

# **Climate Change Economics & Policy**

ECO3CCE

Global and Strategic Issues

Week 12 Business Strategies and Implications

La Trobe School of Business

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# Intended Learning Outcomes

At the completion of this topic, students should be able to:

- Describe business risks imposed by both the physical impacts of climate change and by mitigation and adaptation policies
- Describe and evaluate business strategies for addressing climate change.
- Understand the carbon exposure of a firm

# Outline

- Introduction
- Climate change risks for businesses
- ‘No regrets’ strategy
- Corporate positions on climate change
- A typology of climate change business strategies
- Porter and product differentiation
- Strategic opportunities

# Introduction

Businesses have to respond to the risks and opportunities that climate change will impose

(see <https://theconversation.com/how-well-prepared-are-businesses-for-climate-change-37503>)

For example:

- Unilever a global consumer goods company estimated that extreme weather events cost it 200 million euros in 2011
- The IPCC estimates that to meet the 2°C target additional investment in the range of \$190-900 billion is required and 50-90 per cent involve projects with benefits that outweigh the costs
- LED bulbs had 1 per cent of market share in 2010 – in 2015 28 per cent and that is forecast to increase to 95 per cent by 2025

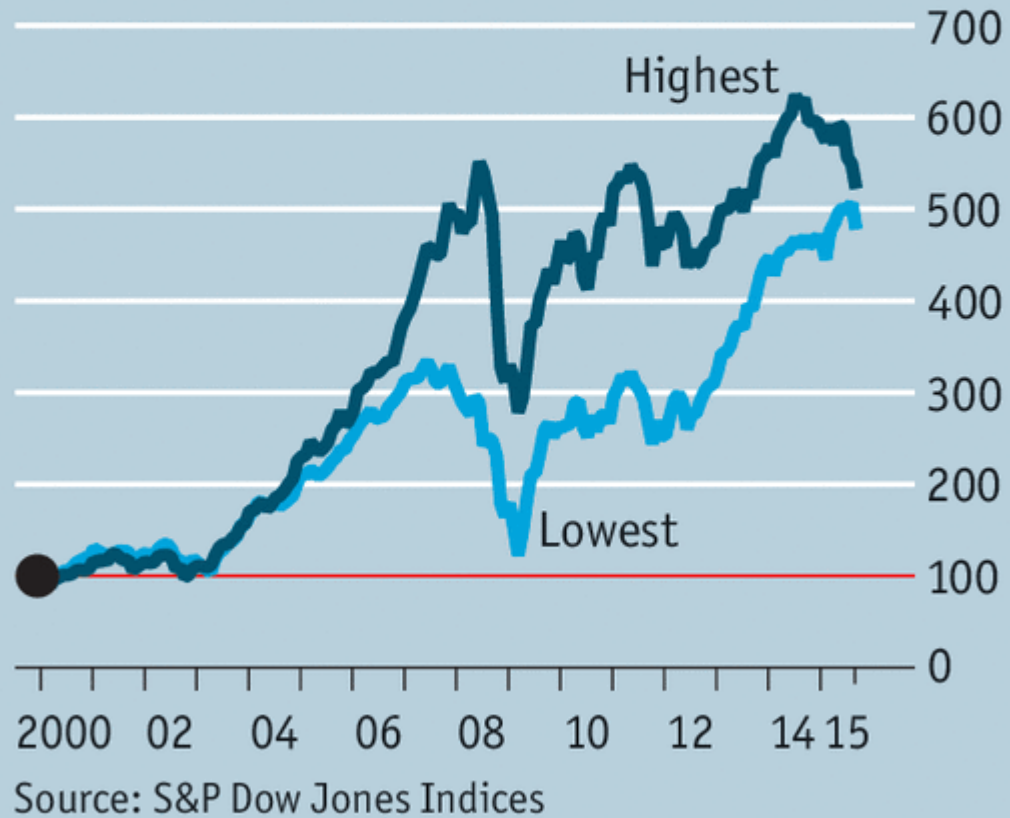
# Introduction

## Significant impacts for investors (see chart)

- High emitting firms fared better since 1999 (period of rising commodity prices)
- But in recent years (falling commodity prices) the low emitting firms catching up
- Moody's rating agency puts three industries (deregulated power generation, coal mining and coal terminals) at 'immediate and elevated risk from climate change'
- Allianz, no longer invests in companies that derive more than 30 per cent of revenue from coal mining

