed cost assumptions, the model estimated the quarterly cash burn rate for each supplier

What to discuss with the supplier: The assumptions estimate reduced revenue based on exposure to GM, Chrysler, and automotive in general. Discuss revenue projections, specific programs and new business awards. If they show a near-term default (cash below 0) determine what steps they are taking to secure additional cash i.e. debt, selling assets, etc.

How to Calculate: The model uses the supplier's most recent revenue, EBIT and fixed asset numbers to estimate forward quarterly revenue and costs resulting in quarterly cash flows

Sample Cash Burn Walk Chart



Supplier Detail Report – ArvinMeritor

Summary

- ArvinMeritor will not be able to manage reduced volumes with their current access to liquidity
- Already highly leveraged, ArvinMeritor will need to look to bankruptcy protection

Constraints Analysis



Supplier Detail Report – ArvinMeritor

Working Capital Performance



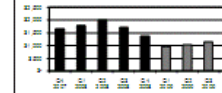
Uses of Cash for 2009



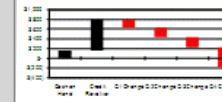
Supplier Detail Report – ArvinMeritor

Diagnostics

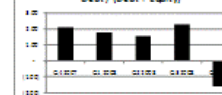
Quarterly Revenue and Projection



Cash Position



Debt / (Debt + Equity)



Cash Metrics

LT Debt / Equity	1.21
Current Portion of LT Debt / Equity	0.21
Current Ratio	0.98
Quick Ratio	0.28
LT Debt / Trailing EBITDA	4.03
Projected Change in Cash / Revenue for 2009	-42.7%
LT Debt Due in One Year	0.21
Cash Requirement for 2009 / Cash on Hand	91.8%
Percent of Cash Requirement as Credit Cash and Cash Equivalents (\$M US)	155

Volume Metrics

Percent of Non-Distressed Customers	0.2%
Projected Q1 2009 Volume vs. Q4 2008	70.8%
Total 2009 Volume vs. 2008 Volume	82.2%

Operating Metrics

COGS / Sales	84.7%
SG&A / Sales	7.2%
R&D / Sales	0.0%
CAPEX / Sales	0.2%
Operating Margin	-2.2%
D50	0.0
D90	0.0
D50 / D90	0.0
Days of Inventory	-425
Fixed Asset Turnover	1.4

Supplier Engagement

Supplier Interviews

- Determine proper topics to address for both public and private suppliers to gauge financial risk
- Quantify supplier initiatives to reduce cash burn rates to maintain solvency
- Identify ownership structures and financing for private companies
- Calculate credit revolver covenants and understand supplier cash consequences for default
- Apply standard templates to collect financials from private suppliers

Enter Data in millions

P&L Data	Q1 2009	Q4 2008	Q3 2008	Q2 2008	Q1 2008	Q4 2007
Revenue						
COGS						
Depreciation						
EBIT						

Balance Sheet Data	Q1 2009	Q4 2008	Q3 2008	Q2 2008	Q1 2008	Q4 2007
Cash and Equivalents						
Accounts Receivable						
Inventory						
Total Current Assets						
Accounts Payable						
Current Portion of Long-Term Debt						
Total Current Liabilities						
Long Term Debt						
Equity						

Cash Flow Data	Q1 2009	Q4 2008	Q3 2008	Q2 2008	Q1 2008	Q4 2007
Net Income						
Depreciation						
Changes in Working Capital						
Cash Flow - Operating Activities						
CAPEX						
Debt - Net Issuance						
Cash Flow - Financing Activities						
Net Change in Cash						

Financials

Customer mix

Enter the amount of sales to the following industries in terms of a percent

Select industry from the drop down and include a percentage

1		0%
2		0%
3		0%
4		0%
Other		0%

Customer Mix

Document all covenants

Document source of liquidity
(i.e. financial institution, private investors, etc.)

