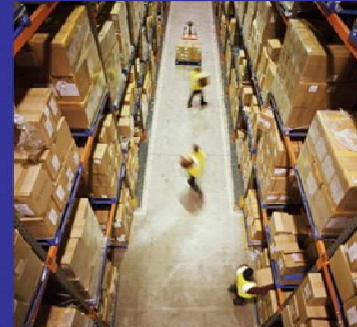
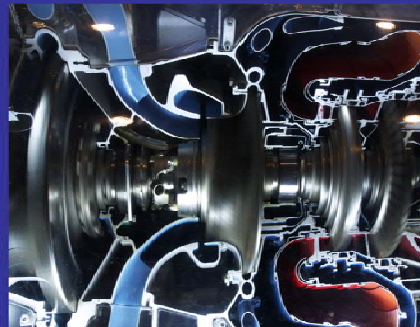


Boston Strategies International, Inc.

July 22, 2007



Budgeting for Volatility

Webcast

www.bostonstrategies.com
(1) (781) 250-8150



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Agenda

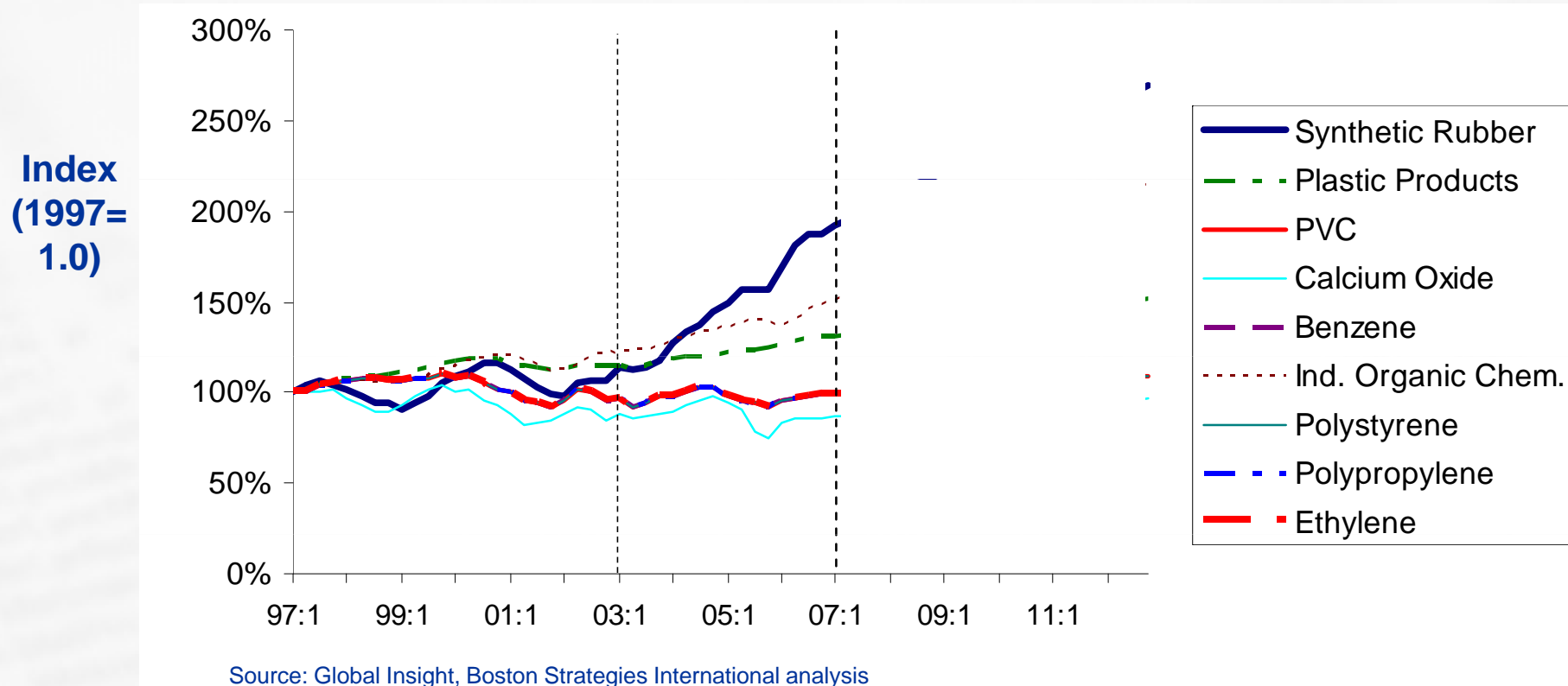
- The way it was
- Risk & uncertainty: the new enemy
- Approaches to managing volatility
- What to do



The way it was

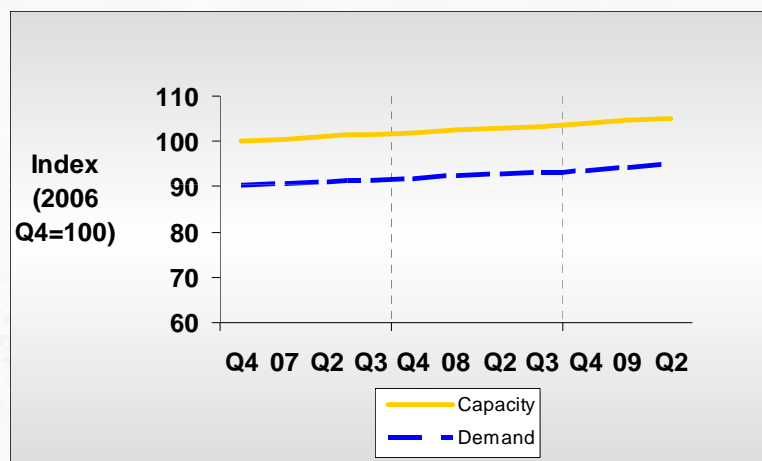
Relatively steady demand

US Demand for Chemicals



Supply and demand in balance

- Many, smaller suppliers
- Established channels
- Abundant pipeline inventory



Source: Boston Strategies International



Relative job security

Safe

- Accountants
- Bankers
- Lawyers
- Purchasing Agents
- Operations managers
- Forecasters