## Emission impossible

Share price of 100 companies with highest and lowest emissions in S&P Global 1200  
December 1999=100



Source: The Economist Dec 5, 2015

Economist.com

# Climate change risks

Six broad kinds of climate risks identified for business

## Value Chain Risks

1. Physical risks
2. Price risks
3. Product risks



## External stakeholder risks

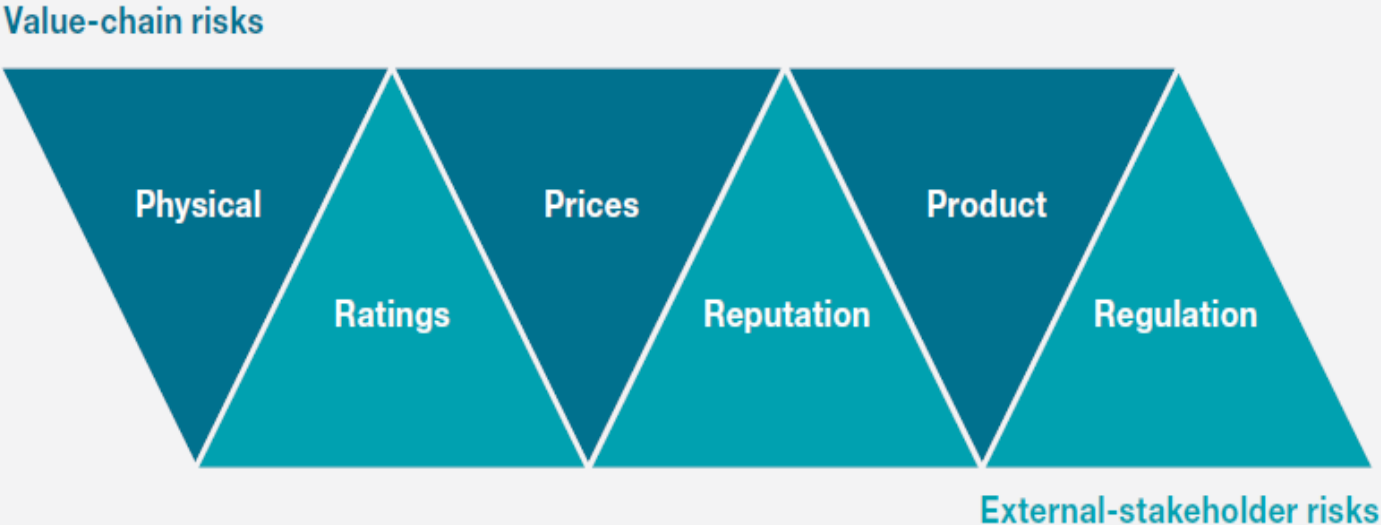
4. Rating risks
5. Regulations risks
6. Reputation risks



Refer Engel, Enkvist and Henderson (2015)



**Exhibit 1 We have identified the types of risks climate change poses to businesses.**



Source: McKinsey analysis

# Climate change risks

## Value Chain Risks

- **Physical risks** are related to damages to infrastructure, assets and supply-chain operations by increased frequency of extreme weather events
  - E.g. impact of drought or flood on agricultural production
- Companies can prepare:
  - Climate forecasting
  - Moving from locations with greater exposure to risks

# Climate change risks

## Value Chain Risks

- **Price risks** – increased volatility of raw materials and commodities
  - E.g. price of water rises as a result of droughts or climate regulations drive up prices
- Companies can undertake strategies to hedge against rising prices
- **Product risks** – losing market share or core products becoming unpopular
  - E.g. ski resorts that no longer have adequate snow cover, or development of alternative technologies

# Climate change risks

## External stakeholder risks

- **Ratings risk** – possibility of higher costs of capital because of climate related risks
  - E.g. introduction of carbon pricing or supply-chain disruption
- Global capital (especially investment and insurance industries) look to low carbon assets
  - Reluctant to invest in non-performers on GHG emissions (e.g. evidence that low emitters converging on high emitters)

