

Resource Revolution: How to win in the new resource area

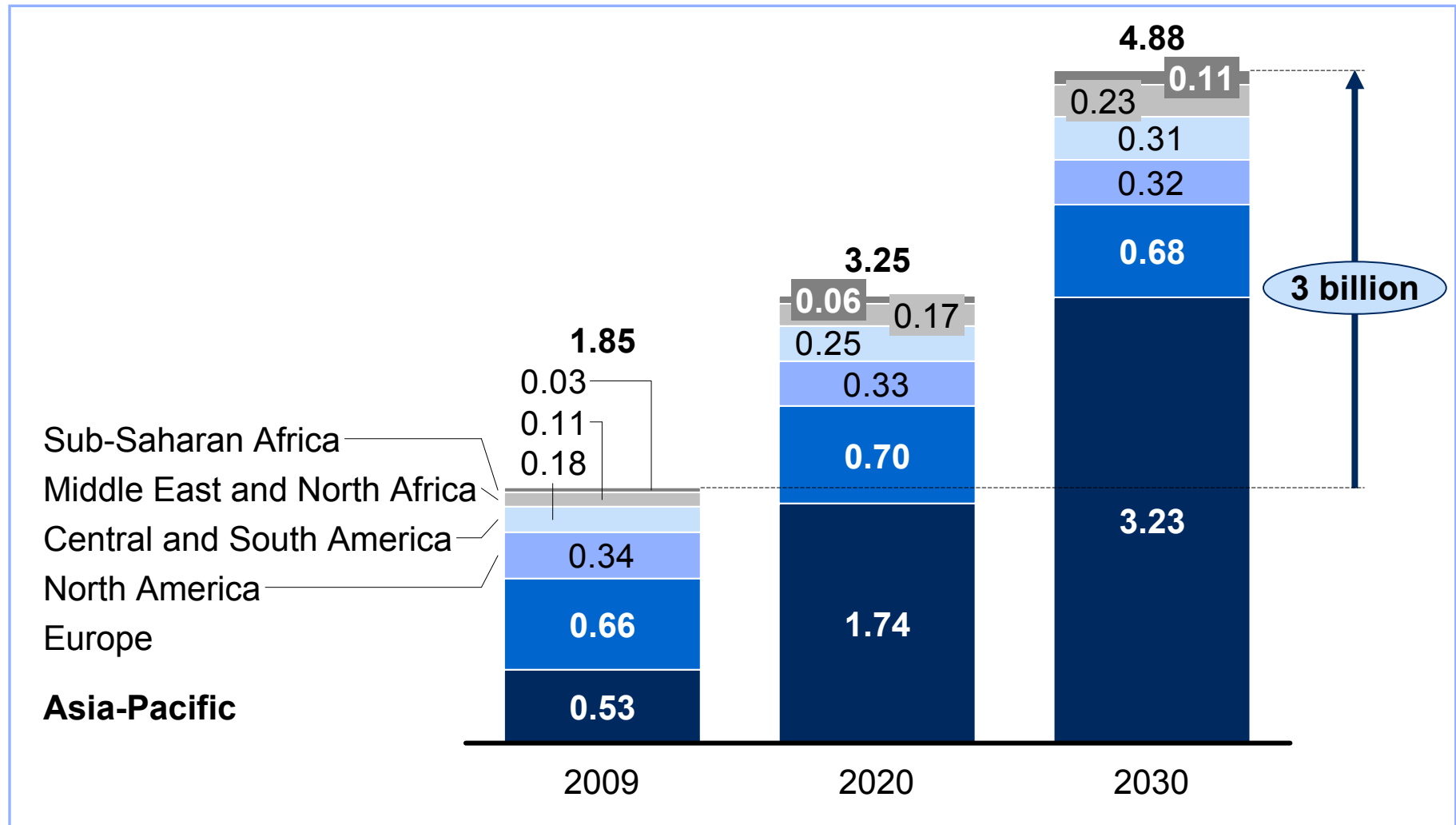


ANIQ presentation
October 25, 2012

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The emergence of 3 billion middle-class consumers will fuel future resource demand

