Preserving Value through Climate Change Adaptation

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September 2014
Natural disasters in Australia – insured losses

Source: Insurance Council of Australia, Risk Frontiers
Accumulation of wealth in disaster prone areas is and will always remain by far the most important driver of future economic disaster damage.

(Risk Frontiers)

Source: Insurance Council of Australia, Risk Frontiers
The likely impact on firm value

Firms will rationally adapt some of their assets and not others, based on **expected loss** and **adaptation costs**.

- Similar valuation techniques can be applied to both assets and operations.
- Assets/ops whose adaptation is economically unfeasible will be neglected while the economically feasible assets will enjoy adaptation benefits.
- These actions aggregated at the firm-level are reflected in its risk-return profile.
**The use of Big Data and Data Science to detect the shift in value**

**Lower order effects**  
*Businesses can only react to what they see within their own data*

<table>
<thead>
<tr>
<th>Possible Observations</th>
<th>Underlying Drivers</th>
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<tbody>
<tr>
<td>Observed temperatures</td>
<td>Forecasts and observations at a global level do little to motivate businesses to engage in adaptive practices.</td>
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<tr>
<td>Rainfall level and intensity</td>
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<td>Flooding frequency</td>
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<td>Excess wind speed</td>
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<td>Rising insurance costs</td>
<td>First order effects are generally easily observed and measured, but can be explained away as being caused by non-climate change effects.</td>
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<td>Rising energy consumption</td>
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<td>Worker absenteeism and separation</td>
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<td>Failure rates on plant and equipment</td>
<td>The second order effects motivate only incremental adaptation.</td>
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<td>Productivity losses</td>
<td>Incremental effects do not usually promote transformational change, unless advances in Big Data and Data Science techniques point to transformational advantages.</td>
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<td>Asset and operational stress indicators</td>
<td></td>
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<tr>
<td>Maintenance costs</td>
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</table>
The use of Big Data and Data Science to detect the shift in value

Effects evident at all levels

**Financial Value Drivers**
- Price
- Volume Discounts
- Material Costs
- Labor Costs
- Equipment Costs
- Fuel Costs
- Contractor Charges
- Industry Structure
- Competitive Position
- Sustainability
- Working Capital
- Property, Plant & Equipment
- Capital Structure
- Cost Debt
- Cost of Equity

**Operating Value Drivers**
- Mine Planning
- Supply Chain Efficiency
- Overall Equipment Efficiency
- Production Performance
- Equipment Utilisation
- Maintenance
- Fuel Tracking and Recording
- Fuel Usage
- Compliance
- Management and Reporting
- Workforce Turnover
- Training and Development
- Ability to manage Contractors
- Reporting Frameworks
- Performance Regimes
- Ability to manage/control costs

**Analysis**
- Incremental
- Transitional
- Transformational

**Theory**
- Filters + Signals

**Application**
- Financial + Operational outcomes

The use of Big Data and Data Science to detect the shift in value

- Incremental
- Transitional
- Transformational
Questions?

Corporate Data

Predictive Analytics

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