MAKE TOMORROW TODAY: CLIMATE RELATED RISKS AND OPPORTUNITIES

13 MARCH 2018

INVESTOR TIMELINE CHALLENGE

NEW ACTION!
MONITOR CLIMATE RISK FACTORS

QUARTERLY REVIEWS: 3 MONTHS
ANNUAL REVIEWS: 1 YEAR
STRATEGIC REVIEWS: 3–10 YEARS

MODELLING PERIOD FOR THIS ANALYSIS: TO 2050

MOST SIGNIFICANT CLIMATE CHANGE IMPACTS: BEYOND 2050

THE INVESTOR ZONE
THE CLIMATE ZONE
HOLISTIC CLIMATE RISK MANAGEMENT
PORTFOLIO RISK ASSESSMENT METHODS

TOP-DOWN
- Asset-Liability Modeling
- Manager Monitoring / Selection Process

INVESTMENT RISK MANAGEMENT STRATEGY

BOTTOM-UP
- Company, Sector, and Geographic Analysis
- Direct investment process

CLIMATE CHANGE AS AN INVESTMENT ISSUE
FROM SCENARIOS TO INVESTMENT IMPACTS

SIGNIFICANT INCREASES IN GHG EMISSIONS ARE RAISING AVERAGE TEMPERATURES AND CHANGING THE EARTH'S CLIMATE

Temperature Increase by 2100

1°C Today - already driving some physical damages
2°C 'Safe' range for humans, but with meaningful damages expected
3°C Not seen for 3 million years, with highly disruptive damages expected
4°C Not seen for tens of millions of years, with severe damages expected

Low-carbon energy transition
- Policy changes to influence that transition
- Technology to enable that transition

Physical damages
- Impacts of sea level rise, storms, wildfires
- Resource availability of water and food

Potential financial impacts mean considering climate change is increasingly expected under fiduciary duty obligations
TRIP CLIMATE RISK FACTORS

Transition Risks

Physical Risks

<table>
<thead>
<tr>
<th>Technology</th>
<th>Resource Availability</th>
<th>Impact of Physical Damages</th>
<th>Policy</th>
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<tr>
<td>The rate of progress and investment in technology supporting a transition to a low-carbon economy.</td>
<td>The impact of chronic weather patterns (long-term changes in temperature or precipitation) on resource production and availability.</td>
<td>The impact of acute weather risk (that is, extreme or catastrophic events) on physical assets and supply chains.</td>
<td>Regulations meant to reduce the risk of further climate change from human-induced greenhouse gas emissions.</td>
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ESTIMATING CLIMATE IMPACT ON RETURN
CALCULATING MODEL OUTPUTS

CLIMATE SCENARIOS \times \text{CLIMATE RISK FACTORS} = \text{INVESTMENT IMPACTS}
ASSESSING CLIMATE RISK
INVESTOR IMPLICATIONS – 2°C SCENARIO

WHAT IS THE INVESTMENT RISK FROM CLIMATE CHANGE?

- 2°C scenario has greatest near-term (i.e. 10 year) impacts
- Asset classes and sectors matter – review “at risk” sectors
- Consider increasing exposure to sustainability-themed investments

10 YEAR MEDIAN ANNUAL RETURN IMPACTS – ASSET CLASSES

10 YEAR MEDIAN ANNUAL RETURN IMPACTS – SECTORS

SUSTAINABLE OPPORTUNITIES
GLOBAL DEMAND DRIVERS

RESOURCE PRESSURE

40%
ENERGY DEMAND GROWTH TO 2040 (IEA)

60%
INCREASE IN FOOD PRODUCTION BY 2050 (FAO)

40%
GLOBAL FRESHWATER DEMAND-SUPPLY GAP BY 2030 (WRG)

MARKET / DEMAND GROWTH

$5tn
VALUE OF LOW CARBON BUSINESS OPPORTUNITIES BY 2030 (BSDC)

10%
LOW CARBON ECONOMY ANNUAL GROWTH RATE – TO 2020 (HSBC)

$500+bn
ANNUAL INVESTMENT TO 2040 IN RENEWABLE POWER NEEDED TO MEET 2DC TARGET (BNEF)

LOW CARBON ECONOMY

$600bn
ANNUAL REVENUES FROM LOW CARBON TECHNOLOGIES (GS SUSTAIN)

30%
RENEWABLES SHARE OF GLOBAL ENERGY BY 2020 – TO STAY WITHIN 2DC WARMING TARGET (MISSION 2020)

$3tn
GLOBAL INDEX MARKET VALUE DERIVED FROM “GREEN REVENUES” (FTSE)
FUTURE PROOFING YOUR PORTFOLIO REQUIRES A NEW APPROACH TO “PERFORMANCE”

For example, performance of Mercer’s Sustainable Strategies include comprehensive sustainability / ESG monitoring.

- **Sustainability Themes:** Impact Metrics & Examples
- **ESG Integration:** Ratings Comparisons
- **Stewardship:** Voting and Engagement Activity
- **Climate Metrics:** Carbon Footprinting
- **Exclusions:** Compliance Monitoring

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INSTITUTIONAL INVESTORS WHERE TO FROM HERE?

THE WORLD IS MADE UP OF FUTURE TAKERS, AND FUTURE MAKERS. WHICH ONE ARE YOU?
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