Global middle class¹, Billions of people

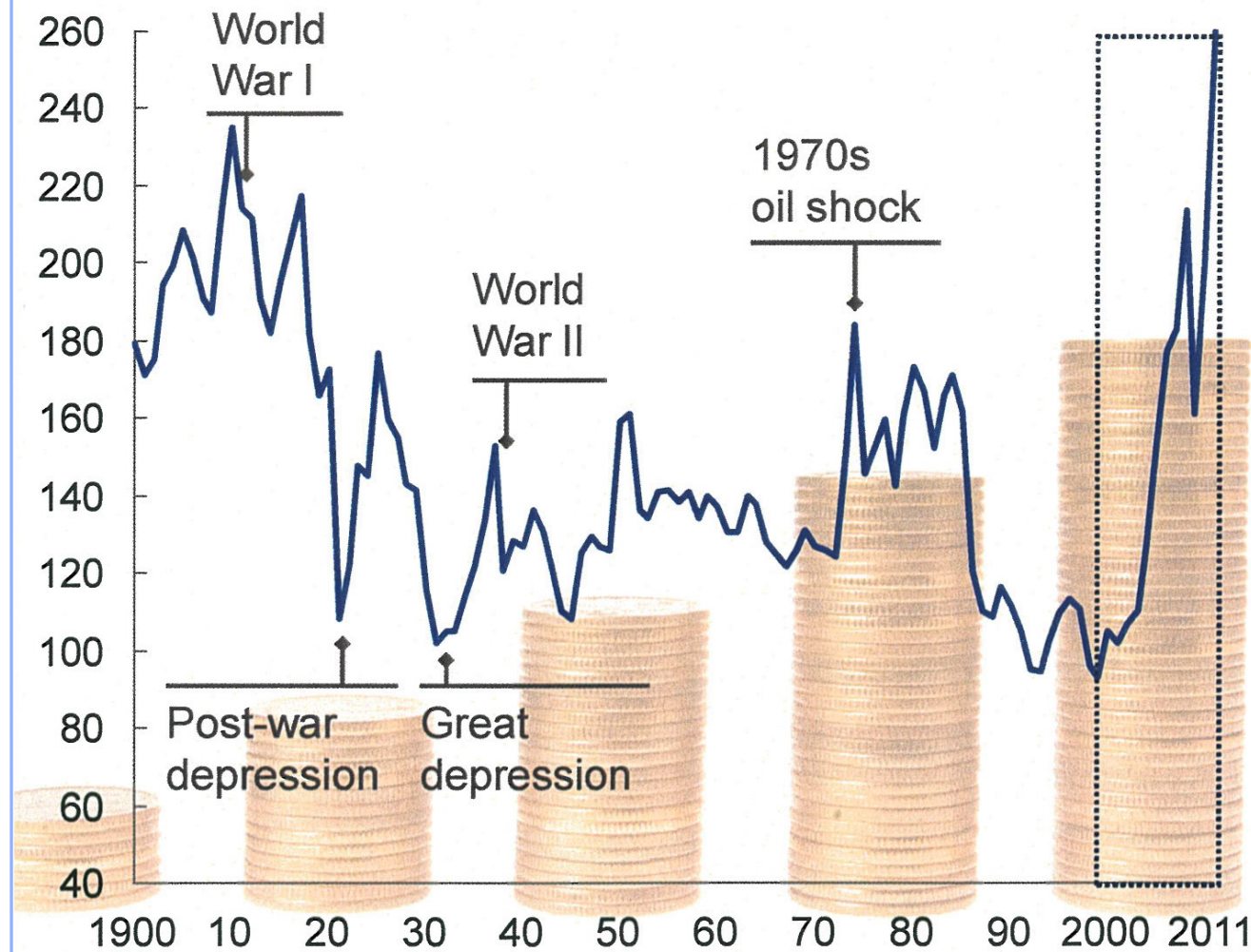


¹ Based on daily consumption per capita ranging from \$10 to \$100 (in purchasing power parity terms)

