

June 9, 2009 Houston, Texas



International Liquid Terminals Association

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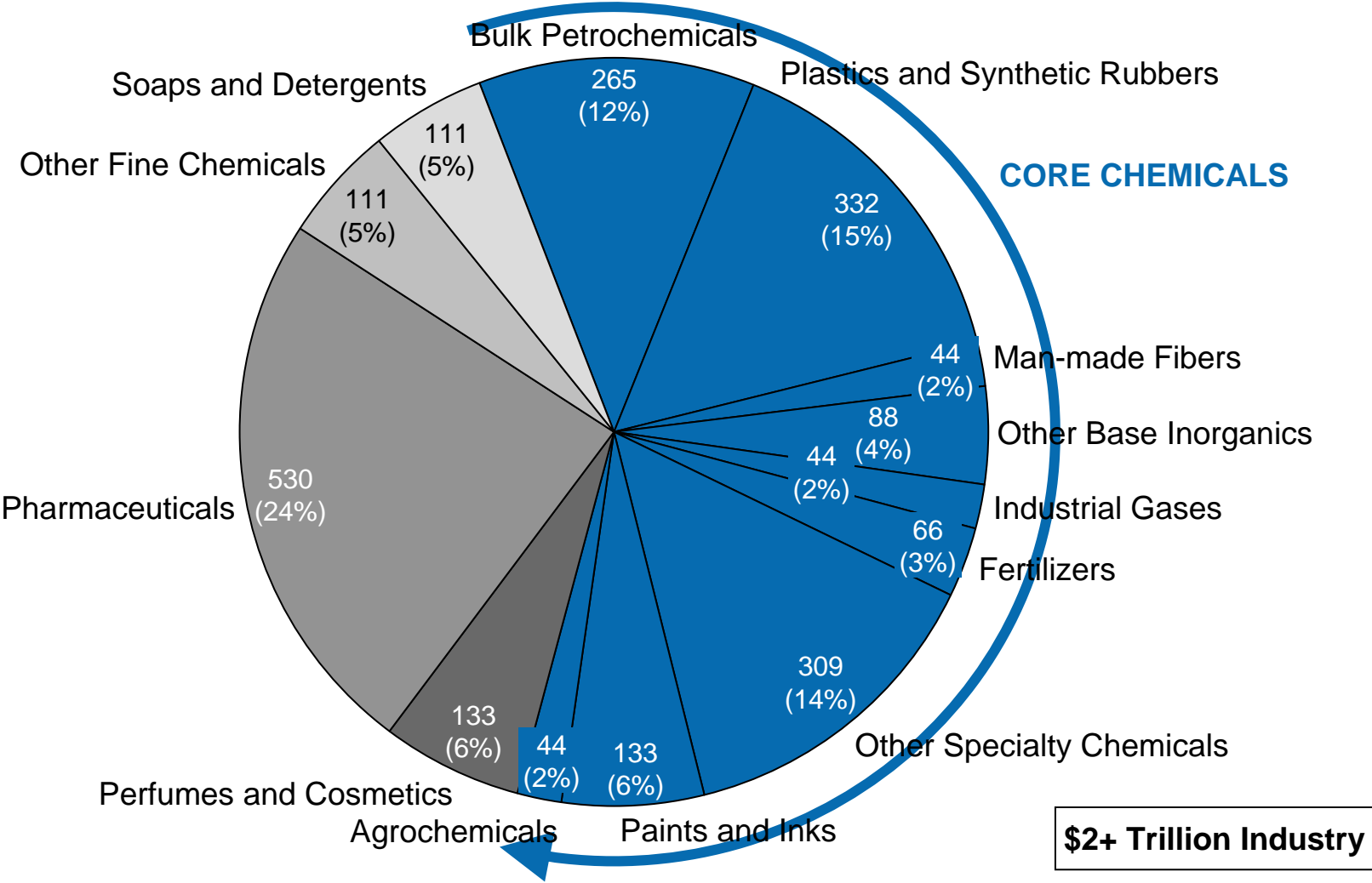
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# **Growth in Tough Economic Times: How the Chemical Industry Will Survive**

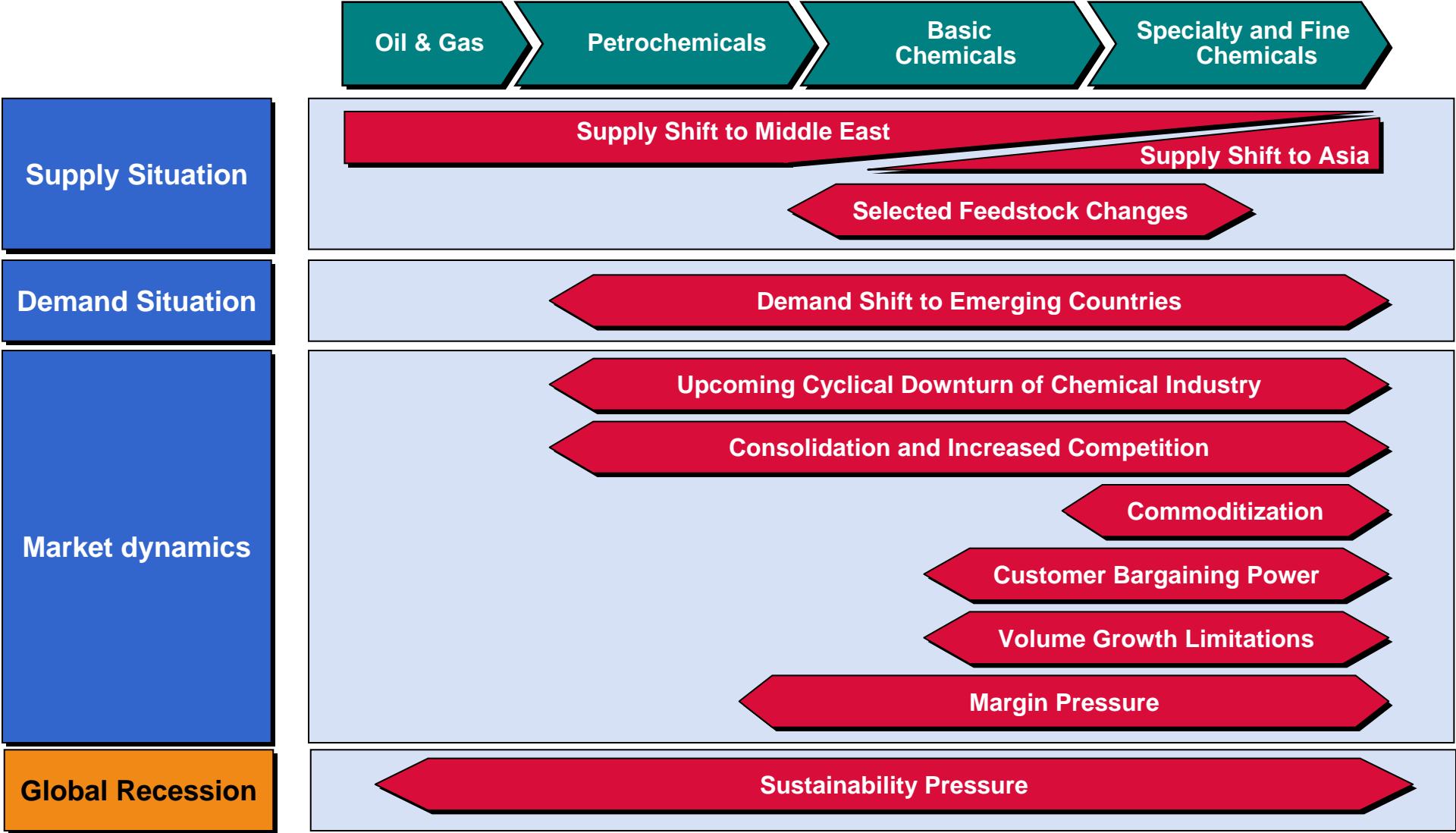
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# The global chemicals sector is big with growth exceeding GDP (i.e. 4-6%)