Not Safe

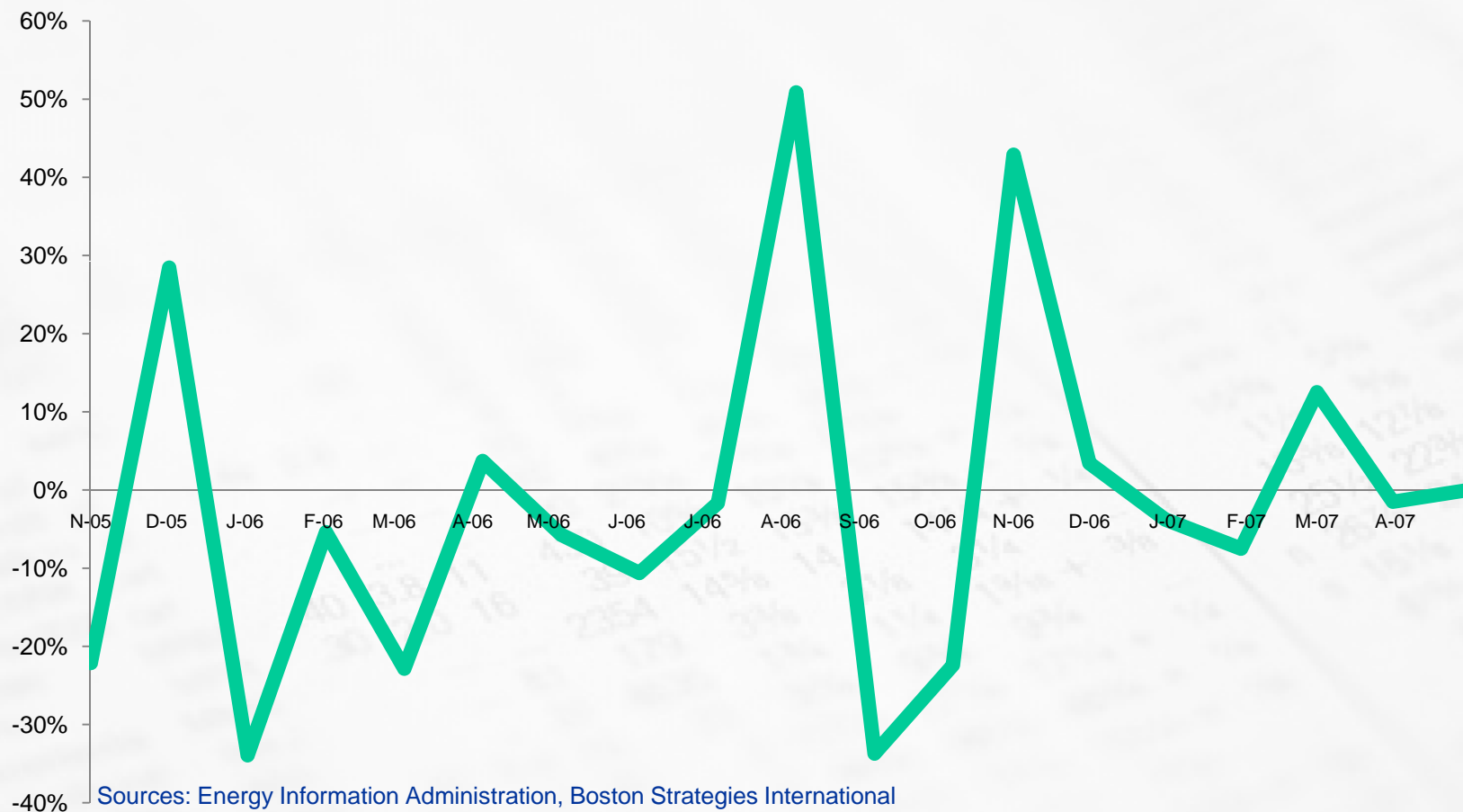
- Skydivers
- Stock car racers
- Stunt men
- Firemen
- Intelligence officers
- Roofers