Resource markets are changing fundamentally

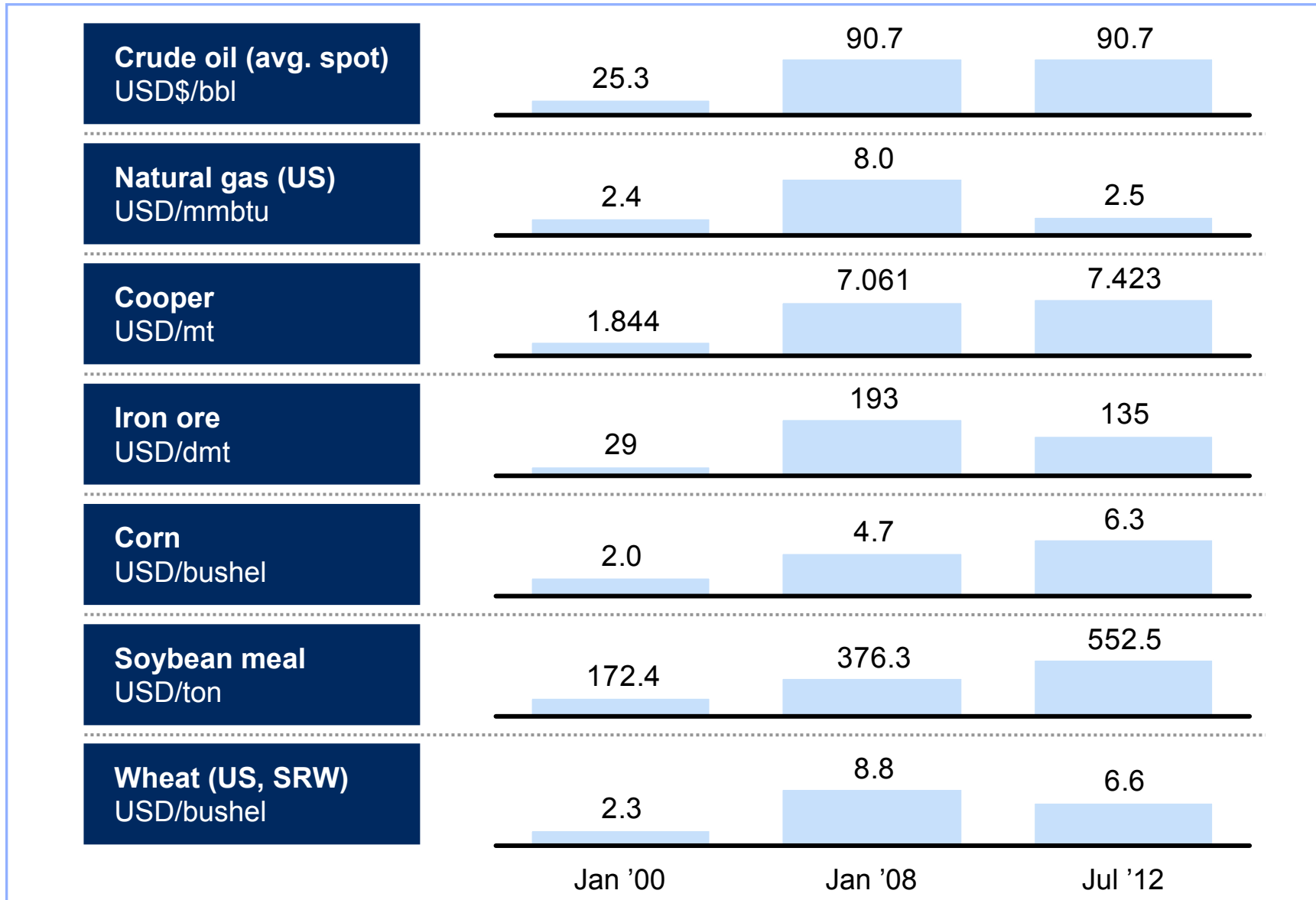
Commodity prices have increased sharply since 2000