# Climate change risks

## External stakeholder risks

- **Regulation risk** – government actions relating to climate change, different rules or policies that impose costs on businesses
  - E.g. this can change quickly – such as with a change in government
  - Firms need to be prepared for different policy options and have an internal strategy to react to it
- Direct obligations under a carbon tax/ETS
- Indirect e.g. higher energy prices; changes in investment or consumer behaviour

# Climate change risks

## External stakeholder risks

- **Reputation risk** – probability of losing profits or market share as a result of a business’s activities or position on an issue
  - Perception of failure to act or adapt to climate change impacts
  - Consumer perceptions; investor perceptions
- A recent survey suggests (CSIRO, 2014):
  - The public perception is that climate change is happening – but only 47 per cent believe it is human induced
  - Perceived level of vulnerability is typically higher for natural ecosystems than infrastructure/energy security

# Public perception of whether climate change is happening

Source: Leviston, et al, (2014) Fourth annual survey of Australian attitudes to climate change, CSIRO

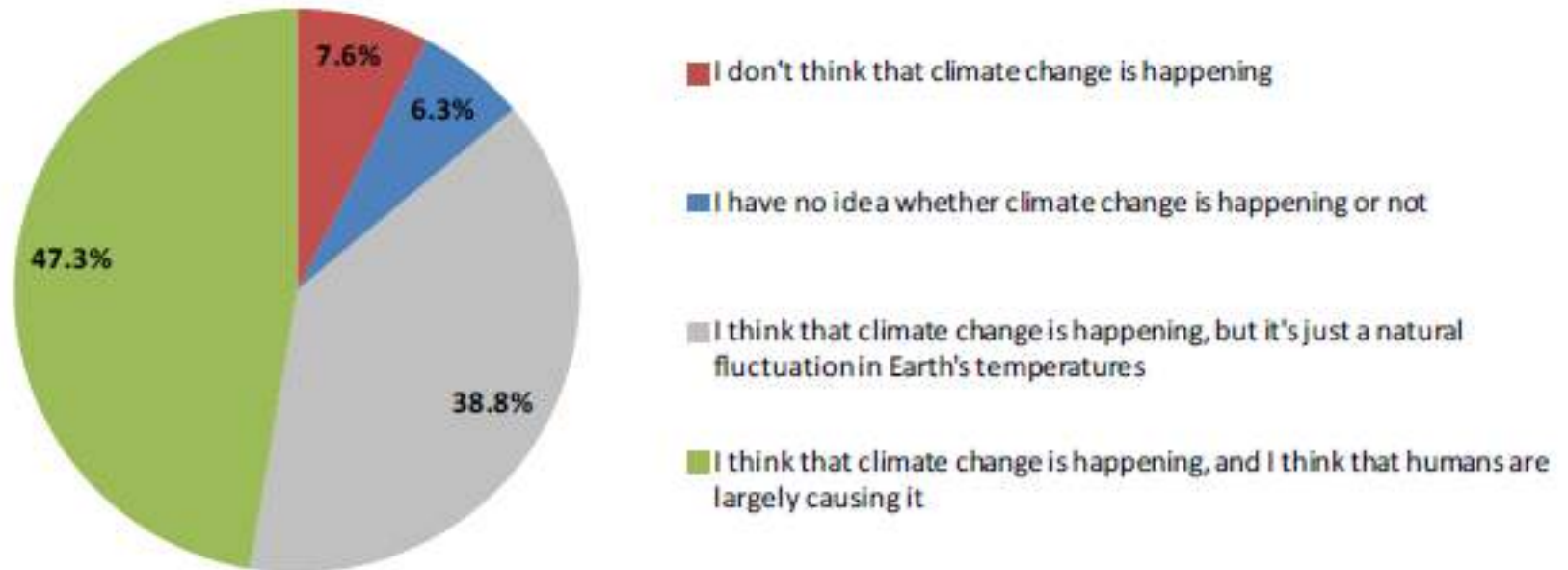


Figure 2 Typological breakdown of thoughts about the causes of climate change (N = 5219)