Risk & uncertainty: the new enemy

Risk & uncertainty: the new enemy

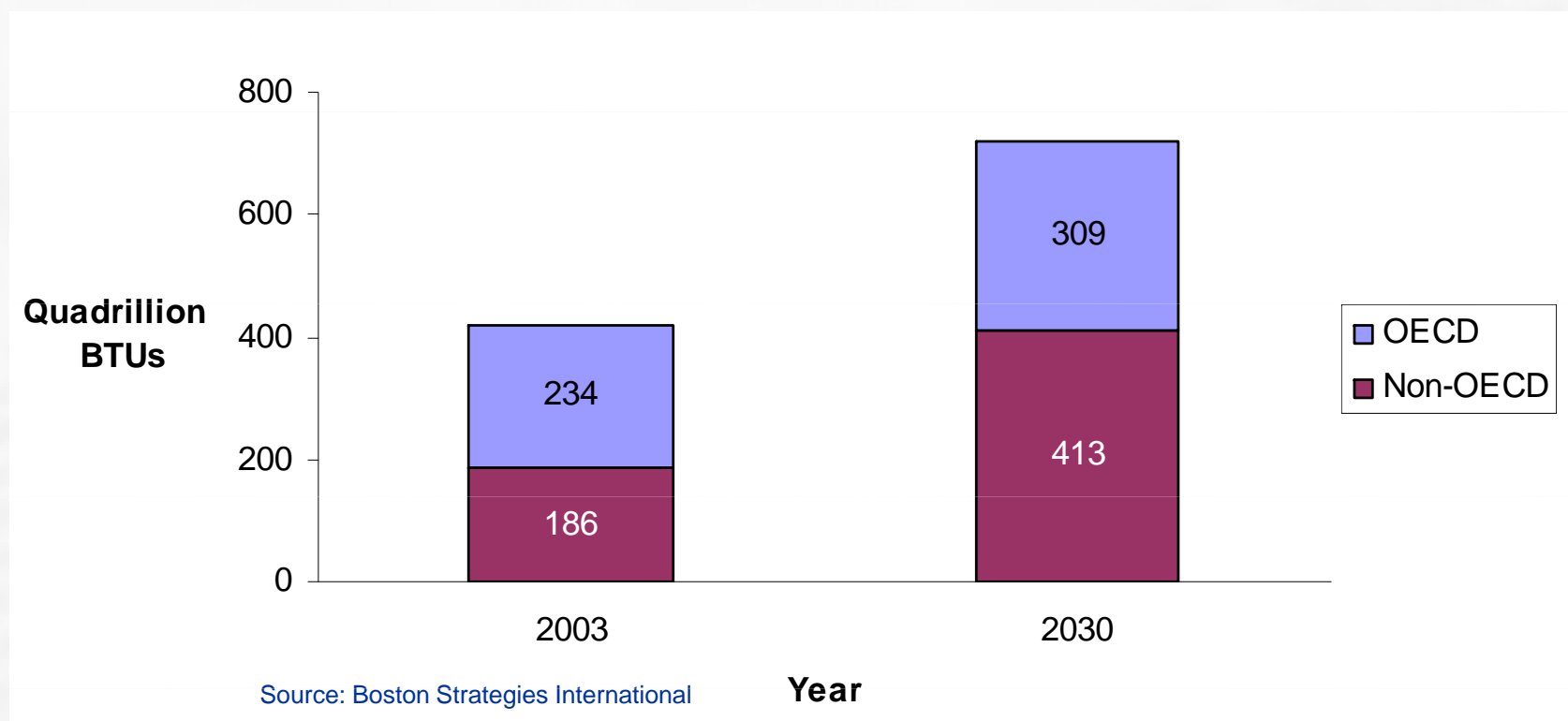
Percent Change in Natural Gas Price, November 2005 – April 2007



World energy requirements increasing

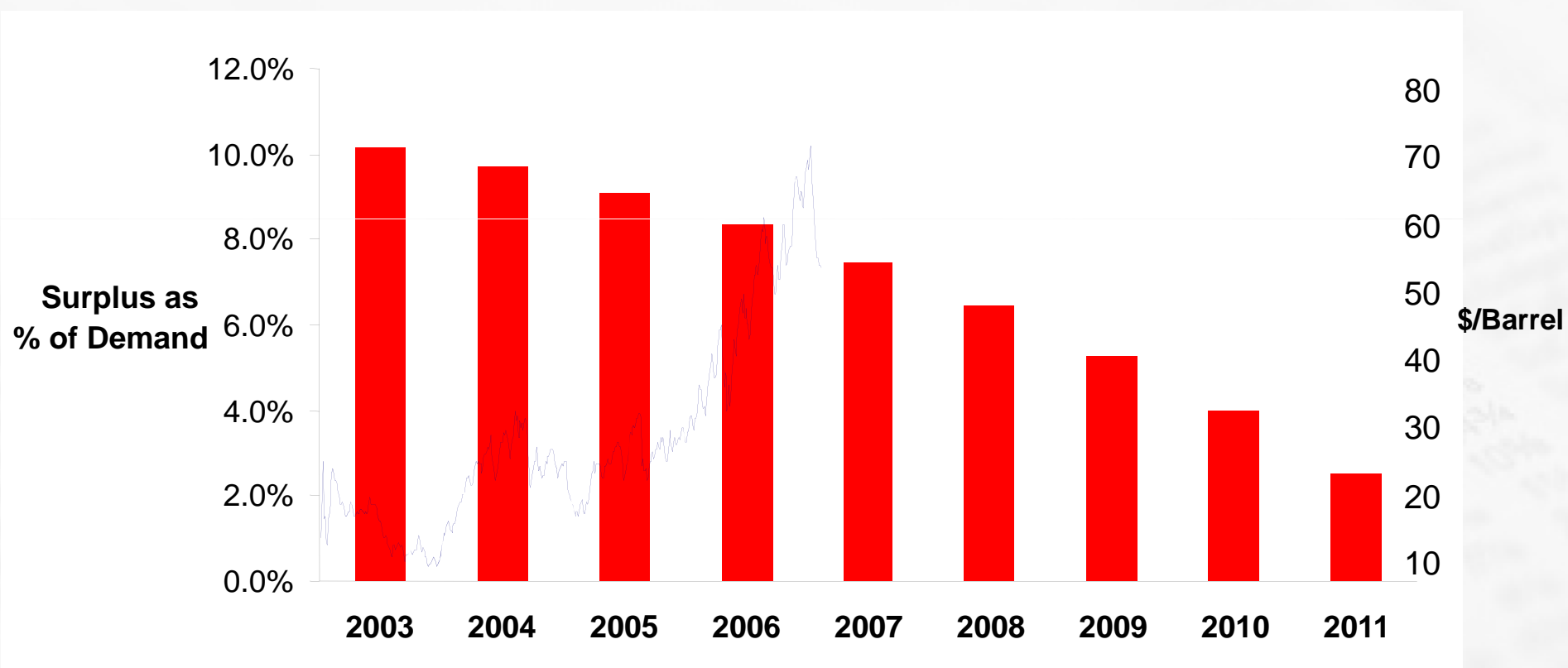
- Energy consumption forecast to nearly double by 2030

Growth in Global Energy Consumption, 2003 vs. 2030



Higher oil prices here to stay?