McKinsey Commodity Price Index

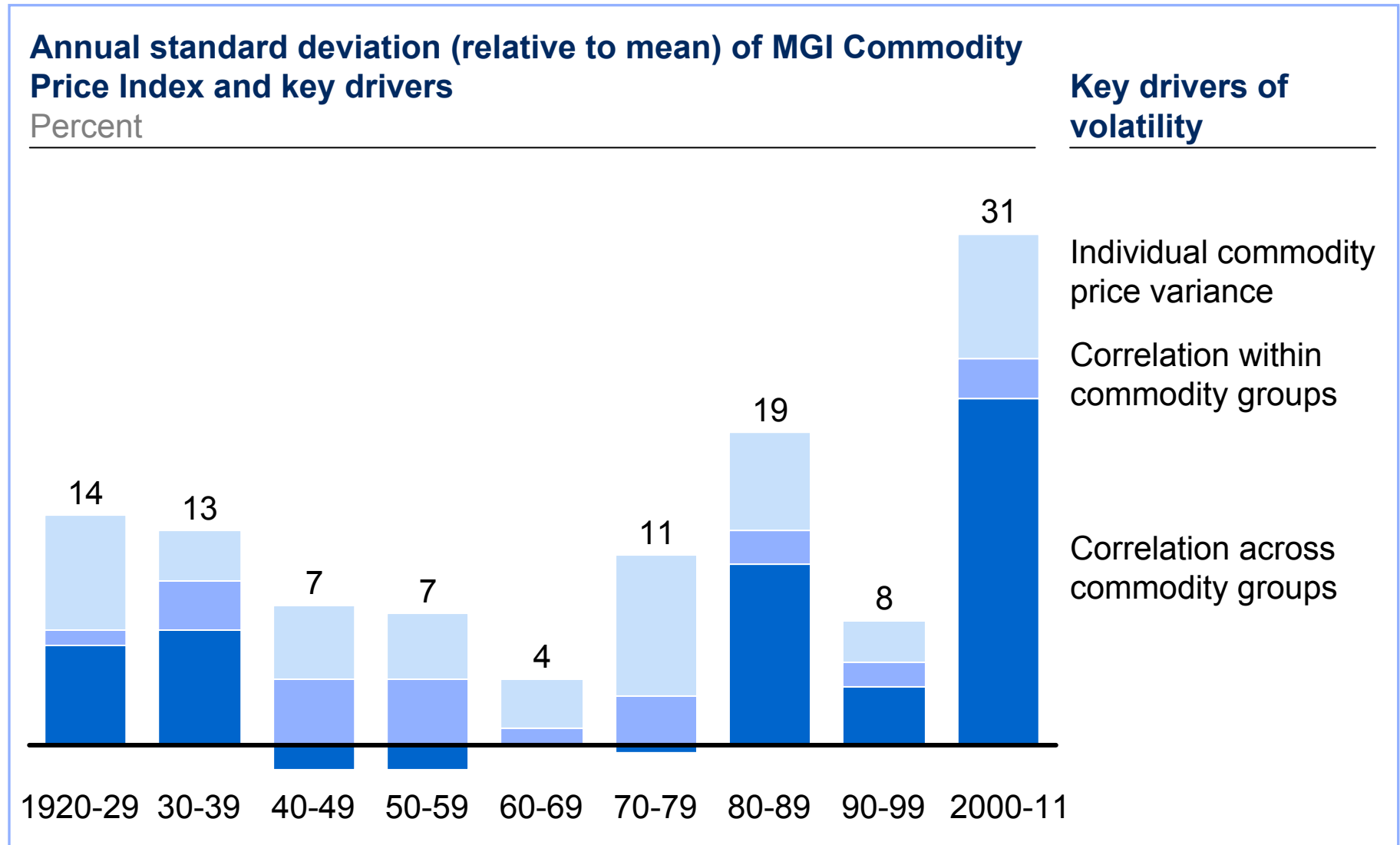


- Prices are increasing
- Resource prices are becoming more volatile
- Resources are increasingly inter-linked