## CHEMICALS END PRODUCTS

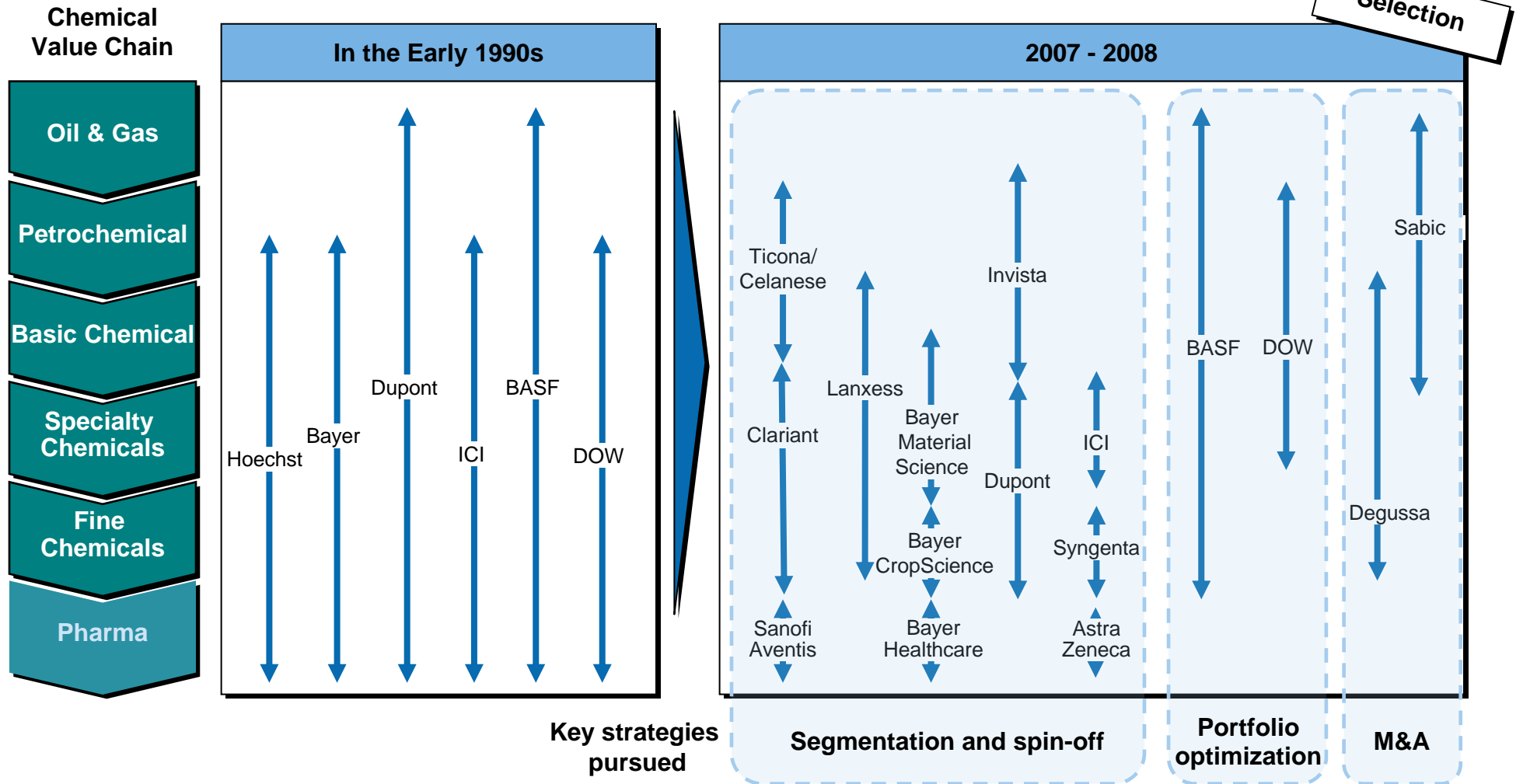


# There are strong headwinds



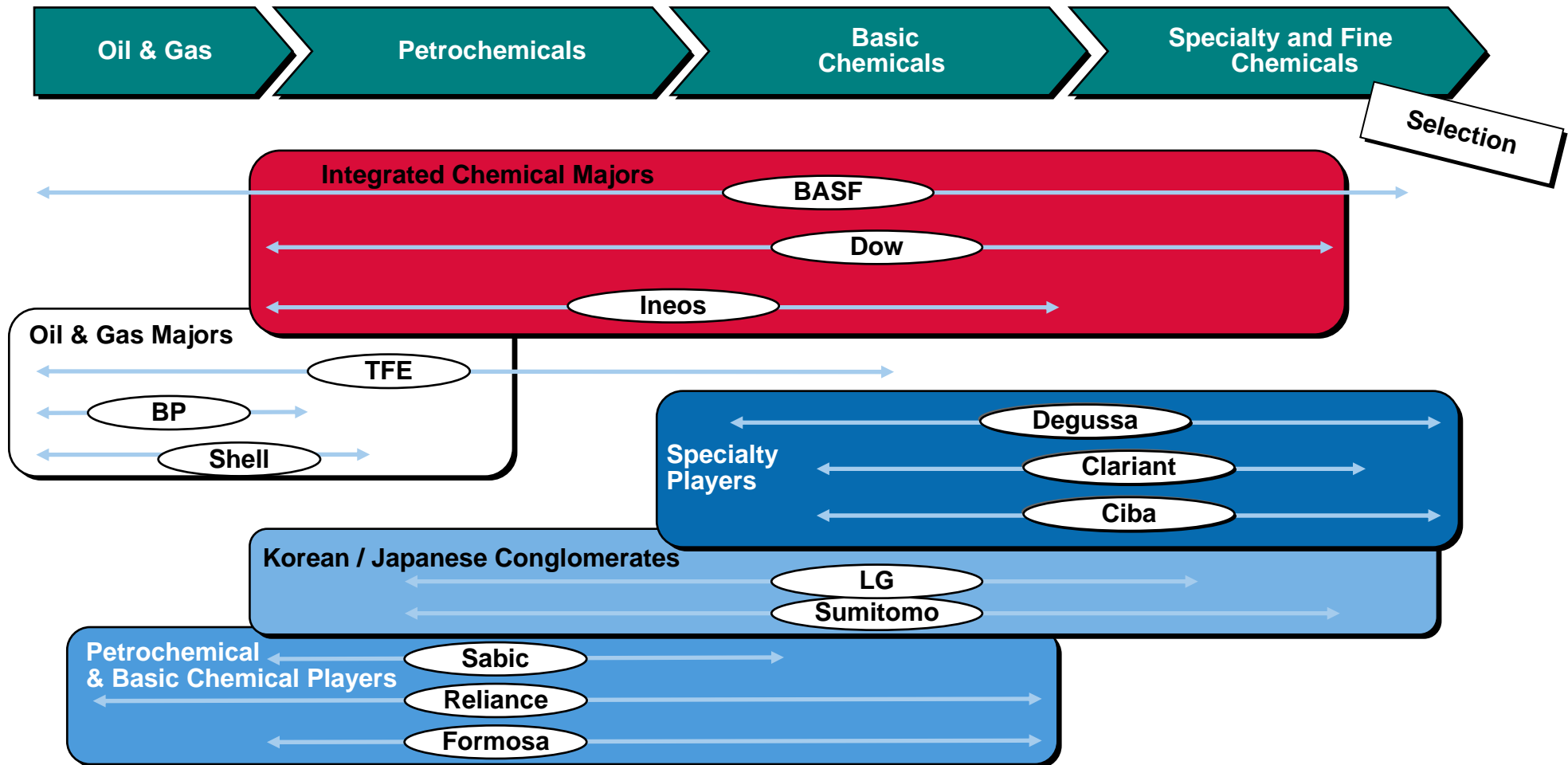
# Significant change over past 15 years

## Focus of Chemical Companies along the Value Chain



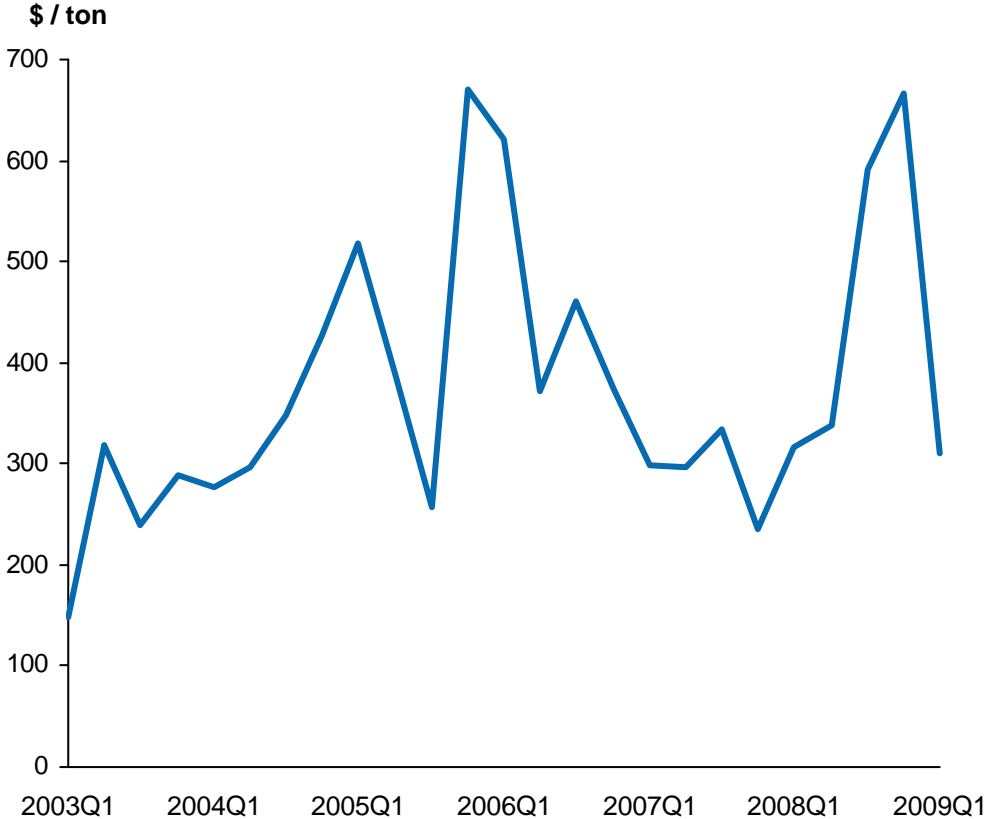
# Result: Five types of Chemical companies have emerged with different focus on market segments

Value Chain Coverage of Selected Chemical Companies



# The current recession has hit the chemicals sector hard ...

### Cash Cost Margins for HDPE US, Integrated Ethylene

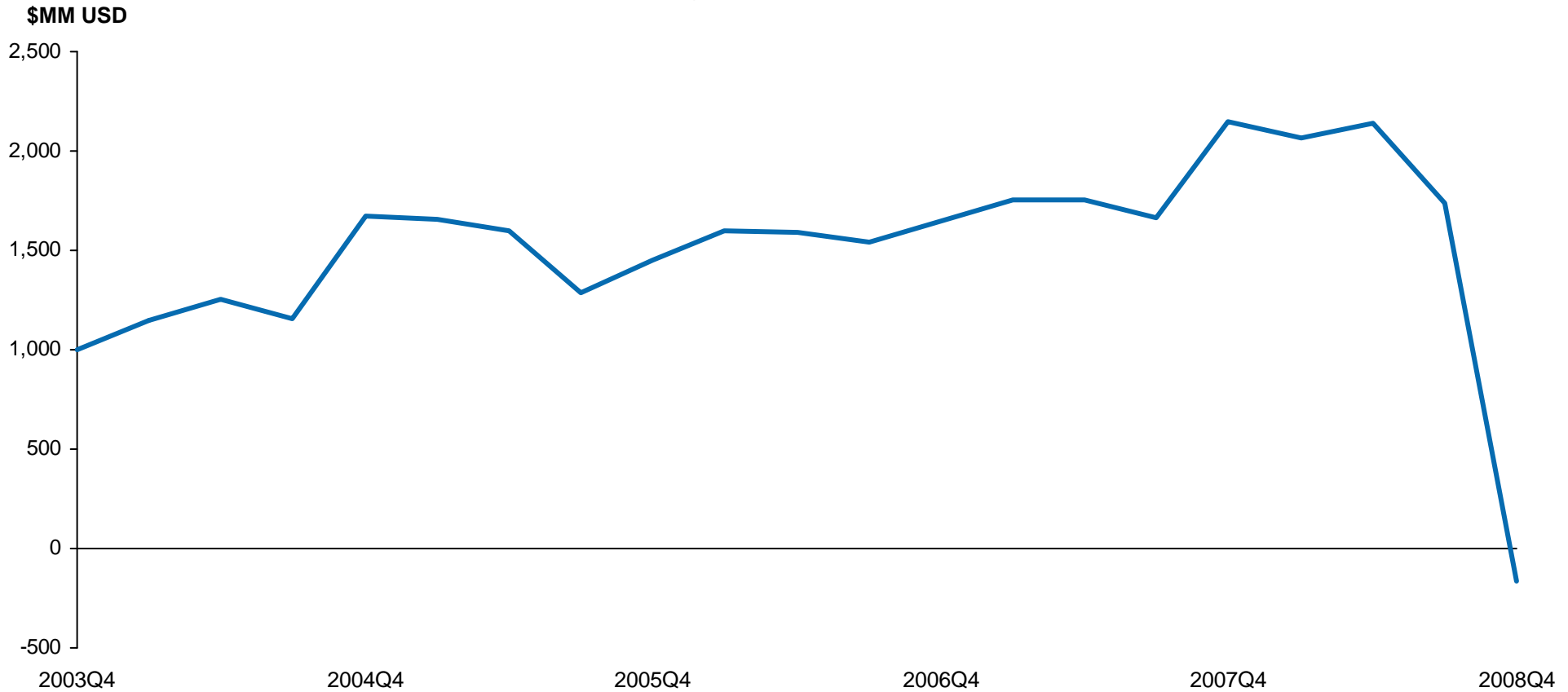


### US HDPE Operating Rate % Asset Utilization



...resulting in loss of profits for the Industry and...

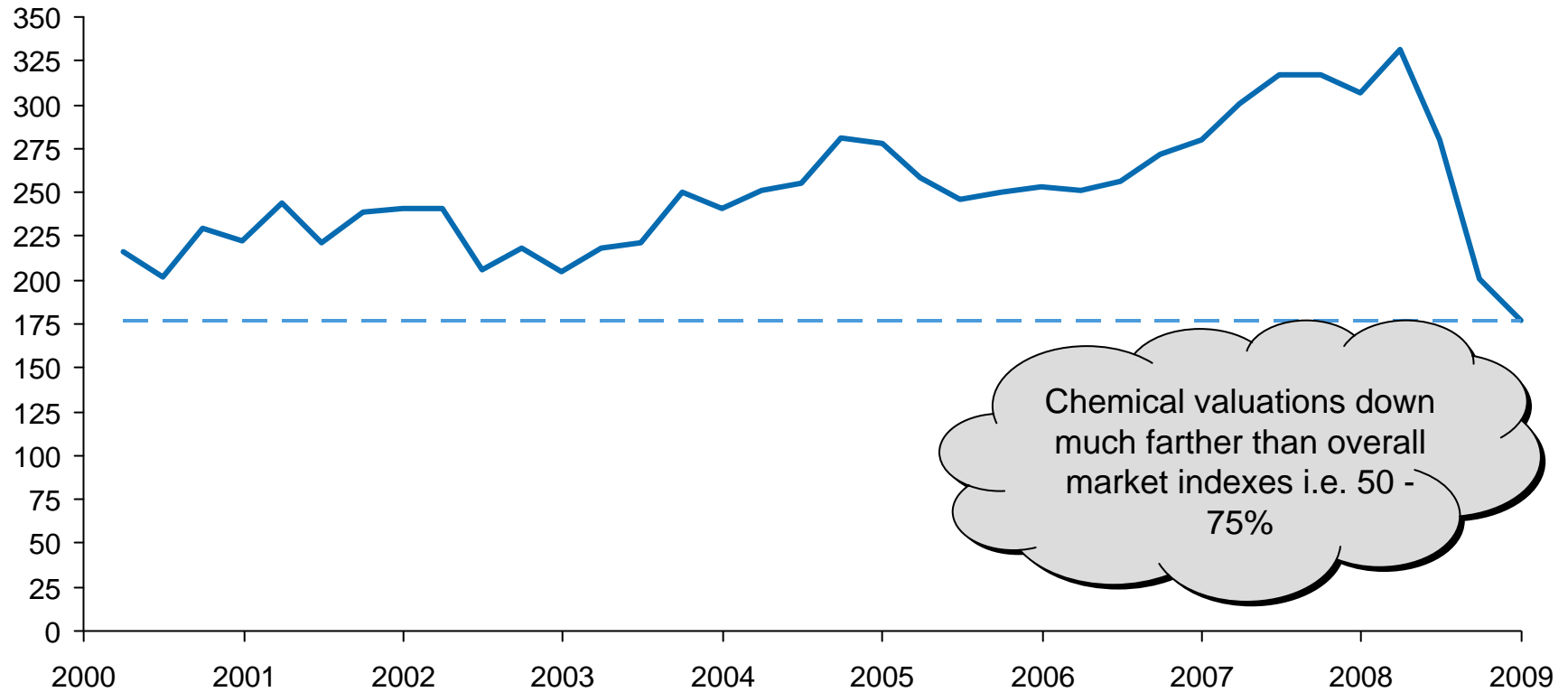
**Quarterly Operating Income**  
(Average of select peers)



## ... driving down sector valuations

### Enterprise Value — 2000-2009

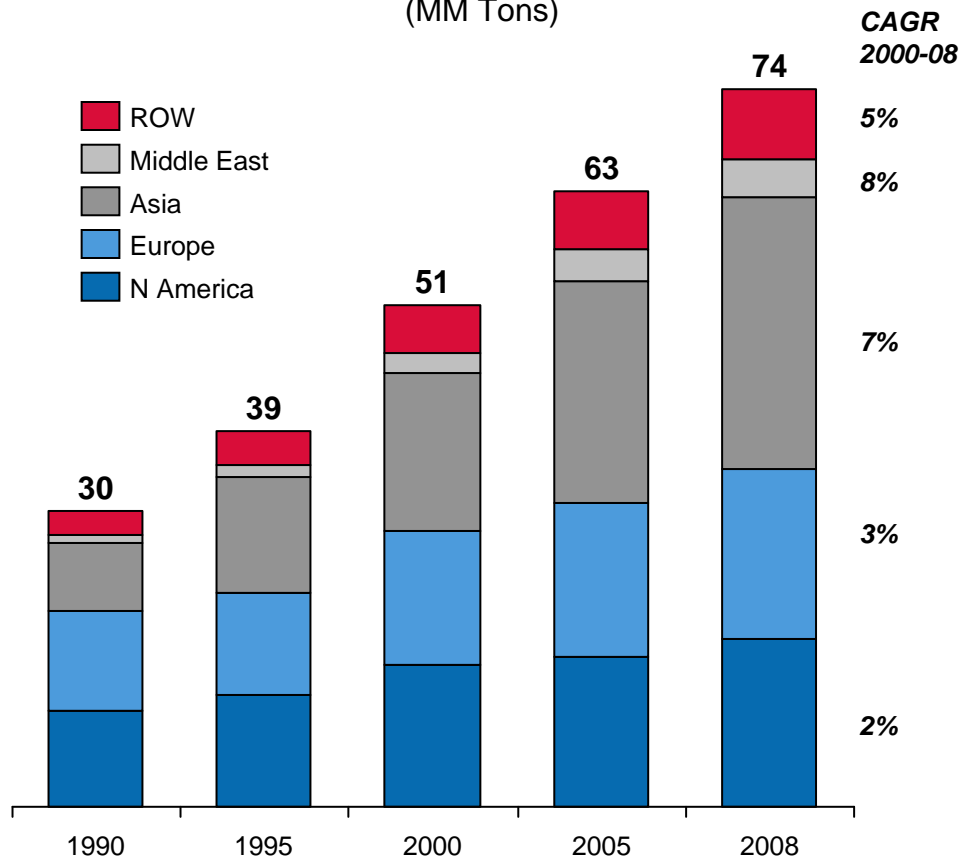
(Inflation-adjusted -- \$B08 -- 35 Chemical Companies)