# Perceived vulnerability to climate change

Source: Leviston, et al, (2014) Fourth annual survey of Australian attitudes to climate change, CSIRO,

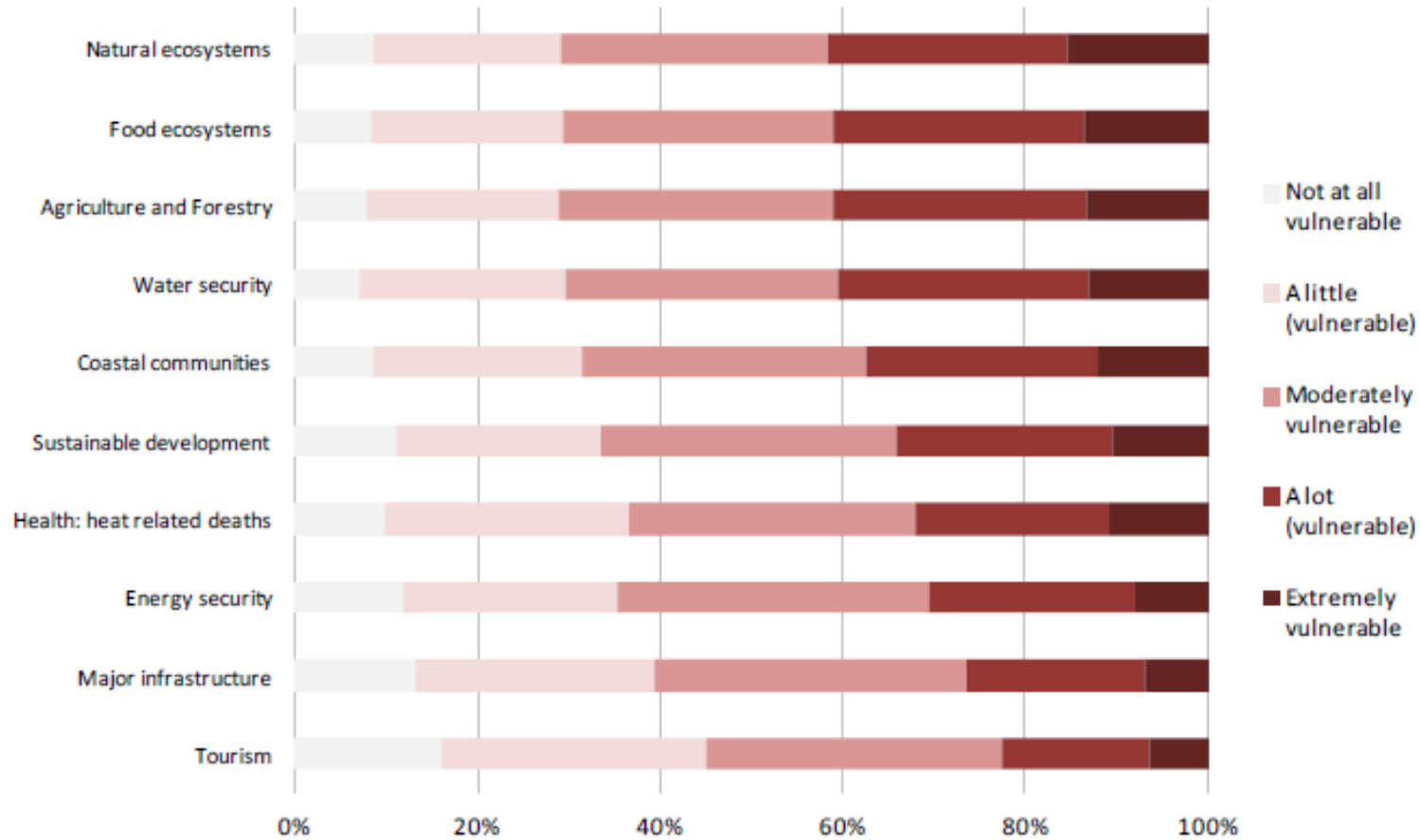


Figure 16 Perceived vulnerability of different sectors to climate change (N = 5219)