**Weighted Average World Oil Spot Prices 1989-2006
Superimposed on Gap Between Oil Demand and Oil Supply**

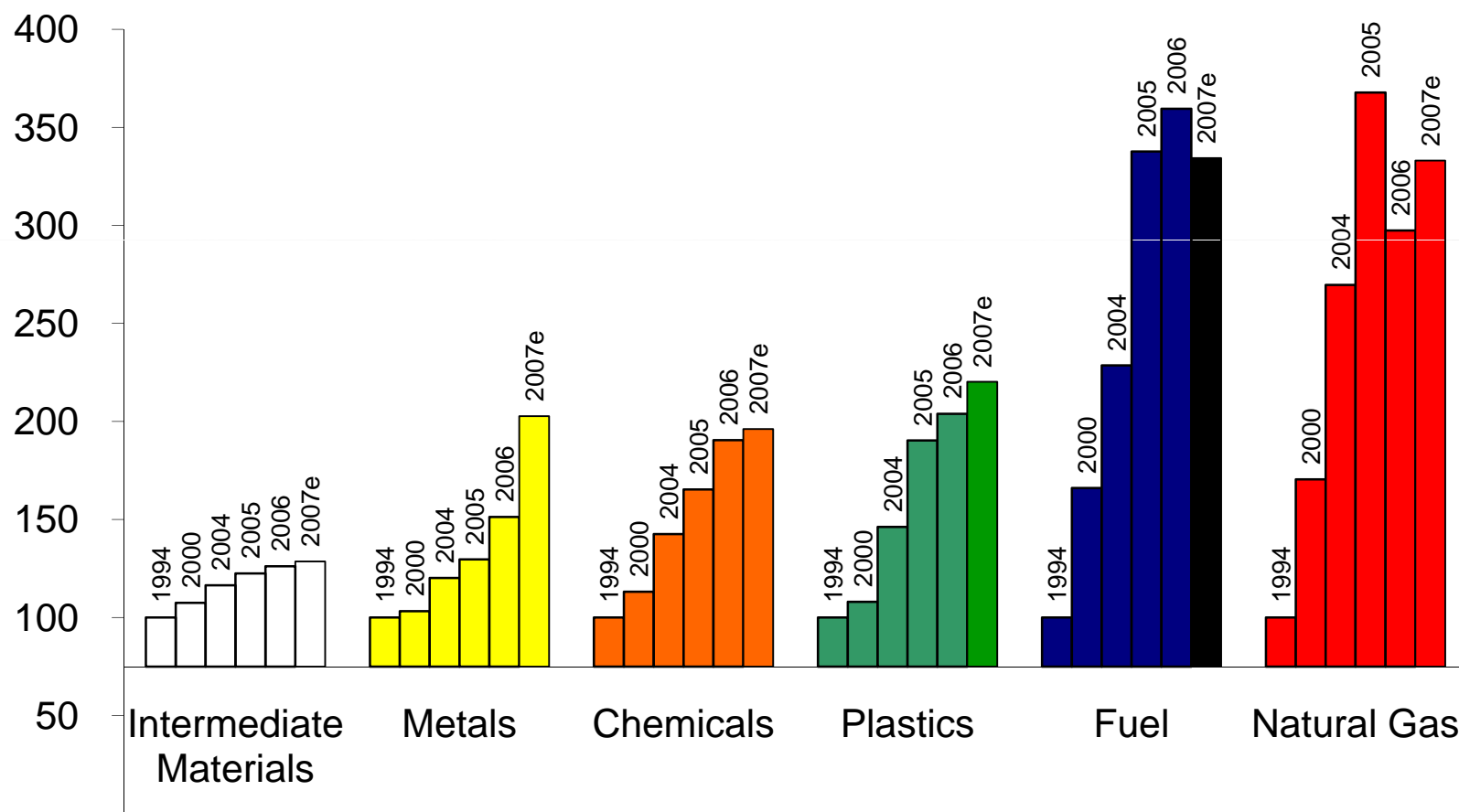


Source: Boston Strategies International



Material prices gone wild

Selected Producer Price Indices (1994=100)