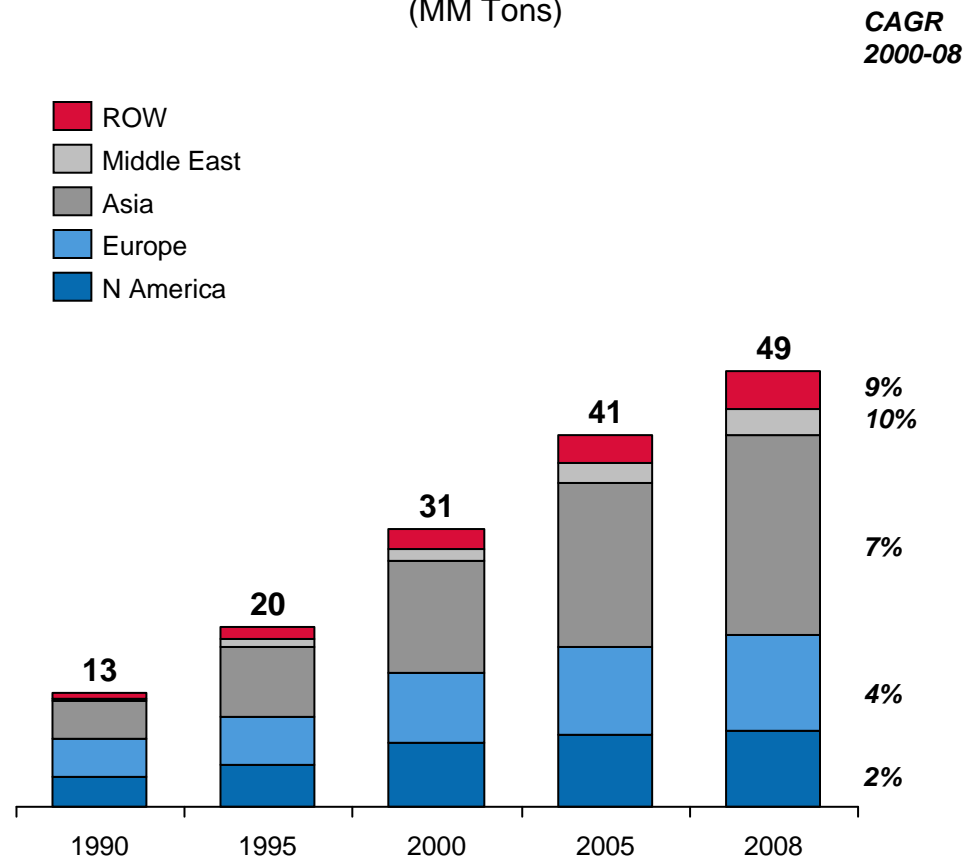
## ... Why is this?

# Petrochemicals demand grows with GDP – slowly in the developed countries, but rapidly in developing Asia

**Polyethylene Consumption**  
(MM Tons)

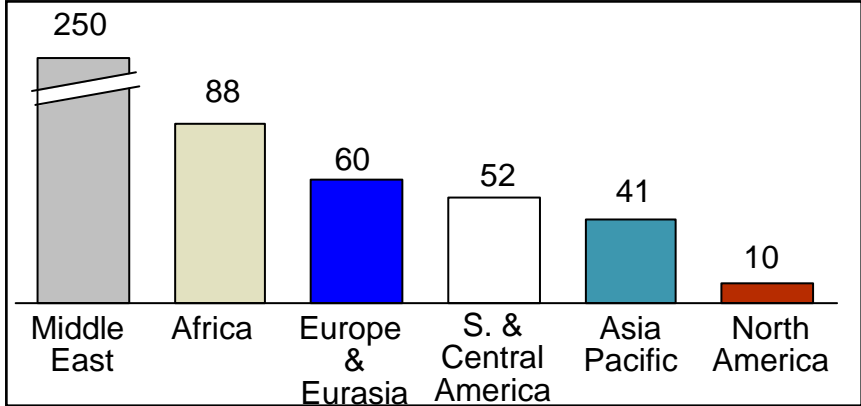
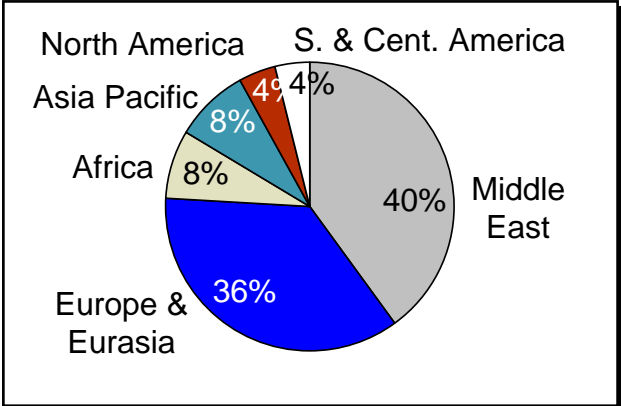
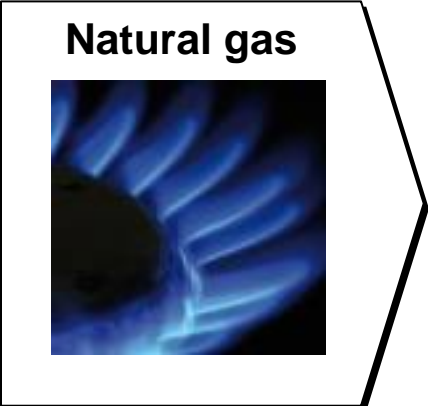
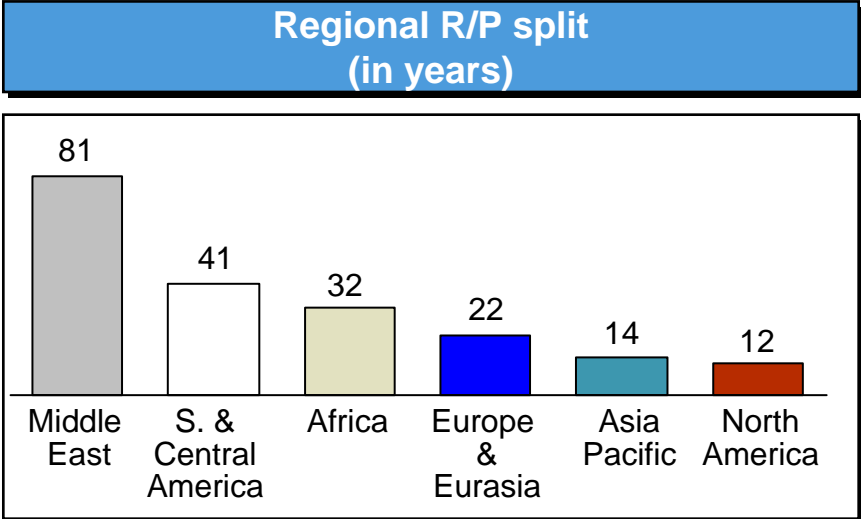
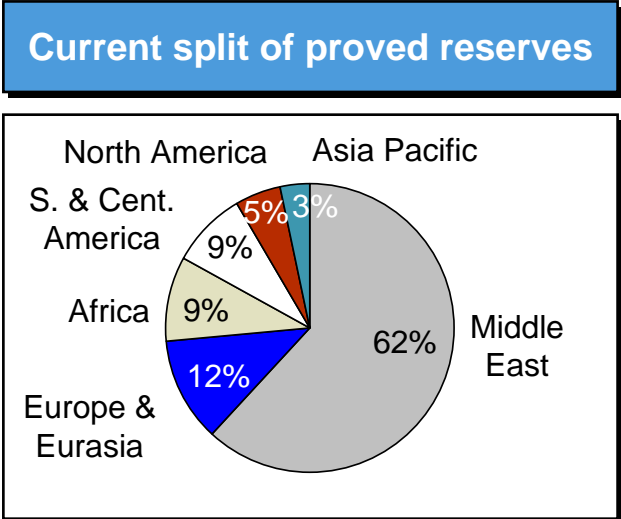


**Polypropylene Consumption**  
(MM Tons)



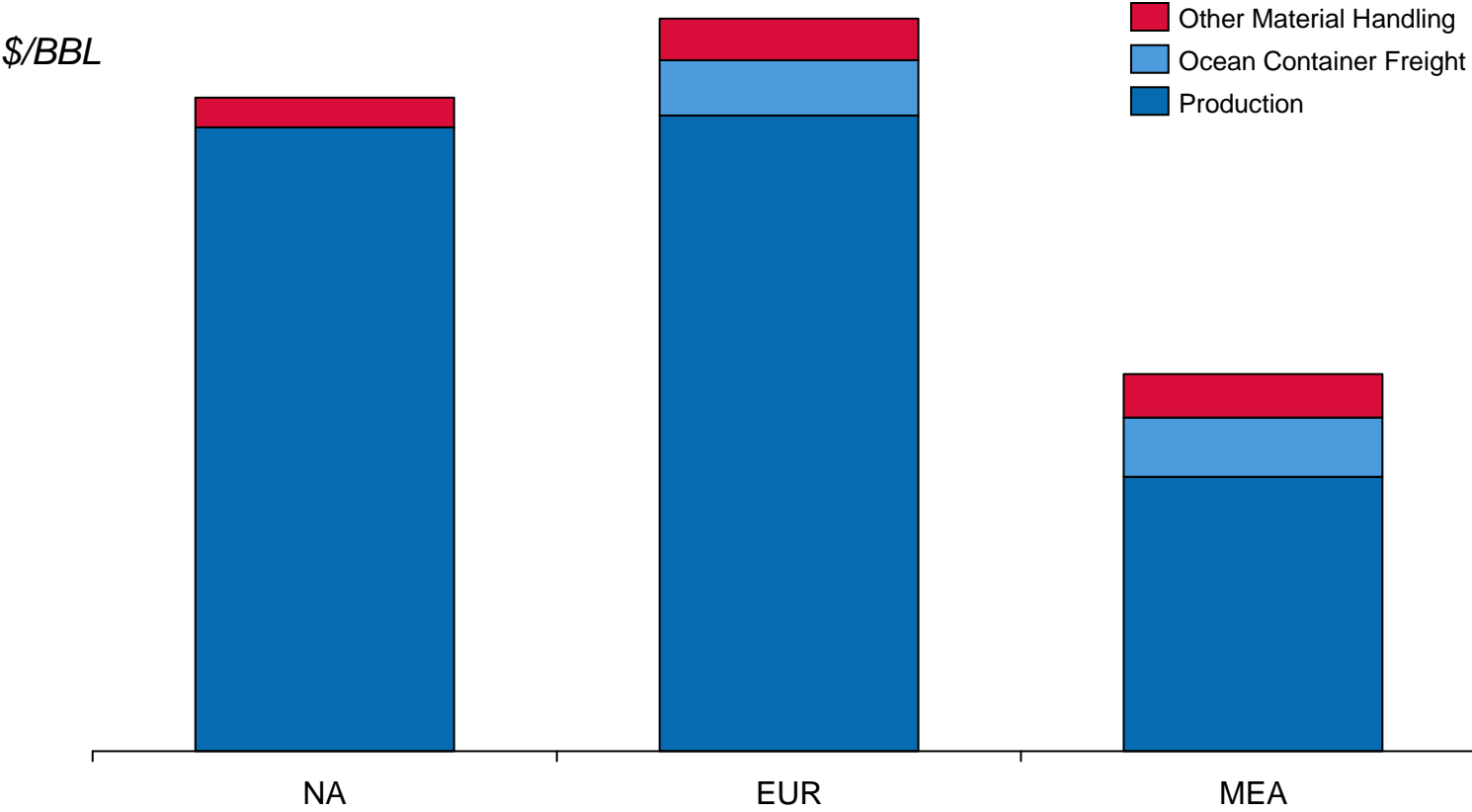
# The dominance in Crude Oil and Gas reserves are key drivers of Middle Eastern supply advantages in Petro- and Basic chemicals