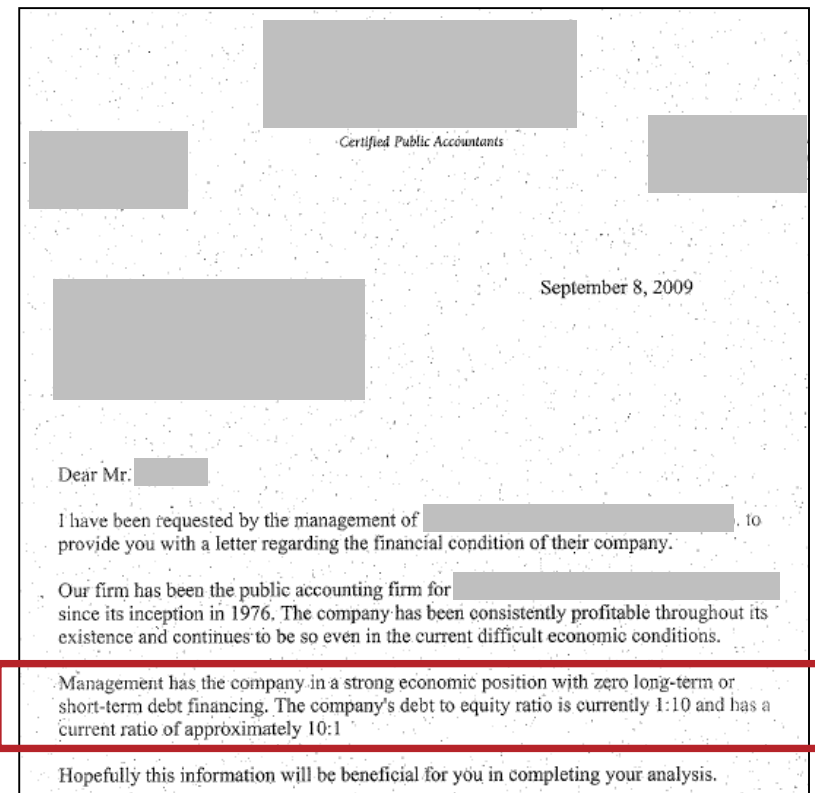
Liquidity

Private Supplier Assessment

Gut Check Data Received

- Suppliers may view this data request as unimportant and simply provide information to make the problem go away
- Thus, the materials provided will likely have unintentional missing information, incorrect information, or contradictory information

Examples



Supplier Engagement

	Liquidity	Viability	Volume
What to Ask	<ul style="list-style-type: none"> • Credit covenants • Sources of short term cash • Ownership of equity and their access to capital 	<ul style="list-style-type: none"> • Manufacturing footprint • Stability of contracts 	<ul style="list-style-type: none"> • Capacity reduction • Cash management
Key Data	<ul style="list-style-type: none"> • Interest Coverage • CAPEX limits 	<ul style="list-style-type: none"> • Quantify initiatives and timing for cost reduction activities such as SG&A reduction, plant consolidation and business segment disposition 	<ul style="list-style-type: none"> • Cash Conversion Cycle • Working capital initiatives

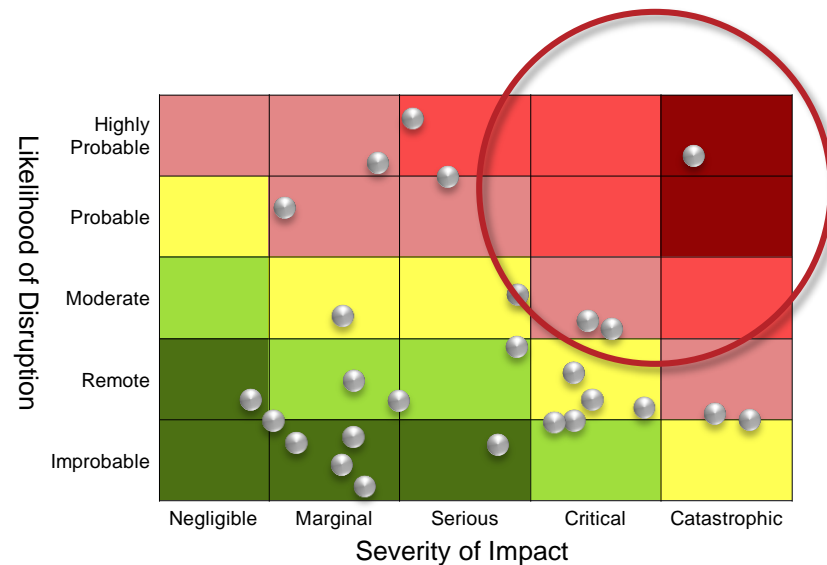
Risk Management Playbook

Developing counter measures for the riskiest suppliers

Focus Area

- Cost and Capital will work to develop risk mitigation playbooks for the identified high-risk, high-impact suppliers
- For each identified supplier, a specific contingency roadmap will be created with event triggers and defined countermeasures

Criticality Matrix



Private Supplier Process

Cost & Capital's private supplier evaluation



- Use the Cost & Capital template for P&L, Balance Sheet and Cash Flow

- Evaluate submission and calculate key ratios
- Assess liquidity position
- Gauge risk due to customer mix

- Interview CFO or controller to add detail behind the submitted template

- Generate risk profile for supplier

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1. VW Background & Supplier Impact
 2. Cost & Capital Supplier Risk Approach
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Cost & Capital Partners Introduction