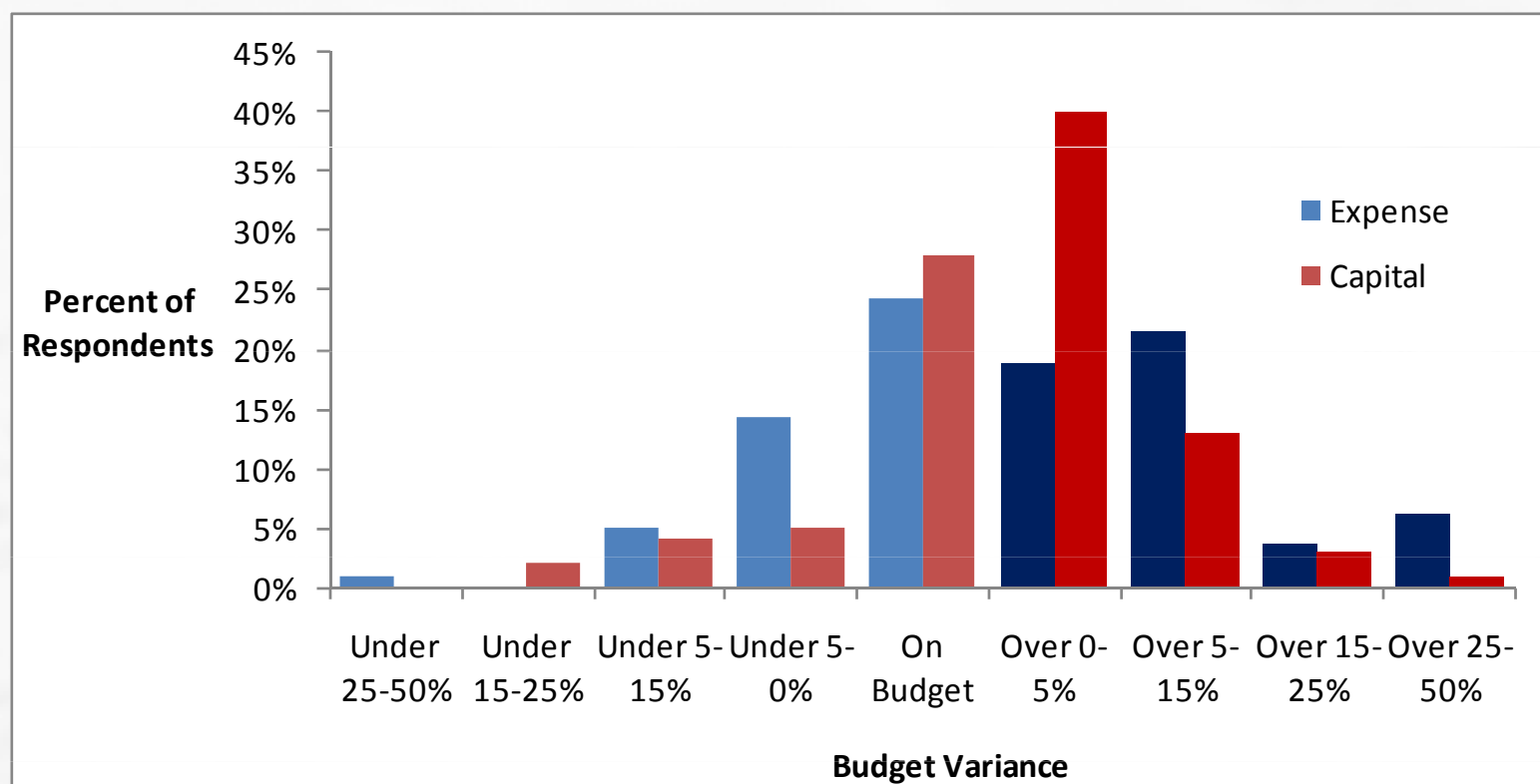


Source: Boston Strategies International analysis of Global Insight data



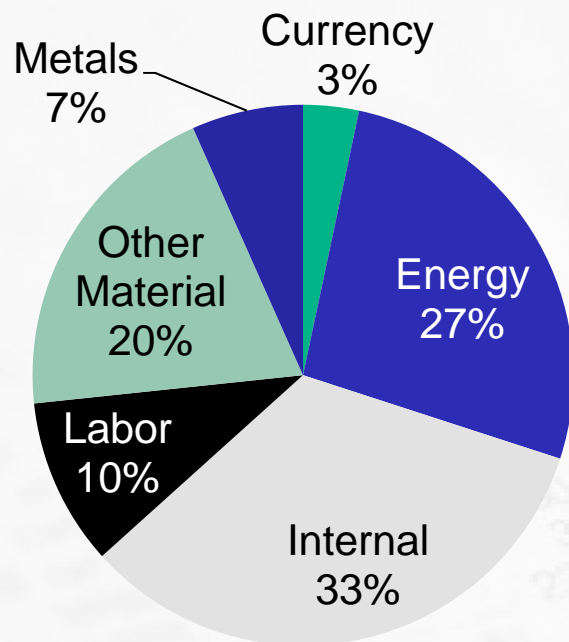
Budgets are off; variance is increasing

- **Expense: 50% are over-budget, 62% worsening**
- **Capital: 60% are over-budget, 73% worsening**