Supply Shift to Middle East - Leading Position in Feedstock Reserves



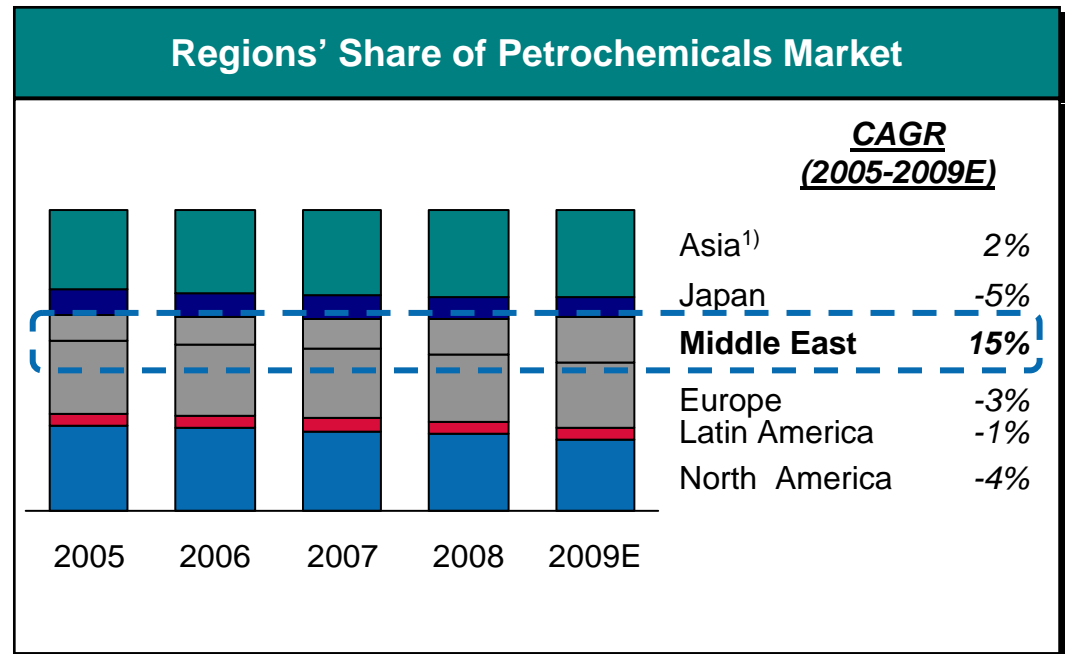
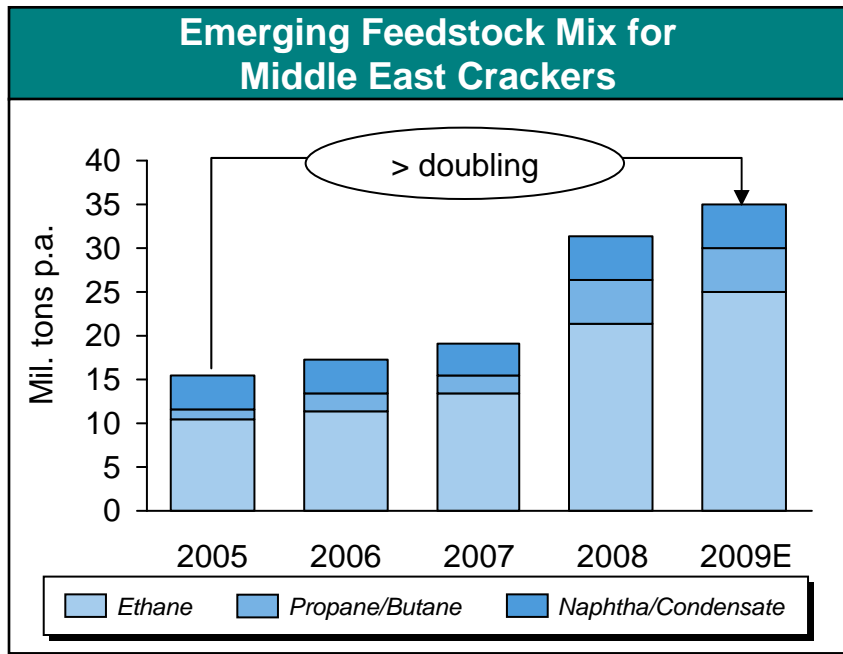
# Middle East production capacity enjoys enormous feedstock cost advantages over other regions ...

**HDPE Landed Cost to North America - Relative Cost per Ton**  
(Ethane-based crackers: Ethane purchased at regional market price)



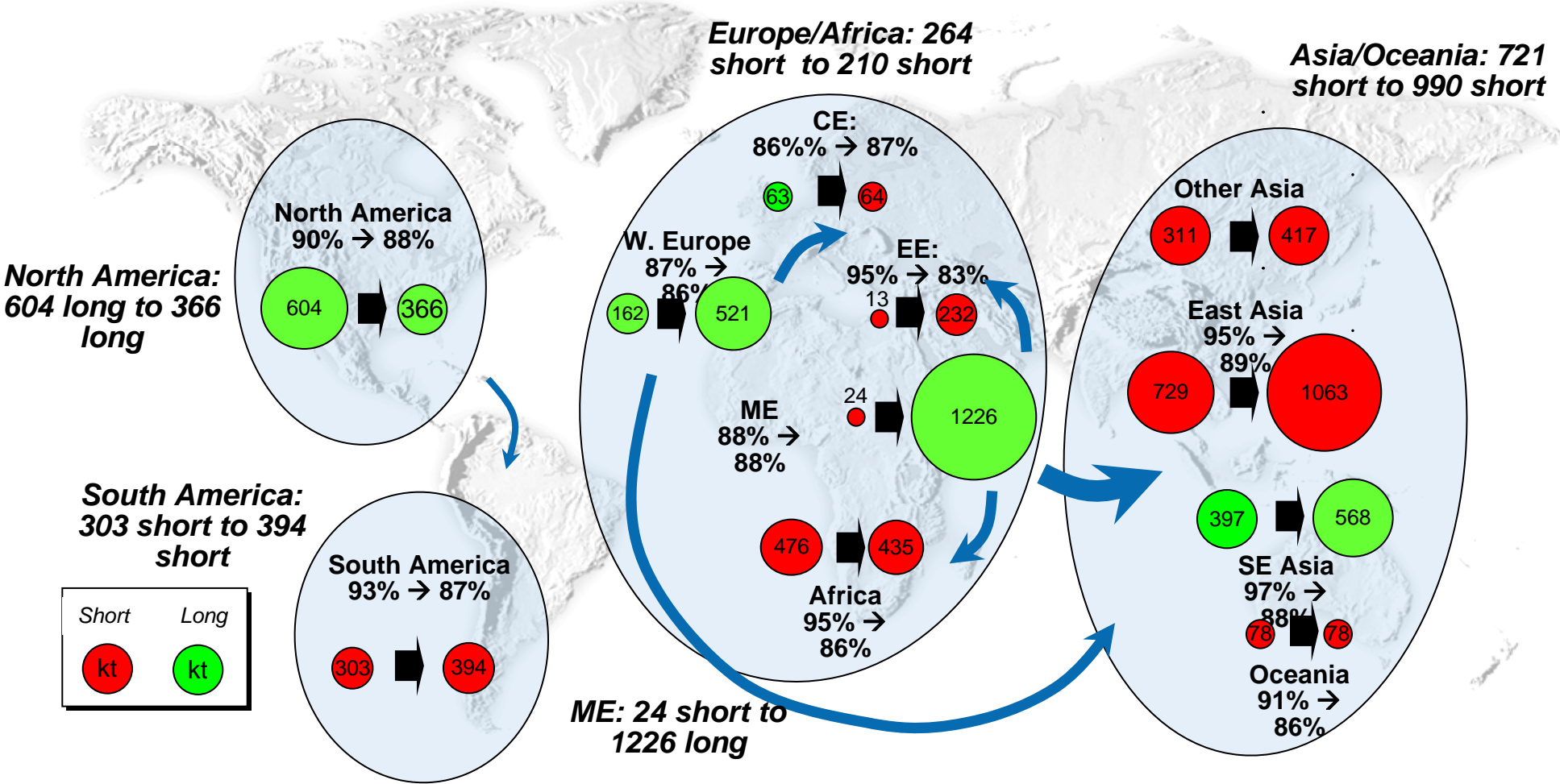
Thus, Middle East has achieved a strong position in Petrochemicals and is going to become an even more important powerhouse

Supply Shift to Middle East – Growing Supply Base for Petrochemicals and Basic Chemicals



# A large share of Asian demand for Petro-/Basic Chemicals will be supplied from cheap, export oriented Middle East capacities

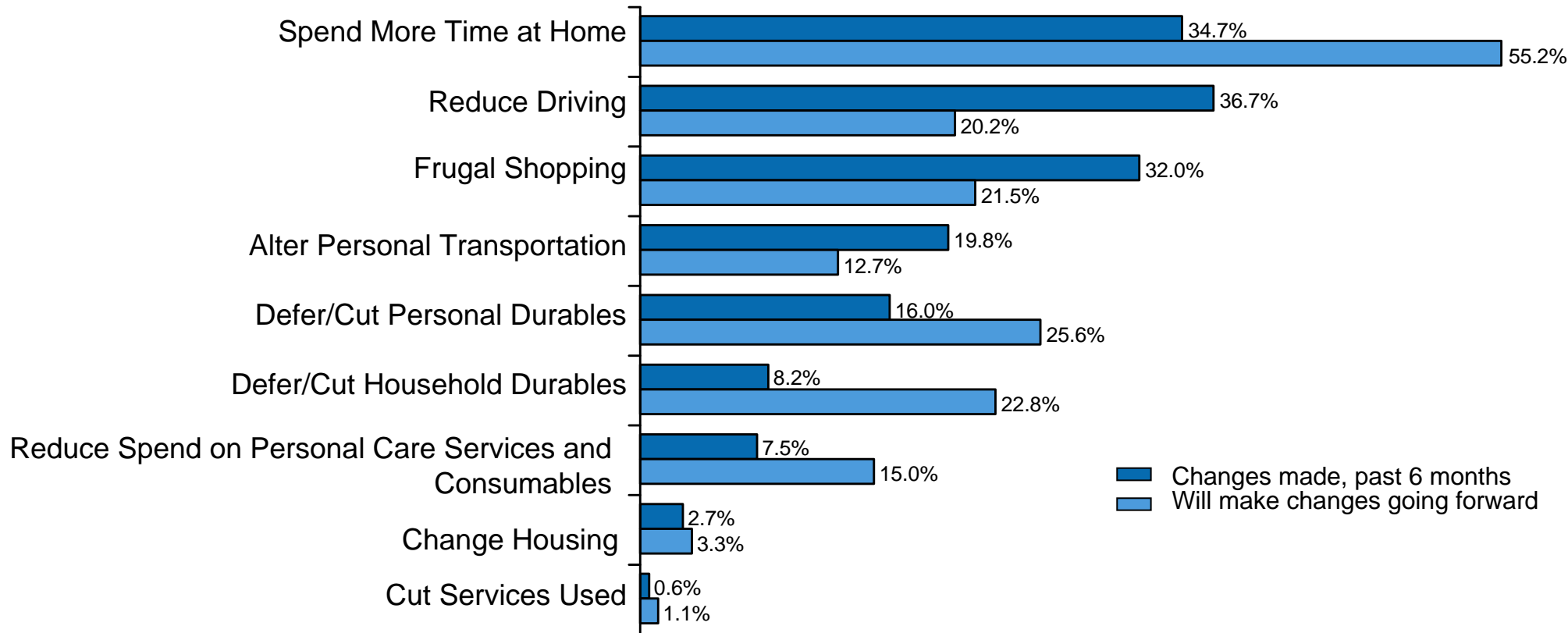
Demand Shift to Emerging Markets - Trade Flows 2005–2010 – Example LDPE



# Meanwhile the recessions is changing behaviors

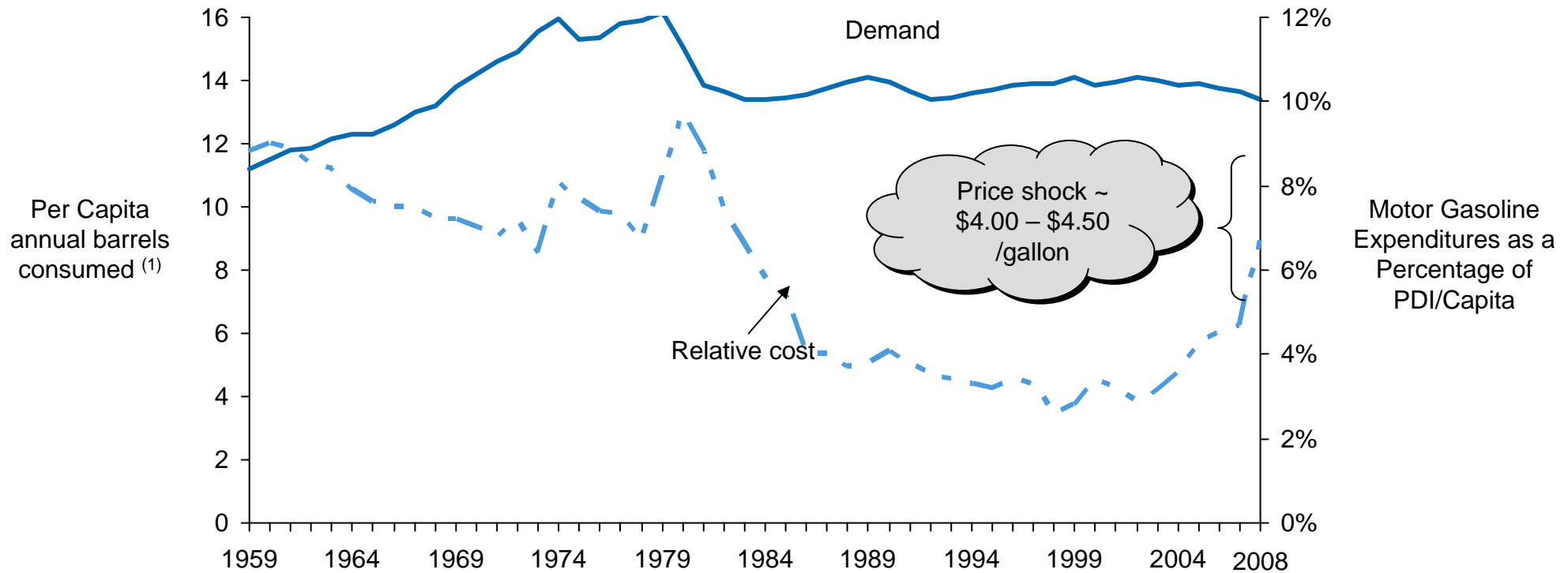
## Respondents Making Significant Changes