Some resource prices are off their 2008 peak, but not close to 2000 levels



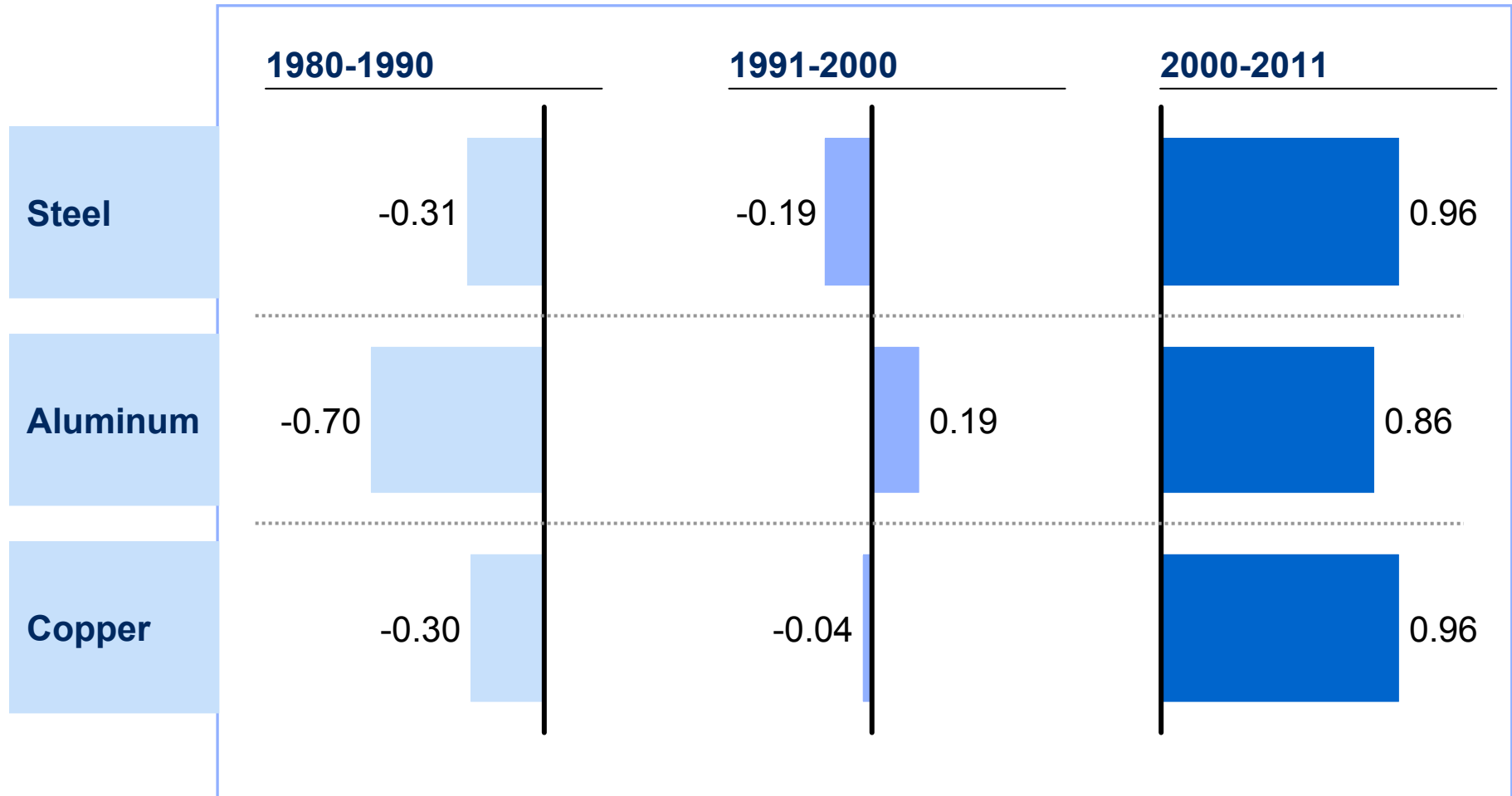
Resource prices are also becoming more volatile – mainly due to their increasing linkages