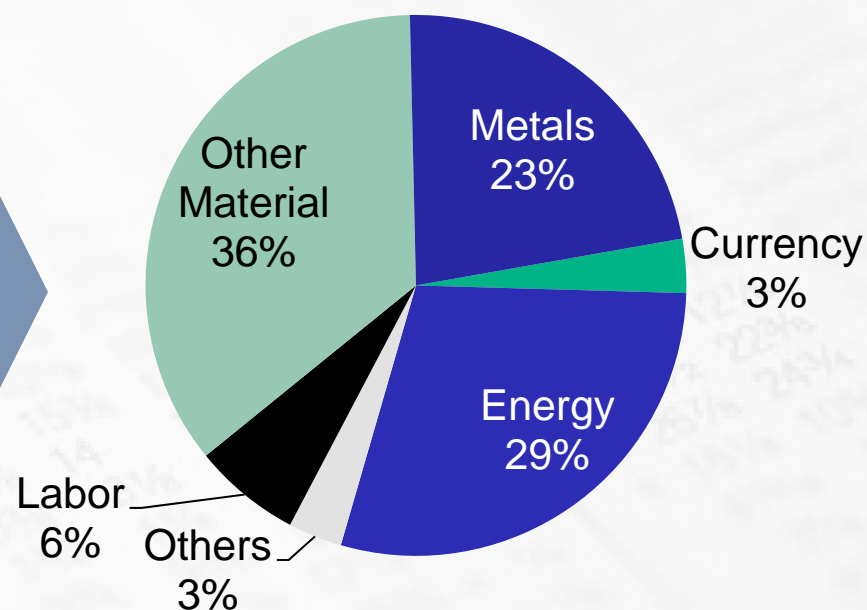


Biggest concerns: energy, metals, labor

Reasons for Budget Variance

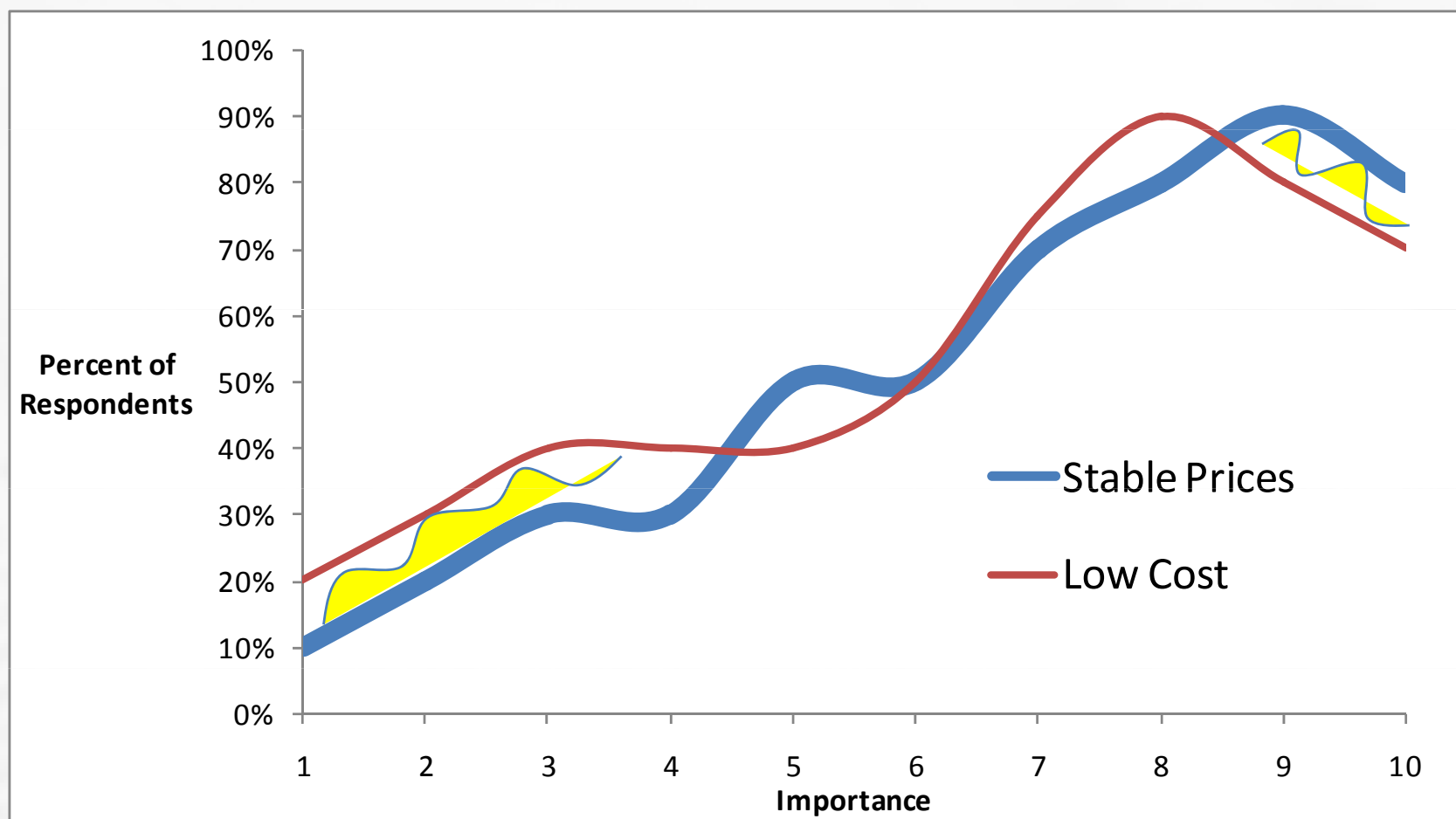


Biggest Budgeting Concern



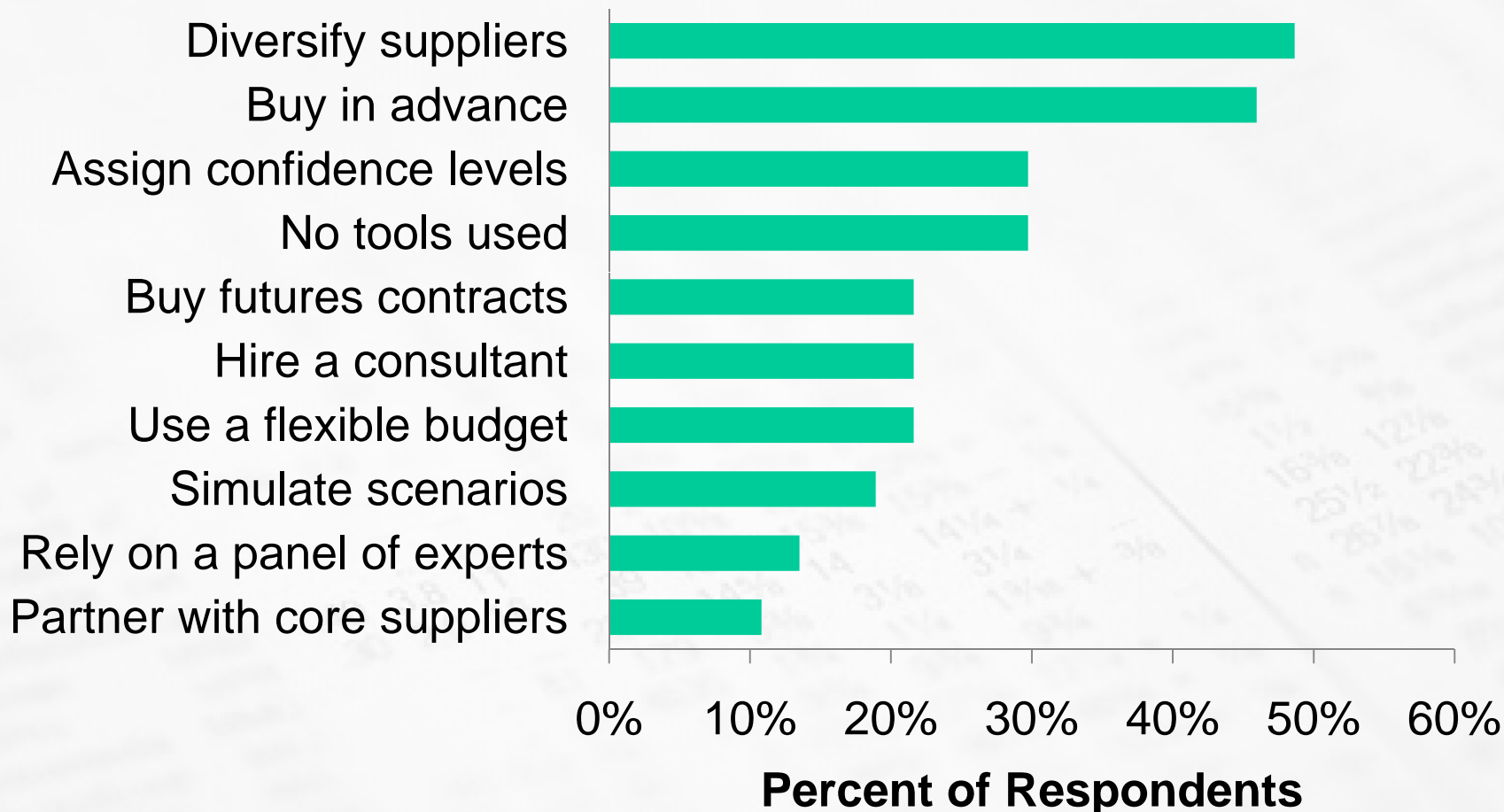
Approaches to budgeting for volatility

Stability as important as low cost



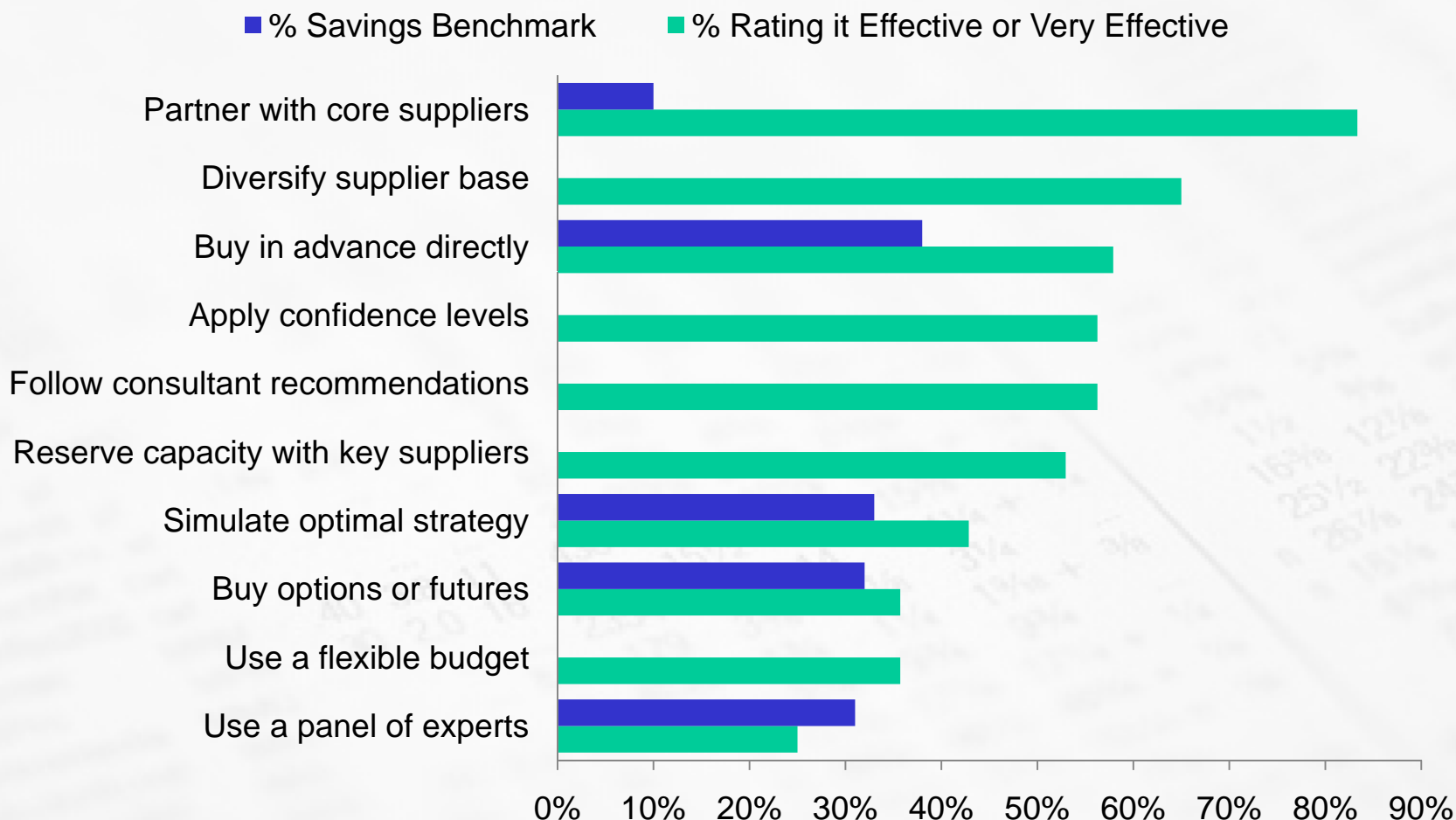
Big decisions, little science

Methods for Handling Price Volatility



The planning method makes a difference

Effectiveness, by Method

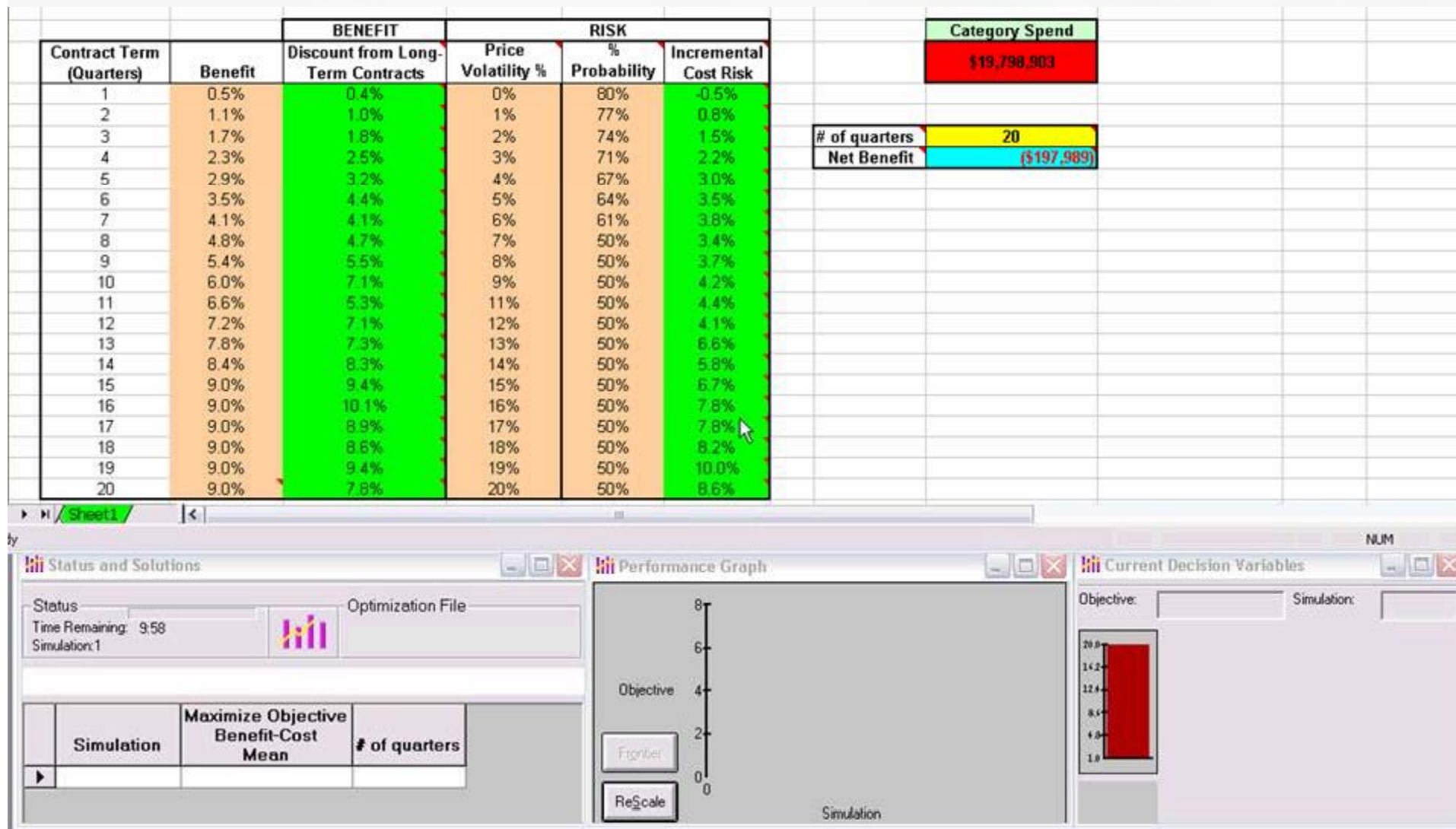


Case studies

	Assumptions	Decision Variables	Forecast Values
Contract Term	Price discount	Optimal number of quarters	Net risk-adjusted benefit
Supplier Split	% price premium	Optimal number of suppliers	Total cost



Contract Term



Contract Term

		BENEFIT		RISK			Category Spend	
Contract Term (Quarters)	Benefit	Discount from Long-Term Contracts	Price Volatility %	% Probability	Incremental Cost Risk		\$19,798,903	