% Respondents Making Significant Change<sup>1</sup>



# Demand for consumables are affected by such severe dislocations

**U.S. Motor Gasoline Relative Cost  
(Gasoline Cost as a Historical % of PDI)**

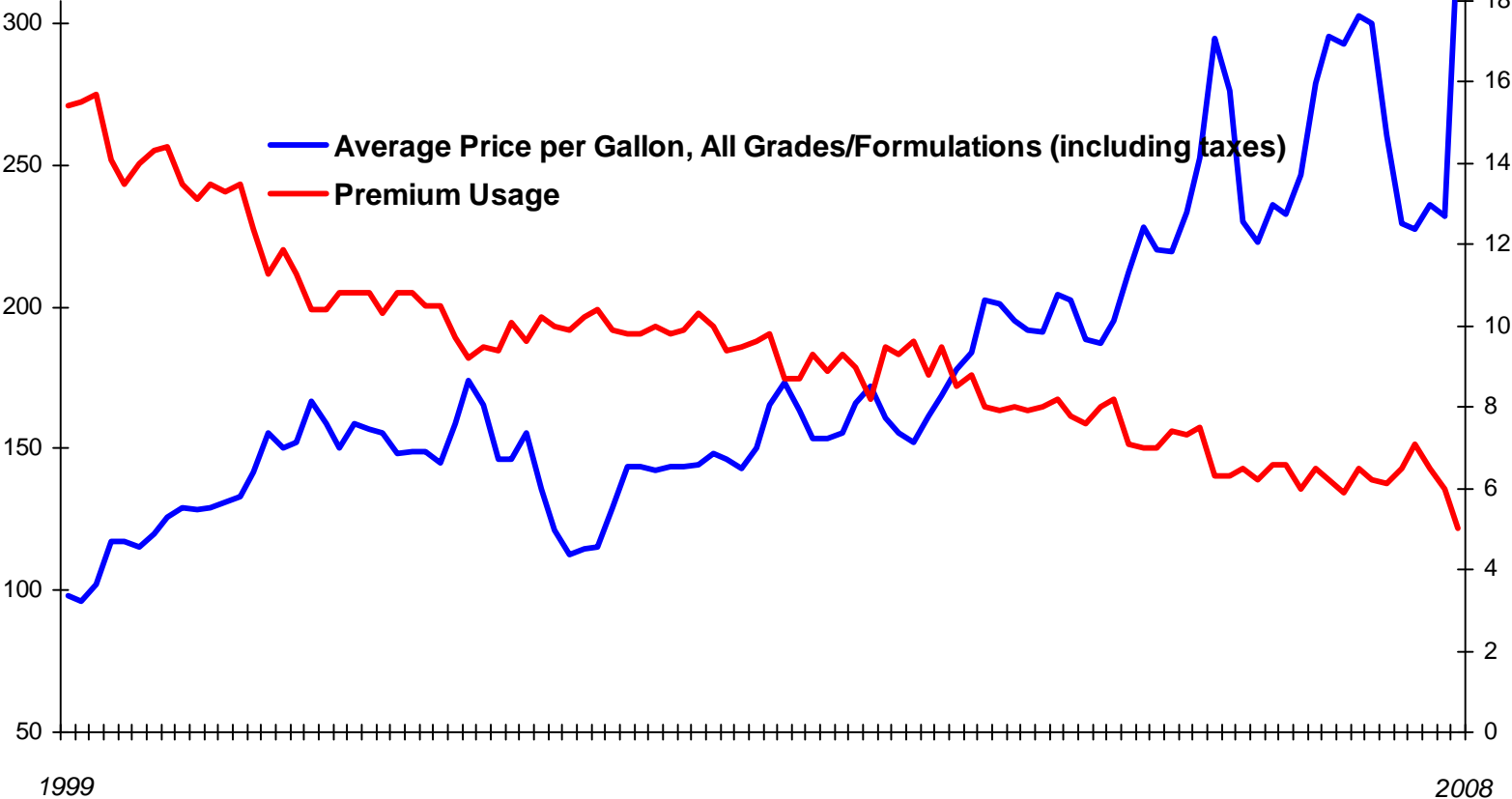


# During difficult times consumers downgrade....

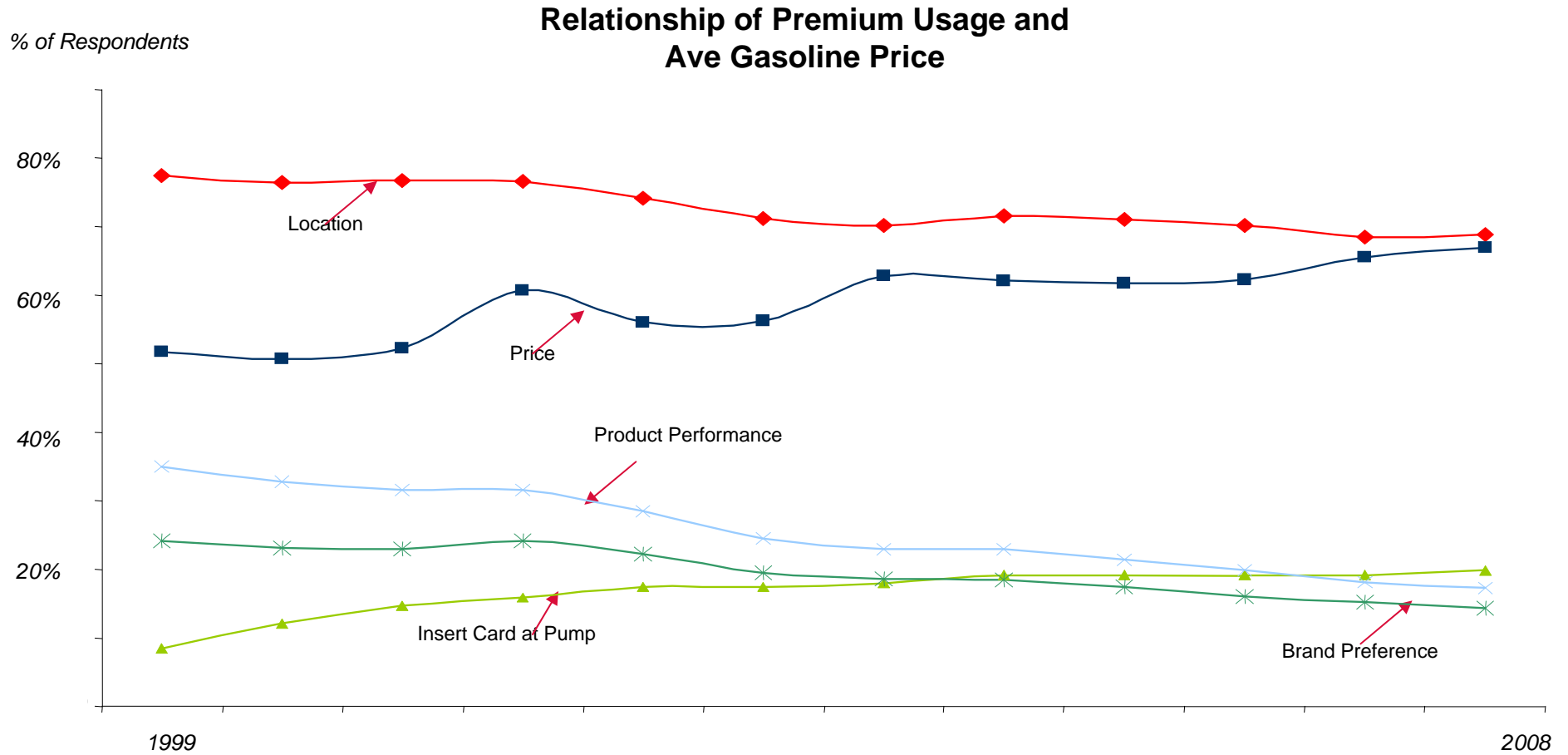
### Relationship of Premium Usage and Ave Gasoline Price