- **Cost & Capital Partners focuses on the two most critical levers for shareholder value today - Cost Efficiency and Capital Efficiency**
 - Cash should be treated as the valuable resource it is
 - Spend management preserves cash
 - Capital efficiency frees cash trapped in traditional operations
- **We deliver results – not just recommendations, each and every time**
 - We stand behind our recommendations and prefer to be involved in implementation
 - We conduct negotiations on behalf of our clients
 - We are passionate about our work and the results
 - We work with our clients to implement the changes required to improve the business

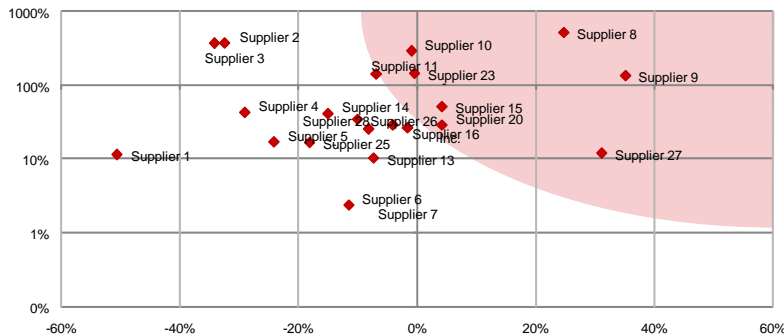
Previous project work



Reference Case

Risk Management

Packaging – Chemicals



Engagement Overview

- Cost & Capital was asked to review risk factors for packaging suppliers for a maker of lawn and garden care products
- The team analyzed and audited packaging suppliers to determine the level of risk in the supply chain due to financial strain, capacity and cost reduction initiatives
- Suppliers were segmented into low, medium, high and critical risk suppliers
- Detailed agendas were created to engage the suppliers and develop risk mitigation plans

Reference Case

Risk Management

Supplier Risk Management – Industrial Equipment

Rating	Financial Ratio	Value	Comment
	Annual Volume Change	(13.0%)	
	EBITDA Margin	1.5%	Very low cash generation from operations
	Debt to Assets	NA	5.1MM debt (25% of sales)
	Debt to Equity	(0.83)	Negative equity levels suggest financial distress
	Debt Due in One Year	31.9%	Large debt principal payment due in next 12 months
	(Cash + Credit) / Revenue	(0.5%)	No cash on hand and company did not disclose available credit line
	Current Ratio	1.53	Working capital ratios show signs of financial distress
	Interest Coverage Ratio	< 0	
	Debt to EBITDA Ratio	14.41	
	Quick Ratio	0.63	

Engagement Overview

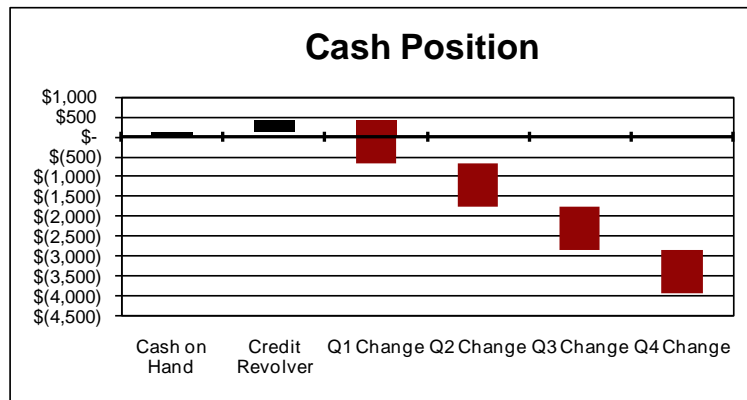
- A global industrial company needed to assess several dozen private suppliers for financial risk
- Templates were distributed to the suppliers and interviews were conducted to determine key operating and cash metrics
- Second round interviews were held to uncover any inconsistencies in data that was submitted
- Suppliers' financial risk was ranked and reported to management and risk mitigation plans were developed