1	0.5%	0.4%	0%	80%	-0.5%			
2	1.1%	1.0%	1%	77%	0.8%			
3	1.7%	1.8%	2%	74%	1.5%	# of quarters	20	
4	2.3%	2.5%	3%	71%	2.2%	Net Benefit	(\$197,989)	
5	2.9%	3.2%	4%	67%	3.0%			
6	3.5%	4.4%	5%	64%	3.5%			
7	4.1%	4.1%	6%	61%	3.8%			
8	4.8%	4.7%	7%	50%	3.4%			
9	5.4%	5.5%	8%	50%	3.7%			
10	6.0%	7.1%	9%	50%	4.2%			
11	6.6%	5.3%	11%	50%	4.4%			
12	7.2%	7.1%	12%	50%	4.1%			
13	7.8%	7.3%	13%	50%	6.6%			
14	8.4%	8.3%	14%	50%	5.8%			
15	9.0%	9.4%	15%	50%	6.7%			
16	9.0%	10.1%	16%	50%	7.8%			
17	9.0%	8.9%	17%	50%	7.8%			
18	9.0%	8.6%	18%	50%	8.2%			
19	9.0%	9.4%	19%	50%	10.0%			
20	9.0%	7.8%	20%	50%	8.6%			

# of quarters	20
Net Benefit	(\$197,989)

Sheet1

Status and Solutions

Status: Time Remaining: 9:58 Simulation: 1

Optimization File

Simulation	Maximize Objective Benefit-Cost Mean	# of quarters
▶		

Performance Graph