Average  
Cent per gallon

% Share



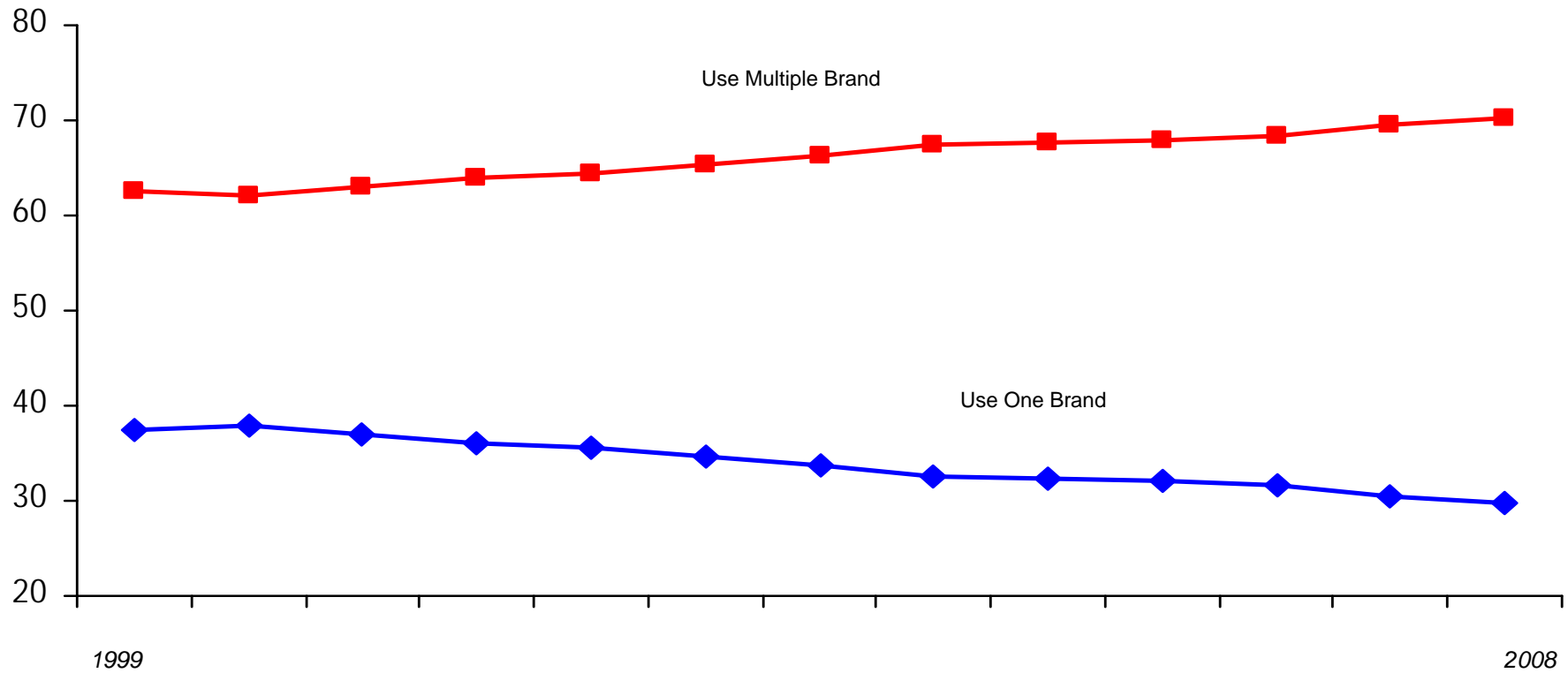
# .....and become more price sensitive



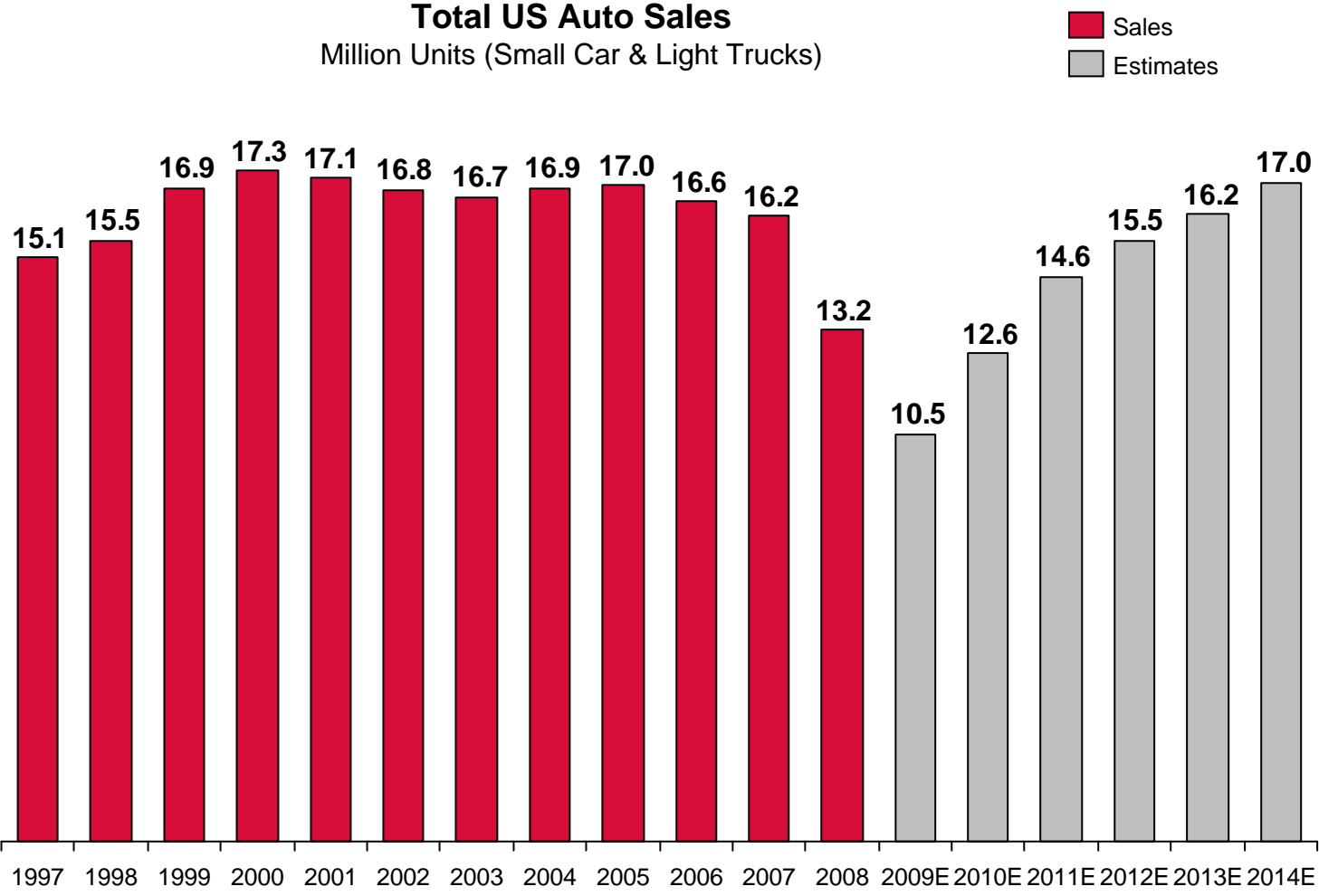
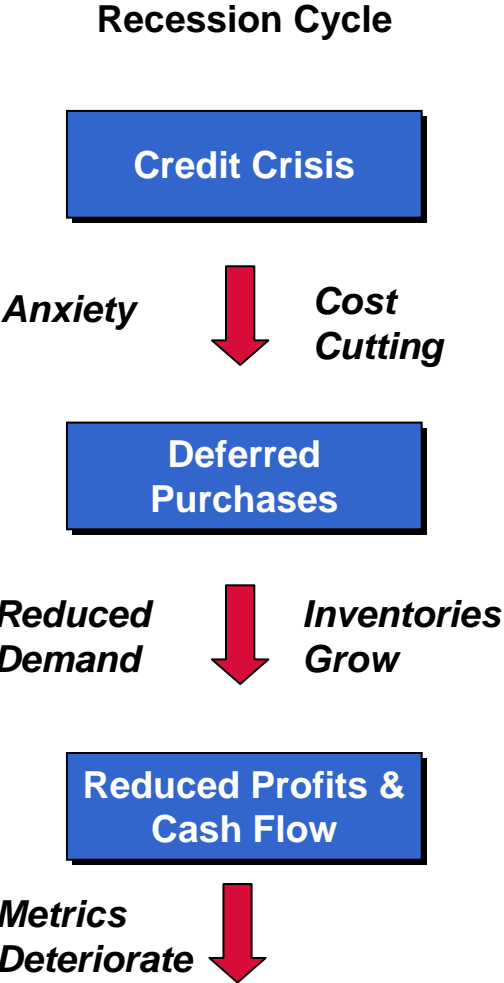
# .....and prone to switching - brand loyalty is threatened

## US Gasoline Brand Loyalty

*% of Respondents*



# Meanwhile, durable good demand has been reduced significantly



# The recovery will vary

## Recovery Estimates

### Key Market Trends/Issues

### Potential Implications

### Recovery

#### Building Construction

- Excess supply of new residential and commercial construction
- Surplus not evenly distributed, some markets more over built than others

- Difficult for inventory to clear
- Will take prolonged periods for demand to catch up, especially in some markets

- Longest route to recovery

#### Consumer Durables i.e. Auto

- Current lack of credit and reduced consumer confidence has resulted in reduced consumer spending and increased savings

- At some point replacement economics prevail
- For example, average vehicle lasts approximately 15 years

- Will recover globally in the next few years

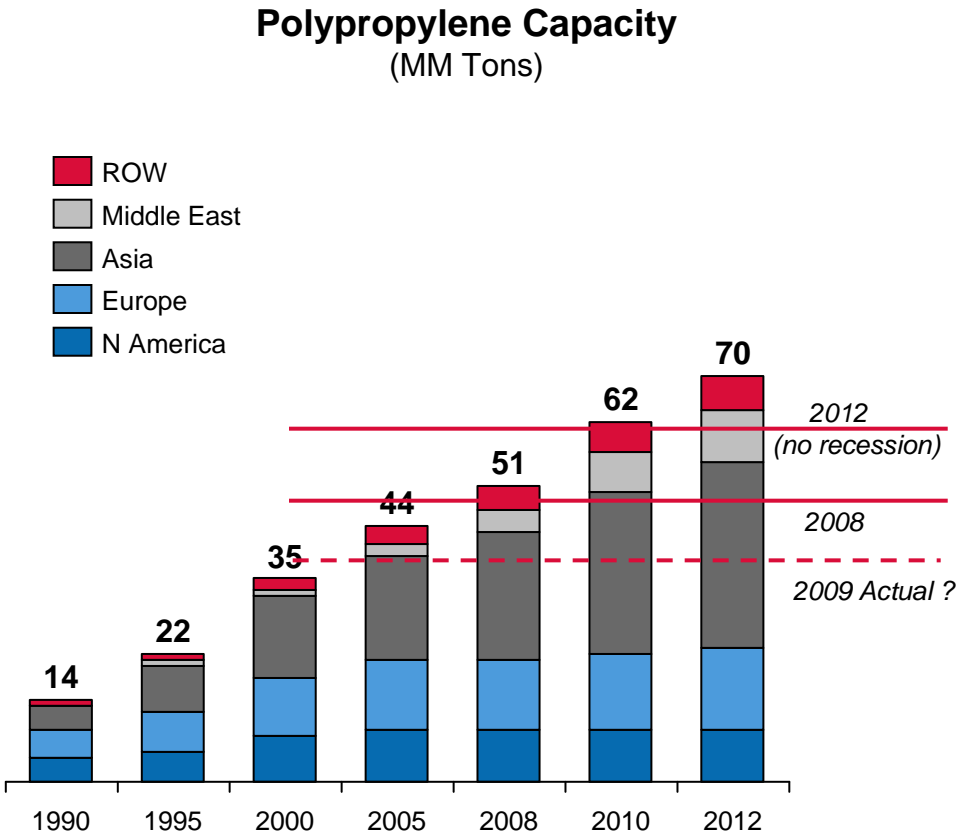
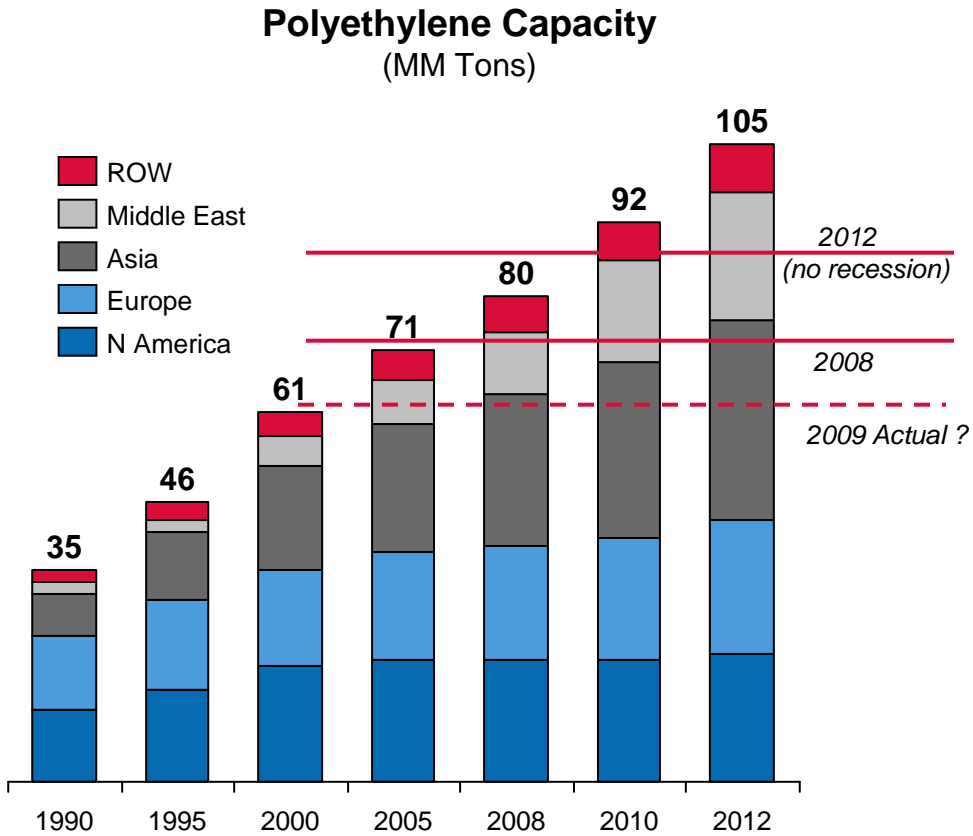
#### Business Spending & Capital Expenditures

- Current investment levels reduced to match corporate profits

- Rebounding profits and restored confidence in growth will provide incentives for investment

- First to recover

**Asia and the Middle East are expanding production capacity rapidly – apparently both aim to meet the same Asian demand growth....**



**... making global over-capacity almost inevitable – and creating an outright supply glut, as the recession slows global growth**

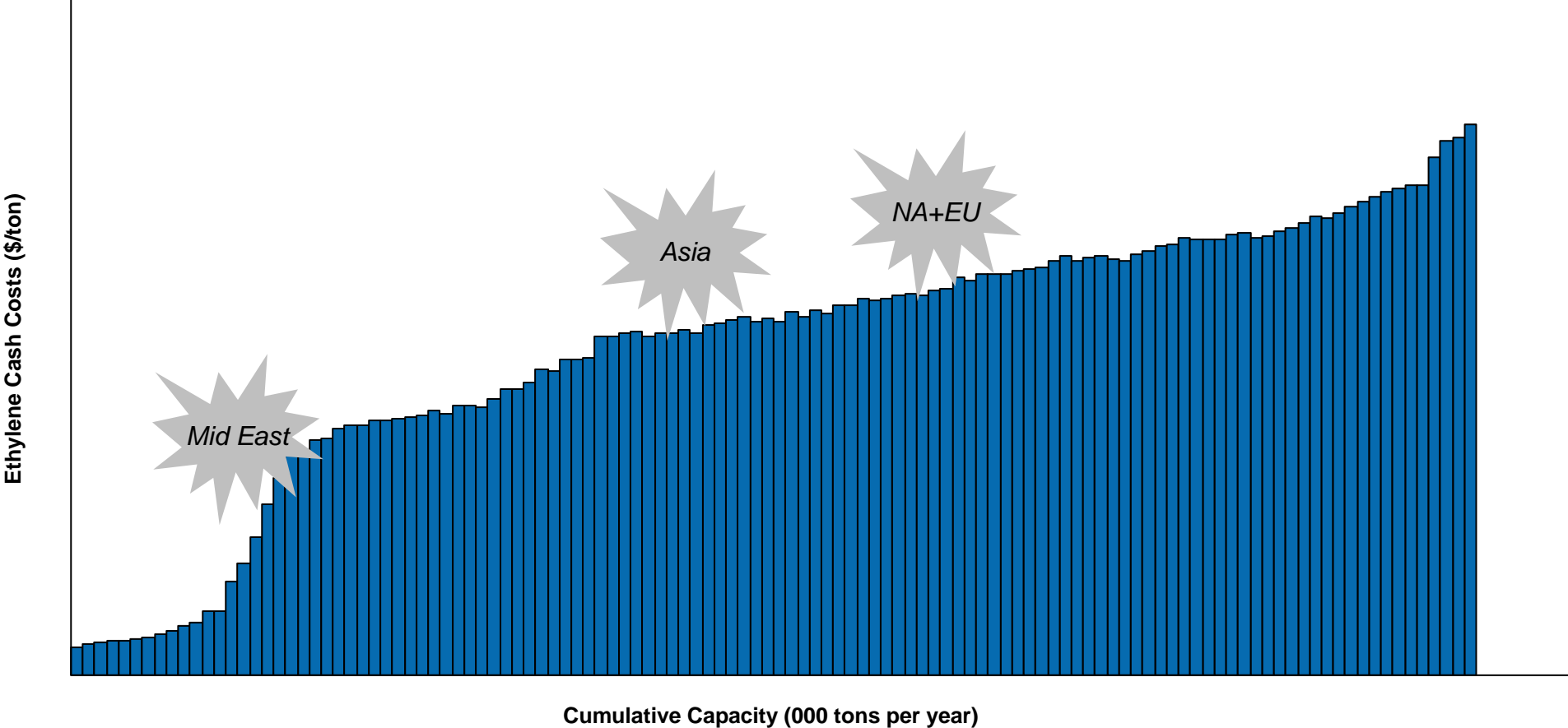
## How likely is a supply glut?