SOURCE: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organization for Economic Co-operation and Development; UN Food and Agriculture Organization; UN Comtrade

Commodity prices have also become increasingly correlated

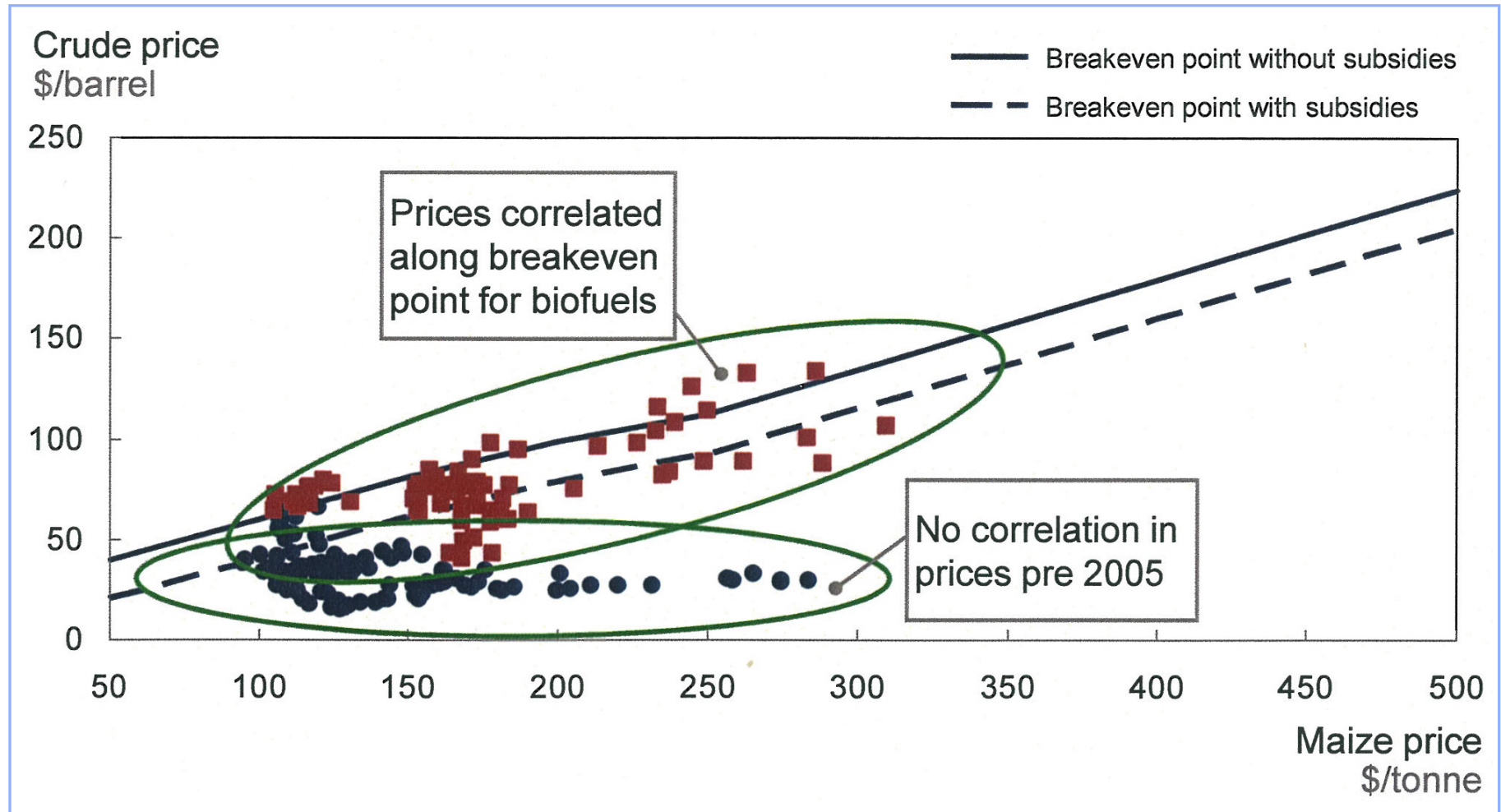
Correlation with oil prices



Availability of unconventional gas may put downward pressure on plastic prices

Biofuels drive price linkages through resource substitution, particularly maize

Comparison of real prices of maize and West Texas intermediate oil. vs. breakeven economics of biofuel production



Overall, 4 factors are likely to drive uncertainty in resource markets

		Key facts for the next 20 years
1	Growth of new middle class consumers	<ul style="list-style-type: none">▪ 3 billion new middle-class consumers could enter the world by 2030▪ Global car fleet to double to 1.7 billion by 2030▪ China and India could annually add floor space 3.5 times the residential and commercial square footage of the City of Chicago
2	Increasing cost of new supply	<ul style="list-style-type: none">▪ Average real cost per oil well has doubled over the past decade▪ New mining discoveries have been flat despite a 4x increase in exploration▪ Political and infrastructural issues affect 1/4 of new iron-ore production capacity
3	Resources are increasingly linked	<ul style="list-style-type: none">▪ The correlation between resource prices is now higher than at any point over the past century▪ 40% of iron ore mines now face severe water stress with an additional 10% of mines having some vulnerability to water stress
4	Environmental concerns impacting production	<ul style="list-style-type: none">▪ Pricing carbon and water at their economic value could increase production costs for iron ore mines by up to 15%▪ New emissions requirements will add almost \$4,000 to the cost of an automobile from 2010 to 2020

These resource trends pose several risks to global growth and welfare ...



IMF estimates that a **10 percent** increase in the price of crude reduces global GDP by 0.2%-0.3% in one year

World Bank estimates that recent food price increases drove **44 million people** into poverty

At least 8 countries commit **5 percent** or more of their GDP to energy subsidies. In 2005, government subsidies were estimated to account for 14 percent of India's GDP

Just four countries –Iran, Iraq, Saudi Arabia, and Venezuela– hold almost **50 percent** of known oil reserves

A recent study by the Economics of Climate Adaptation Working Group suggests that some regions are at risk of losing up to **12 percent** of their annual GDP by 2030 as a result of existing climate patterns

... and new risks for companies

INITIAL ESTIMATES BASED ON CASE STUDIES

		Lower profits... % of EBITDA	Additional value at stake ... % of EBITDA		
Industry		Rising operating costs	Supply chain disruption	Regulation/reputation	Example risk
Based on client work	Consumer packaged goods	5-20	10-25	5-30	Reputation damage from perceived resource misuse
	Oil & Gas	20-30	5-10	20-70	Restricted license to operate for unconventional oil & gas
	Automotive	30-60	5-15	5-10	Rising material costs
High level estimates	Chemicals	10-40	5-15	10-20	Rising opex costs from energy or water treatment
	Advanced industry	20-50	5-10	10-20	Supply disruptions for rare earth elements
	Mining	20-40	5-25	20-70	Increased cost of water and carbon