Objective

Frontier

ReScale

Simulation

Current Decision Variables

Objective: Simulation:

NUM



Realign budgets more than once a year

- 83% have a yearly planning horizon

**Market
Intelligence**



Boston Strategies International

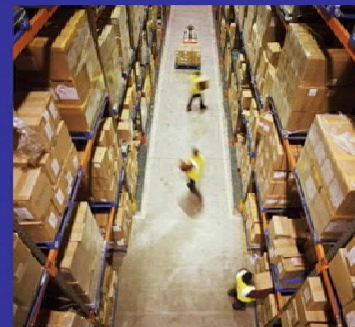
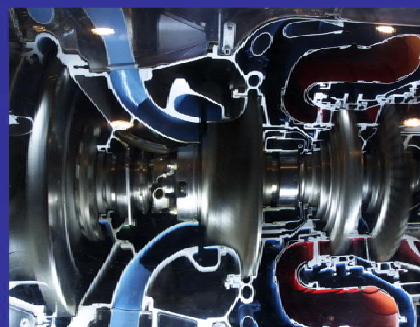
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Tel: +1 (781) 250-8150

Boston Strategies International is a global management consulting firm that helps market leaders achieve competitive advantage through supply chain management through:

- **Supply Market Analysis** that helps identify emerging issues that affect their supply chains
- **Supplier Enablement** that facilitates global growth and local content requirements
- **Supply Chain Optimization** that reduces project and life cycle costs



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