Country	Company	Project	Added Capacity, b/d	Status	Expected Completion Date	Recently Announced Completion Date
China	Fujian Refining and Petrochemical Company Ltd - Quanzhou City	Ethylene	800,000	Under constr.	Q1 2009	H1 2009
		Polyethylene	800,000	Under constr.	Q1 2009	H1 2009
		Polypropylene	400,000	Under constr.	Q1 2009	H1 2009
Oman	Dow Chemical Company - Sohar	Ethylene	850,000	Engineering	2009	2012
Qatar	Qatar Petrochemical / Chevron / Total - Ras Laffan	Ethylene	1,300,000	Engineering	2008	H2 2009
Saudi Arabia	Eastern Petrochemical Company (Sharq) - Al-Jubail	Ethylene	1,300,000	Under constr.	2008	Q2 2009
	PETRO Rabigh - Rabigh	Ethylene	1,300,000	Under constr.	2008	2009
		Propylene	900,000	Under constr.		2009

**Despite the looming over-capacity, few projects are being delayed**

**Glut scenario--Capacity cutbacks to balance supply to demand will occur mainly in the Atlantic area (North America + Europe)**

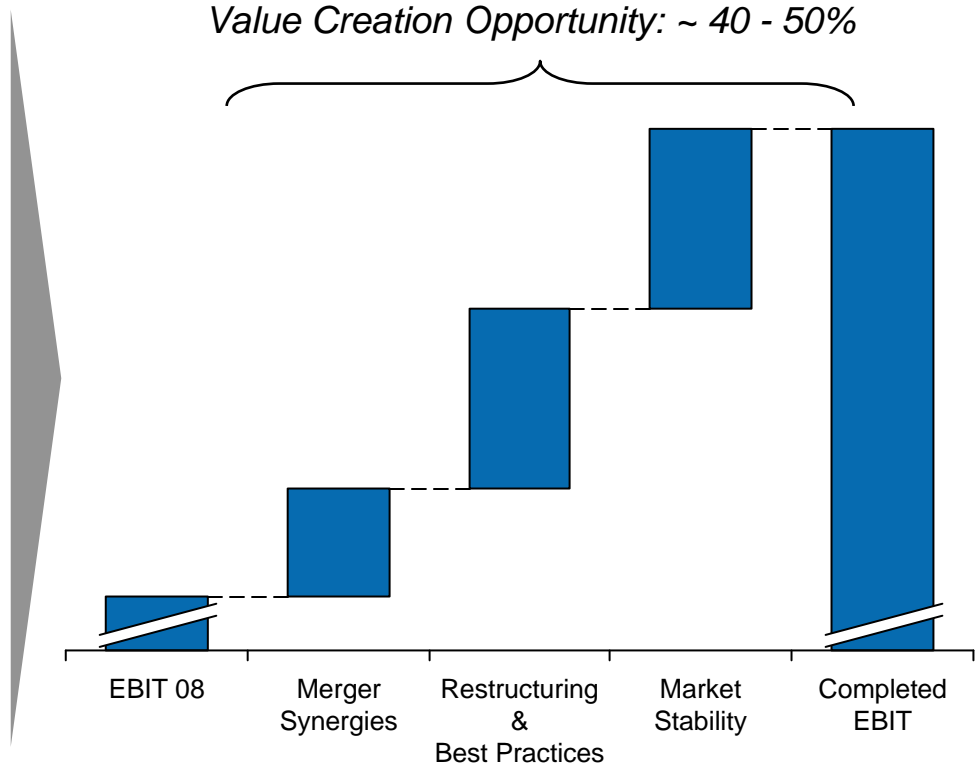
**World Industry Cost Curve – Ethylene**



# Scenario 1 - basic-petrochemicals consolidation and restructuring

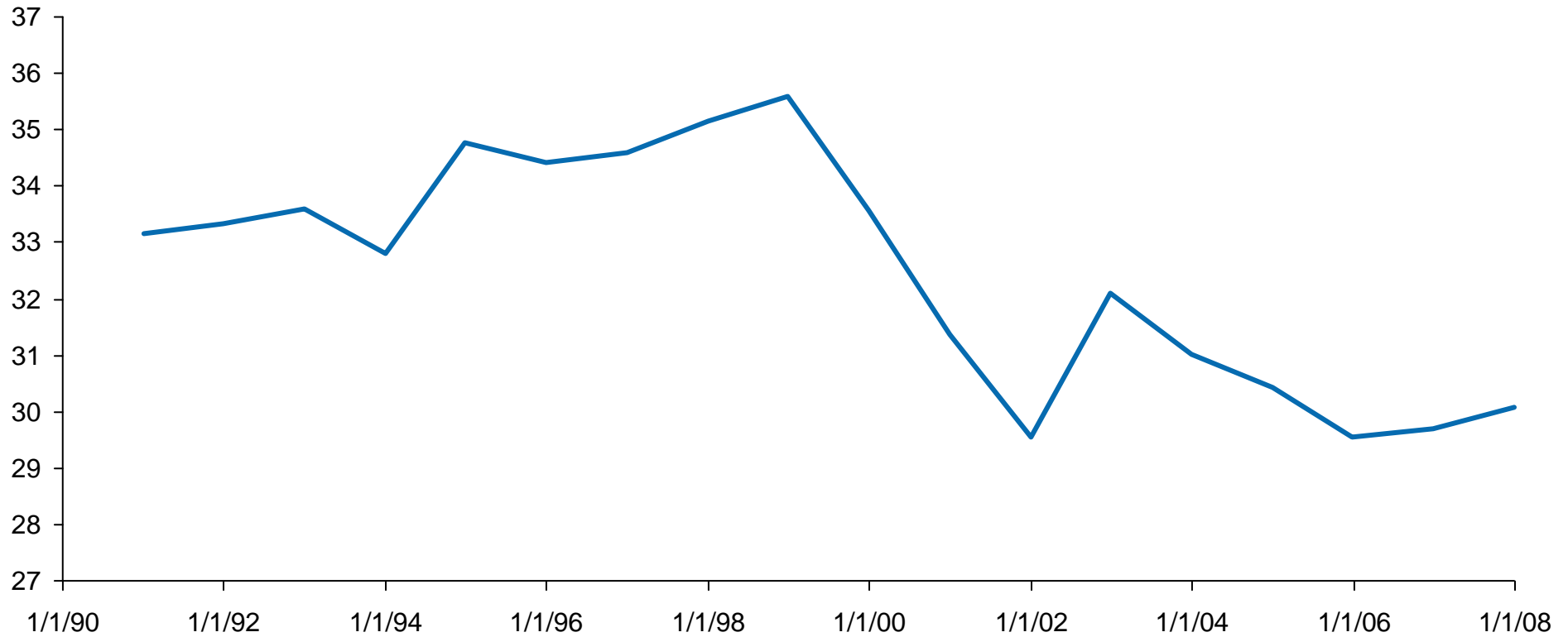
## Value Potential for Synergies & Restructuring

Area	High-Level Synergy Hypotheses
Fair Valuation	<ul style="list-style-type: none"> <li>Many companies are trading below their fair value</li> <li>Typical mid-cycle P/E ratios for chemicals companies @ 10-12 vs. current levels</li> </ul>
Merger Synergies	<ul style="list-style-type: none"> <li>Optimization of operating asset effectiveness</li> <li>Network and asset optimization/rationalization</li> <li>Procurement scale</li> <li>SG&amp;A cost reductions</li> </ul>
Restructuring & Best Practices	<ul style="list-style-type: none"> <li>Capacity &amp; product rationalization</li> <li>Scale effects</li> <li>Process standardization &amp; improvements</li> </ul>
Market Stability	<ul style="list-style-type: none"> <li>Price / volume trade-offs</li> <li>Cost/capacity rationalization opportunities</li> </ul>



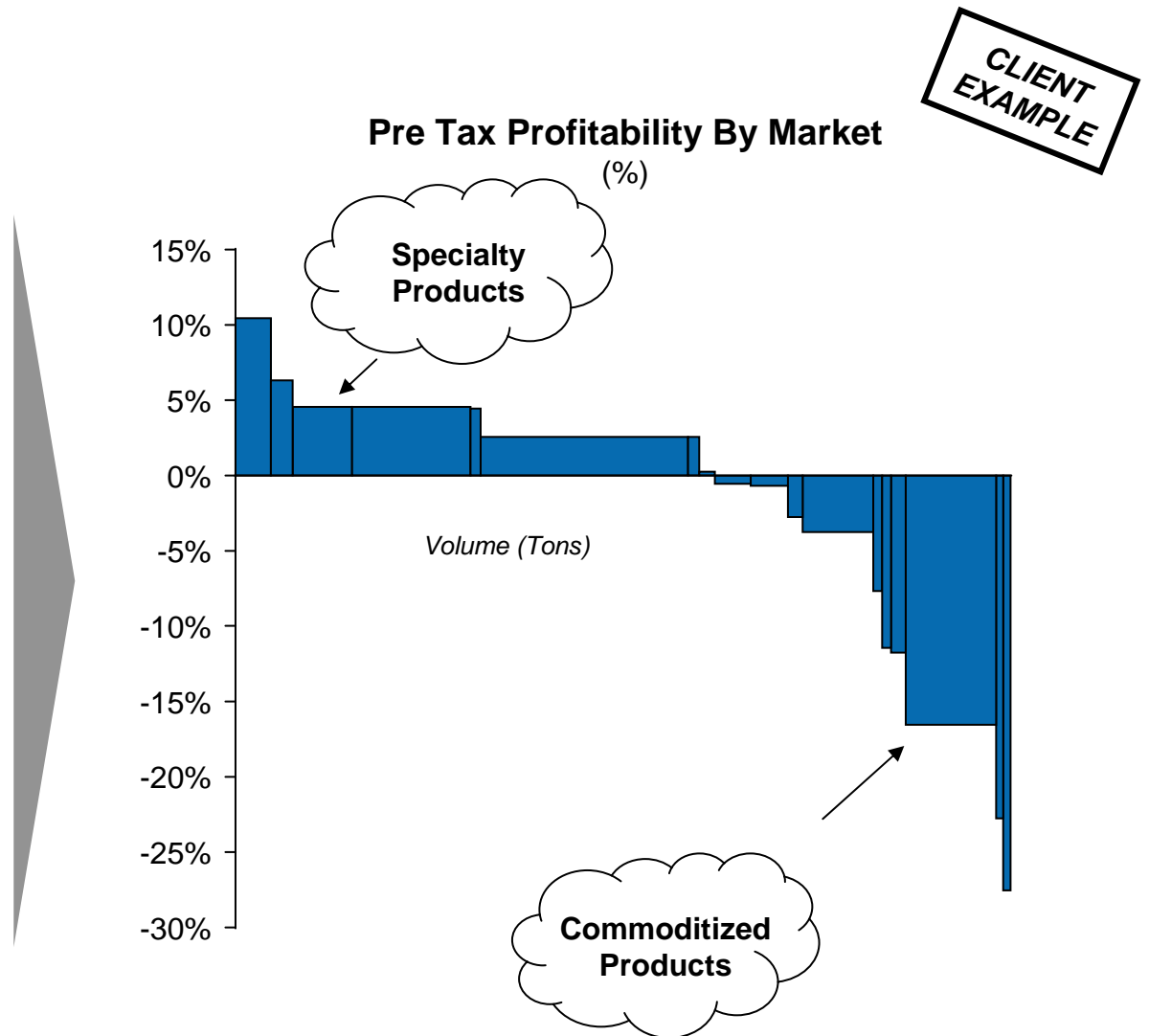
**In recent years, the specialty chemicals sector has come under increasing economic pressure – long-term, not just cyclical ...**

**Specialty Chemicals Sector Gross Margin %**  
(1990-2008)



## ... due to the sector's maturing product portfolio

- The specialty-chemicals sector emerged to develop markets for valuable new molecules
- However, the stream of new “blockbuster” molecules has slowed (or stopped) ...
- ... and the existing molecules have matured, with margins narrowing down towards those on traditional “commodities”
- So the sector's economics no longer favor the traditional “innovation-led” business model



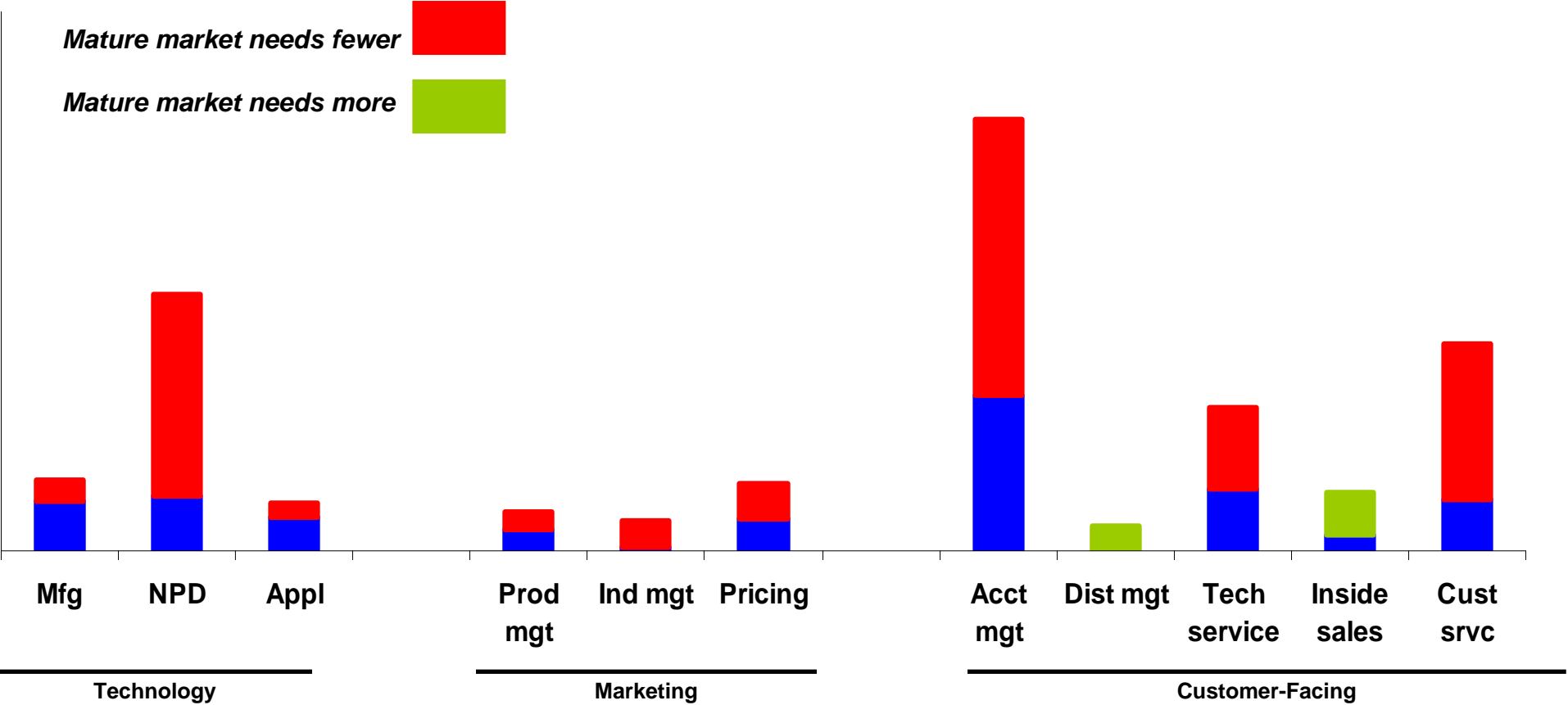
## Scenario 2 - Companies adopt new business models to succeed