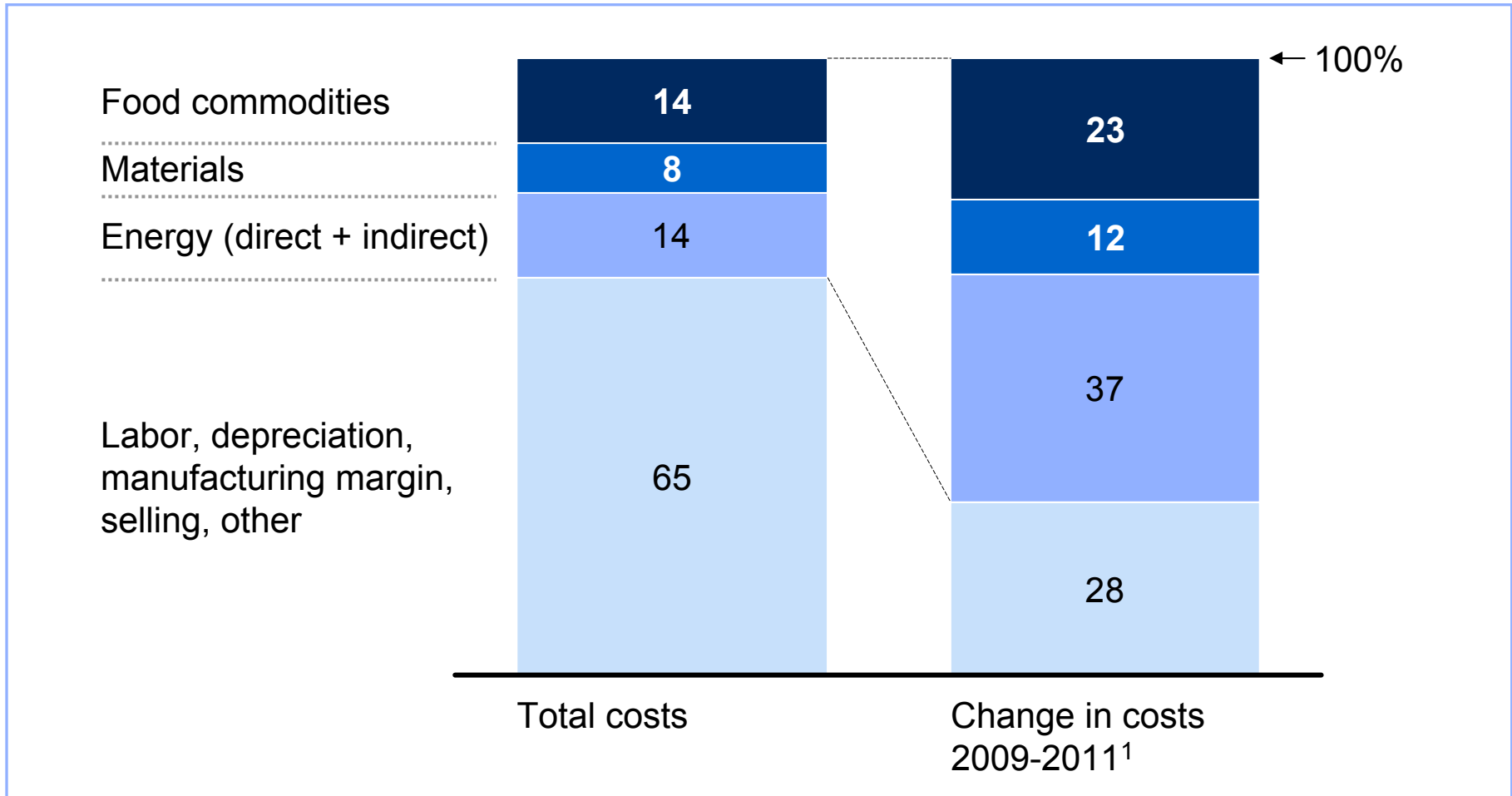
5 major resource-related trends will influence profitability and competitive dynamics

	<u>Description</u>
1 Rising and more volatile input costs	<ul style="list-style-type: none">▪ Scarcity and interconnectedness of resources are making input costs increasingly volatile▪ CPG player management of the gap between raw material prices and their products has been the main arbiter of financial performance
2 Supply chain disruption risk	<ul style="list-style-type: none">▪ The majority of key inputs for CPG players are subject to supply risk, either to concentration of inputs in few countries (e.g., 80% of phosphate reserves in Morocco), lack of substitutes (e.g., potash), low recycling rates (e.g., tin), or absolute shortages (e.g., water)
3 License to operate concerns	<ul style="list-style-type: none">▪ Many key CPG players inputs have large environmental externalities including CO2 emissions, water withdrawals, and biodiversity impacts▪ Prices of soft commodities could increase by 50%-450% if allowing for currently unpriced externalities of CO2 emissions & water withdrawals▪ In some cases this has led to constraints on license to operate
4 Changing consumer preferences	<ul style="list-style-type: none">▪ Over 50% of consumers consider sustainability as a decision making factor in product and store selection
5 Disruptive business models	<ul style="list-style-type: none">▪ Shift to a closed loop system could reduce dependency on key materials, lower input costs, improve customer value proposition and reduce regulatory exposure

CHANGING COST OF RESOURCES

1 The high volatility of natural resource prices could have a significant impact on changes in the cost base of many firms

% of cost base



1 Based on respective MGI Commodity Price Index real price rises from 2009 to 2011. Real price of “other” bucket was grown at 10 percent (more than the 4-6 percent real US wage growth over the period): we assume all price rises passed on to the CPG company