Annual Volume Change	EBITDA Margin	Debt to Assets	Debt to Equity	Debt Due in One Year	(Cash + Credit) / Revenue	Current Ratio	Interest Coverage Ratio	Leverage Ratio (Debt / LTM EBITDA)	Quick Ratio	Assessment
(13.9%)	7.2%	1.35	(3.89)	18.8%	(0.6%)	1.70	1.61	5.65	1.09	Critical
(13.0%)	1.5%		(0.83)	31.9%	(0.5%)	1.53	<0	14.41	0.63	Probable
(43.0%)	3.5%				4.4%	2.80	5.00		1.54	Moderate
(39.6%)	5.4%	1.56	(2.80)	57.1%	1.7%	0.71	1.94	5.35	0.44	Moderate
(15.3%)	0.6%	0.61	1.54	9.5%	10.4%	1.56	0.43	18.50	0.94	Moderate
(26.1%)	9.7%	0.14	0.16	41.7%	0.0%	0.61	8.59	0.55	0.29	Remote
(9.7%)	(8.6%)	0.47	0.87	0.7%	29.7%	1.14	<0	<0	0.51	Remote
6.4%	6.2%	0.44	0.79	19.9%	4.6%	1.19	7.08	1.06	0.73	Remote
(13.3%)	2.8%	0.21			9.0%	3.40			1.33	Remote
(26.5%)	1.3%	0.40	0.66	0.2%	4.1%	2.83	1.46	6.90	1.67	Remote
		0.00	0.00	NA	1.5%	3.66	NA	NA	2.16	Remote
(45.2%)										Remote
(10.7%)	2.4%	0.00	0.00	NA	4.4%	10.48	NA	0.00	7.14	Remote
(33.3%)	0.7%	0.15	0.17	3.8%	27.6%	1.83	NA	3.64	1.06	Remote
(21.1%)		0.00	0.00	NA	18.9%	4.11	NA	NA	3.07	Improbable
(40.0%)		0.00	0.00	NA	6.3%		NA	NA		Improbable
(11.1%)		0.06	0.06	100.0%	36.1%	1.56			1.20	Improbable
(18.2%)	3.9%	0.00	0.00	NA	7.5%	1.96	13.33	0.00	1.18	Improbable
(31.1%)		0.00	0.00	NA	4.5%	4.93	NA	NA	2.36	Improbable
(36.3%)	5.5%	0.24	0.32	22.5%	19.4%	3.64	7.50	0.95	2.00	Improbable
12.4%	12.7%	0.00	0.00	NA	21.3%	1.92	NA	NA	1.83	Improbable
(12.5%)		0.00	0.00	NA	15.2%					Improbable
(18.7%)	16.1%			0.0%	18.5%	3.42	60.67	0.29	2.23	Improbable
(25.0%)	6.3%	0.00	0.00	NA	18.1%	1.70	NA	0.00	1.15	Improbable
(5.2%)	8.5%	0.15	0.18	0.0%	4.9%	2.38	381.50	0.39	1.25	Improbable
8.7%	7.1%	0.00	0.00	NA	15.0%	4.00	NA	0.00	2.70	Improbable
3.2%	5.6%	0.00	0.00	NA	21.5%	3.40	NA	0.00	2.40	Improbable
(23.6%)	14.7%	0.46	0.83	48.8%	47.9%	2.19	1.56	2.40	1.74	Improbable
(31.8%)	2.5%	0.00	0.00	NA	27.8%	8.23	<0	0.00	7.02	Improbable
(8.0%)	5.3%	0.25	0.33	5.7%	36.8%	1.66	2.03	1.09	1.53	Improbable

Reference Case

Risk Management

Supplier Risk Management – Industrial Equipment



Engagement Overview

- Maintaining plant continuity during a credit crunch, a major automotive OEM tasked the team with identifying troubled suppliers beyond D&B ratings for private suppliers
- Suppliers were audited and key cash burn rate details were summarized to identify the more critical suppliers to monitor
- Each supplier was assessed for access to credit, cash as well as upcoming debt maturities
- The resulting analysis helped the client to consolidate the supply base and manage reduced volumes

Reference Case

Cost Reduction

Skills Development – Industrial Equipment



Engagement Overview

- A global industrial equipment supplier needed to gauge the level of supply chain competence within a new structured organization
- Leveraging the experience and materials from supporting sourcing projects across multiple industries, the team developed a set of assessment questions for each competency area:

Benchmarking Cost Analysis

Finance Market Knowledge

Negotiations Risk Management

Value Chain Analysis

Question	Answers
<p>With all other business conditions the same, what is the effect on the ROIC performance of a supplier as Raw Material Prices decline?</p> <p>Return On Invested Capital (ROIC)</p> <p>The graph plots Capital Turnover Ratio (CTR) on the y-axis (0 to 3) against Operating Margin (after tax) on the x-axis (0% to 20%). Four curves represent ROIC levels of 40%, 20%, 10%, and 2%. A central point has arrows pointing to U (up), W (up-right), X (right), Y (down-right), and Z (down).</p>	<p>A U <input type="checkbox"/></p> <p>B W <input type="checkbox"/></p> <p>C X <input type="checkbox"/></p> <p>D Y <input type="checkbox"/></p> <p>E Z <input type="checkbox"/></p>

Cost & Capital

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