	Innovation-Led Market	Mature Market
Products	<ul style="list-style-type: none"> <li>▪ New molecules with distinctive properties open up broad new application areas</li> <li>▪ Products require tailoring to meet the new applications' specific requirements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Molecules have found their main markets</li> <li>▪ Standard offerings have emerged in most areas</li> <li>▪ Product development pushes into ever-smaller (and less valuable) niches</li> </ul>
Customers	<ul style="list-style-type: none"> <li>▪ Customers are unfamiliar with the materials' properties and their processing technologies</li> <li>▪ Extensive application development and process assistance needed to open up a new customer base</li> </ul>	<ul style="list-style-type: none"> <li>▪ Customers are familiar with the materials, so they value fulfillment and price more than customization or tech support</li> </ul>
Competitors	<ul style="list-style-type: none"> <li>▪ A concentrated market of a few innovation-led global manufacturers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Additional manufacturers enter, who focus on low-cost production of fully-acceptable product that's sold in bulk with minimal technical support</li> <li>▪ Intensified competition erodes margins</li> </ul>
Supply Chain	<ul style="list-style-type: none"> <li>▪ Global manufacturers forward-integrate to reach end users with marketing, product development, tech support, etc.</li> <li>▪ Also, forward integration enables differentiated pricing to recover products' value in each use</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local independent providers emerge offering finishing / distribution services</li> <li>▪ Bulk markets for minimal-product emerge, serving end users and these independents</li> </ul>



# ... and sharply-different approaches to others

## Innovation-Led vs. Mature Business Model Requirements



# Chemical industry response: Swift and aggressive

Sample List

	Dow Chemical	DuPont	BASF	Bayer Material Science
Workforce Reduction	<ul style="list-style-type: none"> <li>11% workforce reduction (5000 jobs)</li> <li>30% contractor workforce red. (6000 jobs)</li> </ul>	<ul style="list-style-type: none"> <li>4.2% workforce reduction (2500 jobs)</li> <li>Another 10-15% reduction being implemented summer 09</li> </ul>	<ul style="list-style-type: none"> <li>20,000 employees (21% of the workforce) will be affected, mostly through work-time reduction</li> </ul>	<ul style="list-style-type: none"> <li>No announced workforce reduction</li> <li>Short-time working</li> </ul>
Plant Capacity Reduction	<ul style="list-style-type: none"> <li>Permanently shut 20 facilities</li> <li>Temporarily idle 180 plants (30% of Dow's factories)</li> </ul>	<ul style="list-style-type: none"> <li>Close plants at 10 production sites</li> <li>Temporarily idle 100 factories</li> </ul>	<ul style="list-style-type: none"> <li>NEXT program to provide more than €1bn in cost savings, idle 80 plants</li> <li>Reduce production at 100 factories (-20-25% output)</li> </ul>	<ul style="list-style-type: none"> <li>Temporary plant shutdowns to be announced in 1st quarter of 2009</li> </ul>
Working Cap and CapEx Initiatives	<ul style="list-style-type: none"> <li>Reduce working capital by \$2 billion (~36%)</li> <li>Lower CapEx by \$600 million in 2009</li> </ul>	<ul style="list-style-type: none"> <li>Reduce working cap. by \$1 billion</li> <li>Cut capital spending from \$2B to \$1.1-1.6B</li> </ul>	<ul style="list-style-type: none"> <li>No specific initiatives announced</li> </ul>	<ul style="list-style-type: none"> <li>Efforts to reduce working capital to bring WC/sales ratio to less than 17% of revenue</li> <li>CapEx reduction planned</li> </ul>
Restructuring Cost	<ul style="list-style-type: none"> <li>Total cost estimated at \$700 million through 2009</li> </ul>	<ul style="list-style-type: none"> <li>Cost through 2010 expected to be \$560 million of which \$300 mil for severance and \$30 mil for dismantling</li> </ul>	<ul style="list-style-type: none"> <li>Cost yet to be disclosed</li> </ul>	<ul style="list-style-type: none"> <li>Cost yet to be disclosed</li> </ul>

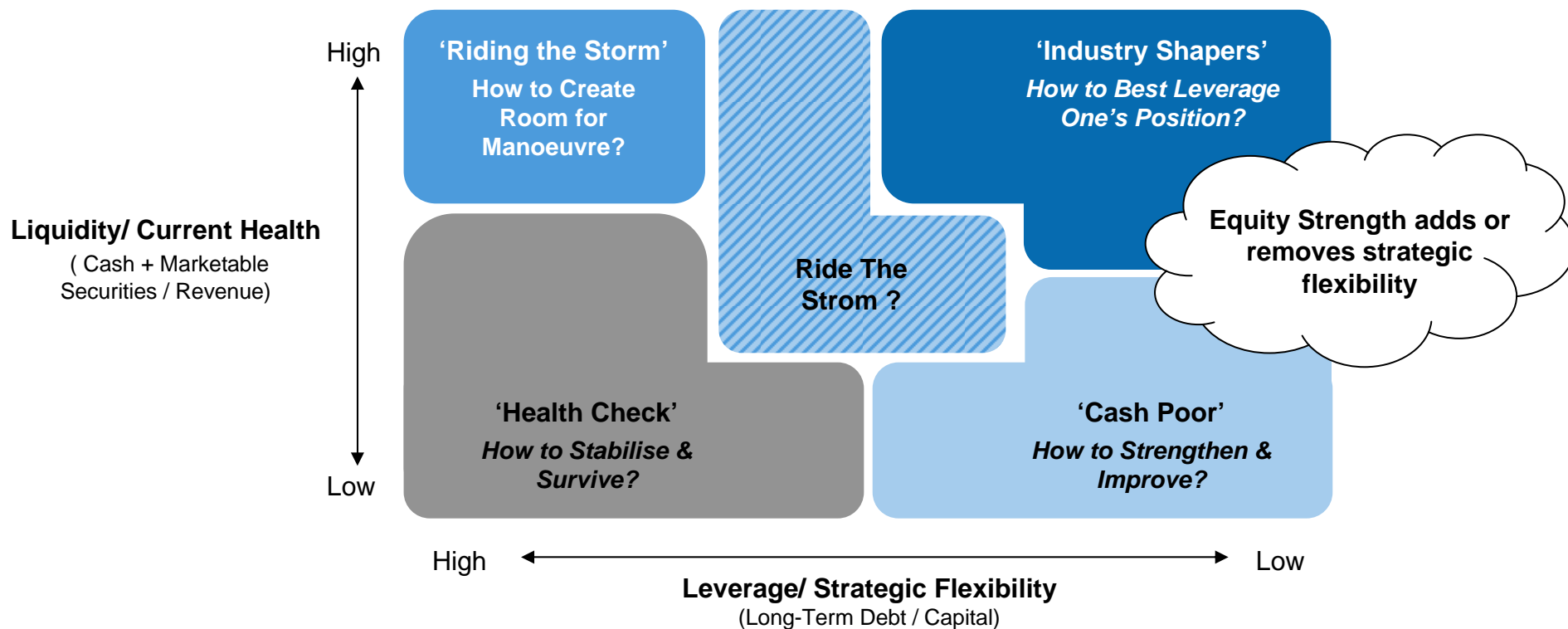
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## **Our view is that balance sheet strength will be critical to successfully riding the current economic storm**

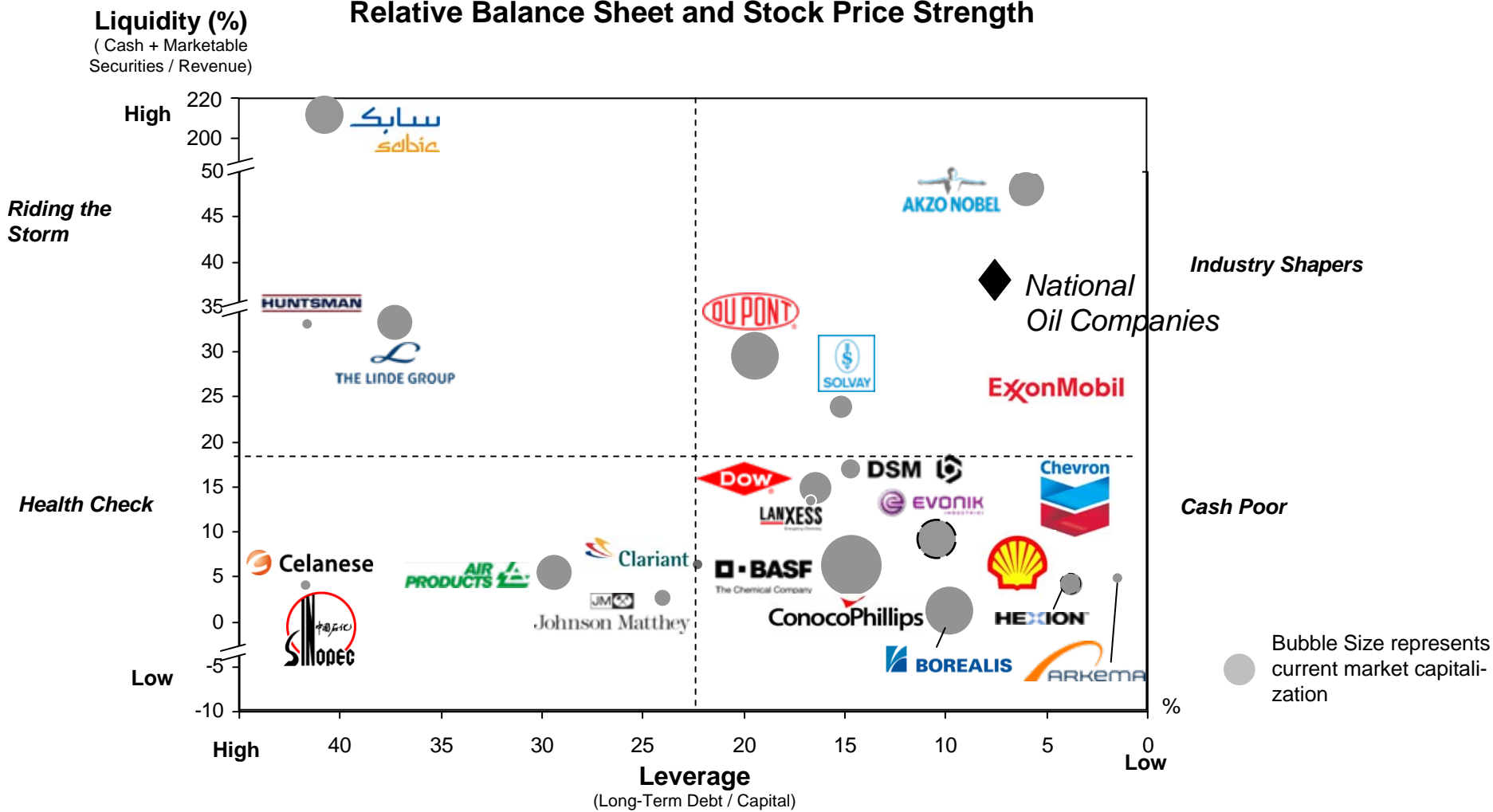
- As recently as the first half of 2008, conventional wisdom dictated that corporations leverage up their balance sheets while large cash reserves were seen as a sign of inefficiency at best
- The collapse of credit markets and the impact of the deepening economic recession have changed all this
- Yesterday's highly leveraged predators, exemplified by high-growth independents and private equity owned refineries, now look distinctly exposed - the hunters could become the hunted
- In contrast, tomorrow's winners are likely to be corporations with a strong cash position to make ambitious plays - those that win the 'dash for cash'
- In such a climate, balance sheet strength, supported by a resilient stock, become critical to corporations' ability to position for future success

# Medium to Long term response is a function of each Company's starting point

## Relative Balance Sheet Strength & Implied Challenges



# Some companies are well-positioned to take advantage of current valuations



# Implications for Terminal and Logistics Industry

	<b>Key Market Trends</b>	<b>Potential Implications</b>
<b>Shifting Trade Flows</b>	<ul style="list-style-type: none"><li>▪ U.S. will go from net exporter to net importer of several key chemical products</li><li>▪ Short in Latin America will continue to grow</li></ul>	<ul style="list-style-type: none"><li>▪ Prepare for shift from exporter to importer</li><li>▪ In particular, develop importing capabilities</li></ul>
<b>Commodi-tization</b>	<ul style="list-style-type: none"><li>▪ Raw material costs can be optimized through swaps, trades, and inter-region movement</li><li>▪ New model creates opportunities for logistics / supply chain providers</li></ul>	<ul style="list-style-type: none"><li>▪ Prepare for reduced intra-regional flows</li><li>▪ Consider playing a key role in commodity swaps</li></ul>
<b>Recession</b>	<ul style="list-style-type: none"><li>▪ Reduced demand will result in Chemical industry restructuring and consolidation</li><li>▪ Emphasis on cash will reduce result in Chemical Companies restructuring customer relationship, more make to order and less overall inventory</li></ul>	<ul style="list-style-type: none"><li>▪ Fewer customers, overall less volume in the short term</li><li>▪ Available assets</li><li>▪ Maturing supply chain competencies</li><li>▪ Increasing customer expectations</li><li>▪ New business models and service offerings will emerge</li></ul>

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