NOTE: Numbers may not sum due to rounding

SUPPLY CHAIN DISRUPTION

2 A number of core inputs products are subject to potential supply chain constraints

■ Low
 ■ Medium
 ■ High
 ■ Not applicable

	Resource	Potential for shortage					Impact of shortage	
		Number of years of proven reserves	Price volatility in last 10 yrs (2000-2009)	Resource Security	Recycling rate	Ability to renew	Annual USD market size (2010)	Lack of substitutes (qualitative assessment)
	Units	Number of years (2010 Production)	Stdev/mean	Low/ medium/ high	%; US; 2009	Yes/No	Bn USD, 2010	Low/ medium/ high
Materials	Aluminum	133	20%	High	46	No	72	Medium
	Lead	20	38%	High	81	No	20	Medium
	Tin	20	55%	High	16	No	7	Low
	Phosphate	406	62%	High	None	No	21	High
	Potash	283	67%	Low	None	No	18	High
Agricultural raw materials	Timber	Low	38%	High		Yes	39	Low
	Cotton	Low	13%	Medium		Medium	405	Low
	Rubber	Medium	32%	High		Yes	146	Low
Food commodities	Wheat	High	8%	Low		Yes	54	Low
	Corn	High	25%			Yes	157	Low
	Rice	High	43%	Medium		Yes	350	Low
	Sugar Cane	Low	26%	High		Yes	16	High
	Palm Oil	Low	32%	High		Yes	39	Low
	Soy	Medium	37%	High		Yes	101	Medium
	Livestock	Medium	14%	Low		Yes	561	Medium
Fish	Medium	20%			Medium	185	Medium	

3 Production of core inputs have large environmental impacts which are of concern to nations in which companies operate

■ Low impact
 ■ Medium impact
 ■ High impact

Category	Resource	Land displacement	Water use	CO2	Nutrient cycle	Biodiversity	Air, land, and water pollution
	Units	Hectares affected in 2030/ Size of habitat impacted by 2030	Km3 withdrawals in 2030	tCO2e in2030 ¹	Qualitative assessment (expert interviews)	Qualitative assessment (expert interviews)	Qualitative assessment (expert interviews)
Materials	Aluminum	Medium	Low	Medium	Low	High	Medium
	Lead	Low	Low	Low	Low	Low	High
	Tin	Low	Low	Low	Low	Low	Medium
	Phosphate	High	Medium	Medium	High	High	Low
	Coking coal	High	High	High	Low	Medium	Medium
	Potash	High	Medium	Medium	High	High	Low
Agricultural raw materials	Timber	8,300,494	-	265,017,782	Low	Medium	Low
	Cotton	Low	59	10,335,922	Medium	Low	Medium
	Rubber	Low	10	6,781,526	Low	High	Low
Food commodities	Wheat	222,688,792	521	870,303,616	Medium	Medium	Medium
	Corn	148,156,802	337	594,894,857	Medium	Medium	High
	Rice	164,334,486	642	648,346,261	Medium	Low	Medium
	Sugar Cane		46	69,356,681	Medium	Medium	Medium
	Palm Oil		0	1,663,490,229	High	High	Low
	Soy	68,612,978	131	267,814,753	Medium	Low	Medium
	Livestock	5,200,734,127	165	3,650,638,578	Medium	High	Medium
Fish	1,047,083,552	33	468,412,426	Medium	High	High	

¹ Includes direct factors such as a land cleaning impact, as well as indirect, such as CO2 of fertilizer inputs

Six areas of action for companies to consider

Understand the risk	1. Risk assessment	<ul style="list-style-type: none">▪ A rigorous risk analysis for major commodities or products▪ Includes deep assessment of entire supply chain, including resource interconnectedness and tail risks
	2. Product design-for-sustainability	<ul style="list-style-type: none">▪ Building on design-to-value by replacing expensive material using deep understanding of resource risks▪ Considering weight & manufacturing trade-offs
Mitigate the risk and capture the upside opportunity	3. More sophisticated sourcing	<ul style="list-style-type: none">▪ Develop more sophisticated approach to sourcing which involves detailed examination of timing, purchasing channels, volume decisions, etc.
	4. Increased resource efficiency	<ul style="list-style-type: none">▪ Benchmarking of performance across plants to provide fact base▪ Development of metrics and governance systems to develop much stronger resource productivity management within the manufacturing system
	5. Extended supply chain management	<ul style="list-style-type: none">▪ An assessment of opportunities along the supply chain to increase supplier resource productivity
	6. Shift to closed loop system	<ul style="list-style-type: none">▪ Initial heat-map analysis identifying commercial benefits from stronger closed loop or circular approach