# Further climate change risks

- Infrastructure risks:
- Current infrastructure and capital assets are designed based on past climate, not future climate
- Risk assessment of vulnerability of current and future infrastructure assets:
  - Physical impacts to buildings, transport, water, energy and communication
  - Buildings codes review
  - Coastal regions (National Coastal Vulnerability Assessment)

# Further climate change risks

- Competitive risks
  - Keeping up with competitors – product development
- Litigation risks
  - Liabilities associated with inadequate disclosure to trading partners
  - Inadequate preparation of the traded commodity/service for adverse climate impacts
  - Negligence in decision making

# Business strategies

Given these risk the how do business respond?

- First ‘no regrets” strategies
- Second what is the strategic positioning of a firms (Porter’s analysis of competitive advantage)
- Depends on a number of external and industry related factors
- Pinske and Kolk (2009) separate strategies into compensation (compliance) and innovation

# 'No regrets' Strategy

A 'no regrets' strategy defined as Lovins (2008 p.24):

*'Even if the scientists are wrong, and there is no threat to the climate, these are actions that a well-managed business would want to take anyway, because doing so is profitable'*

Some no regret strategies:

- Energy and material cost savings
  - Enhanced core business value
  - Reduced risk
- See Lovins (2008) <http://natcapsolutions.org/CAPR/resources/climate-manual/chapter-2/the-business-case/> for more details

# Corporate positions on climate change

Influenced by:

## 1. External factors:

- Physical impact, Govt. policies & regulation, stakeholder pressures and perceptions

## 2. Industry-related factors:

- Industry structure, industry growth, concentration level

## 3. Company-specific factors

Refer Pinkse & Kolk (2009)

# External factors influencing corporate positions on climate change

- Physical impacts:

Extreme weather events, sea-level rise, floods, droughts, bushfires

- Government policy and regulation:

Carbon tax/ETS, Mandatory Renewable Energy Targets, Mandatory emission reporting, international agreements

- Stakeholder pressures:

Investor pressures, consumer pressures, NGOs, media and society at large



# Industry-related factors influencing corporate positions on climate change

## Industry structure:

- Putting a price on carbon creates a new commodity which in turn affect the trade patterns of related commodities (coal, natural gas, etc.)

## Industry concentration level

- Companies that closely watch the behaviour of competitors (Oligopolistic industries)
- No other option but to 'Follow the leader' (Knickerbocker, 1993)
- E.g. Major auto companies follow Toyota's lead on hybrid cars

# Industry-related Factors influencing corporate positions on climate change

## Technological advancements and competition

- Development of a new fuel (e.g. Biofuel) for passenger vehicles means changing product designs and vice versa
- When auto manufacturers design hydrogen cars, it has implications for fuel suppliers





# Company-specific factors influencing corporate positions on climate change

- Position within the supply chain
  - Companies that position higher up in the supply chain (e.g. commodities) have less opportunities to differentiate compared to companies closer to the end-consumer
- Economic situation and market positioning
- History of involvement with (tech) alternatives
- Degree of (de)centralisation
- Degree of internationalisation

# Company-specific factors influencing corporate positions on climate change

- Availability & type of internal climate expertise
- Corporate culture and managerial perceptions
- Capacity to anticipate risks, spread of vulnerabilities



# A Typology of climate change strategies

Organisation (structure)	Main aim (strategic intent)	
	<i>Innovative</i>	<i>Compensation</i>
<i>Internal (Company)</i>	<b>Process improvement (1)</b>	<b>Internal transfer of emission credits (2)</b>
<i>Vertical (supply chain)</i>	<b>Product development (3)</b>	<b>Supply chain measures (4)</b>
<i>Horizontal (beyond supply chain)</i>	<b>New product/market combinations (5)</b>	<b>Acquisition of emission credits (6)</b>

Source: Pinkse & Kolk (2009), p.99

# A Typology of climate change strategies

Pinkse & Kolk (2009) presents a matrix of climate change business strategies with 2 dimensions:

## 1. Main aim (strategic intent)

**Innovation** the main focus is on innovation; process, product

**Compensation** (the main focus is on compensation; internal transfer of emissions, supply chain measures or acquisition of emission credits

## 2. The form of organisation (degree of interaction)

# A typology of climate change strategies

## Innovation

- Process improvements
  - E.g. energy efficiency, reduced materials utilization and decreasing transport costs.
  - High energy-intensive firms have more options to improve efficiency but greater external pressure to reduce emissions (chemicals, mining, metals, utilities, oil & gas)
- Product development
  - E.g. design of products/new products to reduction emissions (chemicals, mining & electronics); Life-cycle programmes - BMW, GE, IBM, Unilever, DELL

# A typology of climate change strategies

- New product/market combinations by strategic alliances
  - E.g. California Fuel Cell Partnership – Ford, GM, Toyota, BP, Shell, etc.); a new market based on Hydrogen as a major fuel

## Compensation

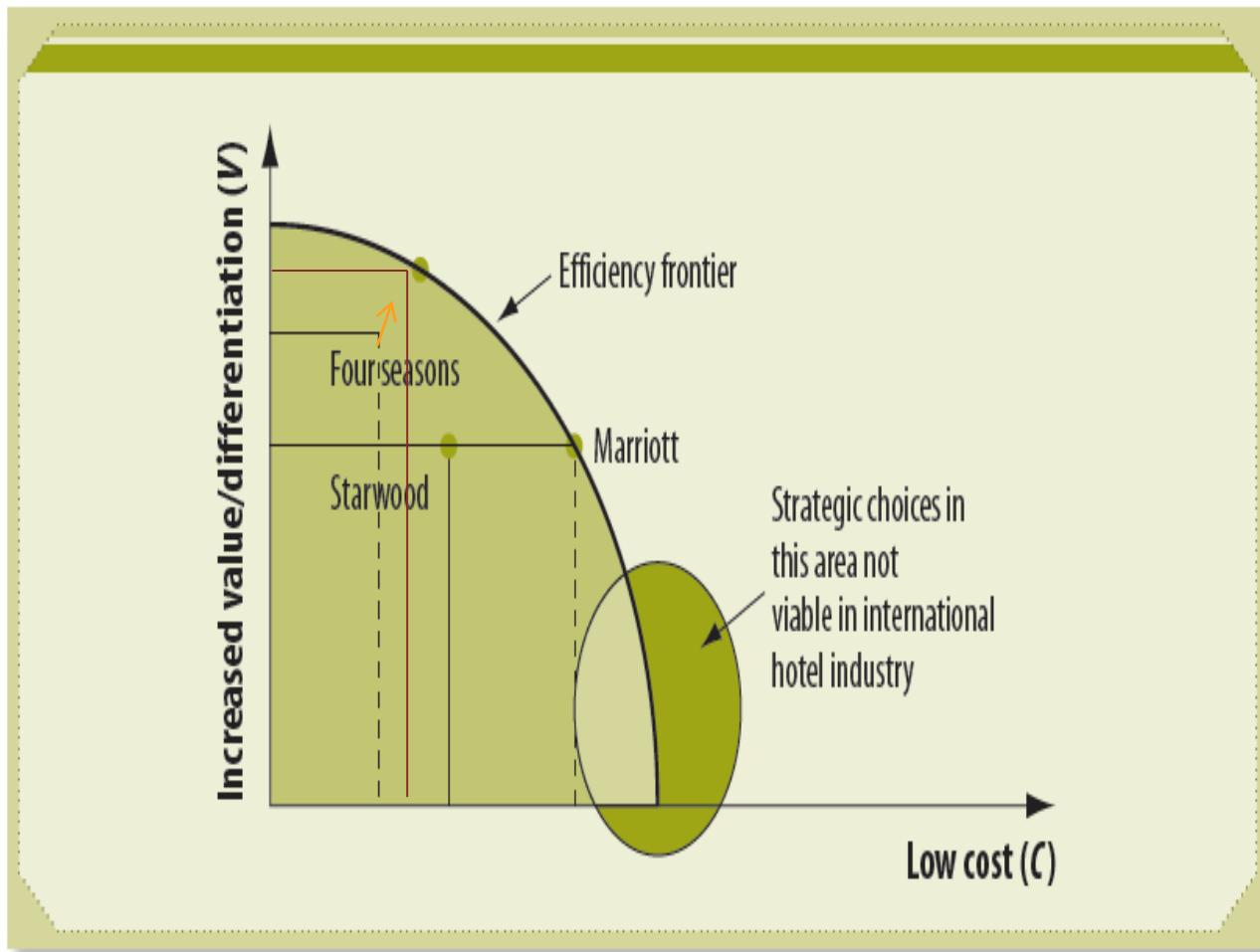
- Internal transfer of emissions (BP, Shell); diversified portfolio of products (Daimler)
- Supply chain measures (DELL requires its most important suppliers to disclose information about emissions)
- Acquisition of credits (offsets from CDM,JI and voluntary markets)

# Porter and strategic positioning of a business

- Michael Porter – “choose either **differentiation** or **low cost**, and then configure internal operations to support the choice”



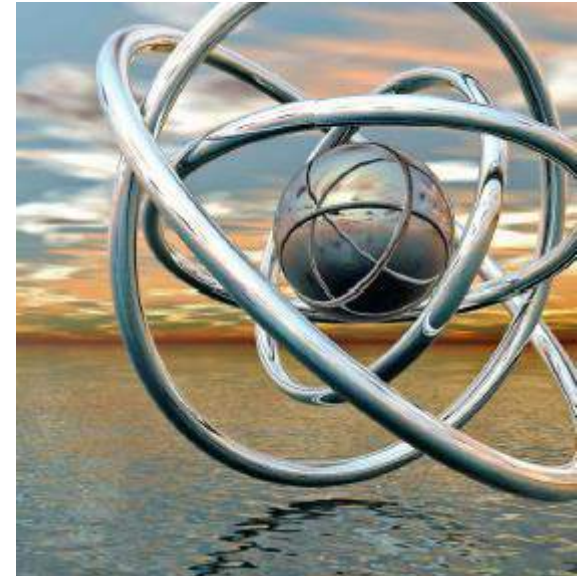
# Strategic positioning - An example from the international hotel industry





# Strategic positioning - An example from the international hotel industry

- In the previous slide, Four Seasons positions itself as a luxury chain and emphasises the value of its product offering
- Marriot and Starwood offer sufficient value but are not luxury chains
- Budget hotels and backpacker places position themselves as low cost options but they feature less in this market segment (hotels with a global presence)
- Imagine a product differentiation, in terms of green product offerings, Carbon neutral or Low Carbon products
- Can you apply this model to your chosen firm/sector?



# Strategic opportunities in managing carbon constraints

Three areas to gain competitive advantage:

## 1. Minimising additional costs

- Diversifying fuel consumption to allow flexibility to exploit divergent price trends that competitors locked in
- Active carbon asset management to reduce potential exposure to carbon price fluctuations
- Public/shareholder public relations enhance sales or share price

# Strategic opportunities in managing carbon constraints

## 2. Product differentiating through bundling

- Fuel supplier might be able to secure low-cost carbon credits and offer electric utilities short on permits a combination of fuel and credit product that matches its customer allowances
- An insurance company may offer a package of insurance and carbon credits to offset emissions from a new build

# Strategic opportunities in managing carbon constraints

## 3. Turning carbon credit supply into a profit centre

- Projects specifically designed to offer low cost reductions
- Speculation that the carbon credit market may become the largest traded commodity in the world!

# Summary

- McKinsey and Co present six different climate risk for business
- There is a strong case for action by businesses even if the adverse climate change impacts did not eventuate – ‘No regrets’ strategy
- Corporate positions related to climate change are influenced by several factors: external; industry-related and company-specific
- Pinkse & Kolk matrix presents 6 specific business strategies based on the firm’s intent and structure
- Firms can differentiate their offerings using climate change-related sustainable strategies

## A useful Reference

Tang, K. and Yeoh, R. (eds.) (2007). *Cut Carbon, Grow Profits: Business Strategies for Managing Climate Change and Sustainability*, Middlesex University Press.

Thank you