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CLIMATE CHANGE AS AN INVESTMENT RISK:
ASSET OWNERS PERSPECTIVE

Pavel Kirjanas

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Abstract

A growing evidence suggests that climate change should be viewed as a financial risk that has to be factored into investment decision making. This study has taken a look at how institutional asset owners view their portfolio exposure to climate investment risk. The topical literature and existing to date research was reviewed. The interviews with the representatives of UK's largest institutional asset owners were carried out. The study found that the climate investment risk is largely recognised among institutional asset owners, though levels of recognition vary. Generally, the risk is perceived to be lower and less probable than that projected by researchers. The underlying causes of varying degrees of climate investment risk recognition are found to be in short-termist approach to investment and high reliance on third parties to manage climate investment risk.

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Abbreviations and acronyms

AODP – Asset Owners Disclosure Project

COP – Conference of the Parties (annual summit of the United Nations Framework Convention on Climate Change (UNFCCC) signatories)

CTI – Carbon Tracker Initiative

GRI – Grantham Research Institute for Climate Change and the Environment at the London School of Economics and Political Science

IEA – International Energy Agency

IPCC – Intergovernmental Panel on Climate Change

IPIECA – the global oil and gas industry association for environmental and social issues (formerly International Petroleum Industry Environmental Conservation Association)

PRI – United Nations-supported Principles for Responsible Investment initiative

1. Introduction

*This is not so much about limiting business impacts on the environment,
but about limiting the environment's impact on business.*
Seb Beloe, Head of Sustainability Research at WHEB (2012)

A growing consensus says that global action against climate change will most likely lead to financial disincentives and bigger financial losses when governments agree on a mechanism to restrict emissions and the exploitation of fossil fuel reserves (IEA, 2013). This would have major implications for institutional asset owners.

The impact of investors' activities on the climate (known as 'look inside out') had been part of the debate for some time now, however, the discussion has now shifted towards understanding how changing climate may affect the investment environment (known as 'look outside in') (Porter and Reinhardt, 2007). It is forecasted that the management of natural capital will be integral to investment performance over the next few decades (Beloe, 2012).

We see to date there has been little substantial research into investor actions upon sustainable investment. It would be clearly of interest to learn therefore how UK's largest institutional asset owners view their portfolio exposure to climate investment risk.

Research objectives:

- To identify how portfolio exposure to climate investment risk is viewed by a sampling of the UK's largest institutional asset owners.
- To examine the causes of varying institutional approaches towards climate investment risk.
- To examine differences in perception between professionals working in investment versus experts from academia, consultancies, and advocacy groups.

The paper is organised in the following manner: first, the study is set to review the topical literature and outline the boundaries of the known domain of climate change as a financial risk. Subsequently, the methodology of the qualitative research that was carried out is discussed. Finally, the paper aims to analyse and critically evaluate the differences in climate investment risk perception of the interviewees compared to the literature. As a result, the probable causes of varying institutional approaches are identified, implications are discussed, and the recommendations are given.

2. Literature Review

Institutional asset owners are now required to consider an increasing number of investment risks (Murningham and Grant, 2013), and a notable proportion of those risks are not financial in nature. In recent years, however, we have learnt of mounting evidence of the financial materiality of non-financial issues (ibid.). Arguably, the most pressing of those issues is climate change. As Rajendra K. Pachauri, chairman of the IPCC, put it, “Nobody on this planet is going to be untouched by the impacts of climate change” (Gillis, 2014, np). In this section, based on the literature from academia, consultancies, and advocacy groups, it will be shown that climate change can and should be viewed as a financial risk that has to be factored into investment decision making.

2.1 Stranded Assets

A rather common and hotly debated understanding of climate investment risk is that of stranded assets, which largely draws on the concept of ‘carbon budget’. Carbon budget (with ‘carbon’ denoting carbon dioxide (CO₂) here and henceforth) refers to total allowable emissions of greenhouse gases globally in the period up to 2050 in order to keep global warming below two degrees Celsius (2°C), compared with pre-industrial levels, as agreed by global governments under the Cancun Accord at COP-16 in 2010 (IEA, 2013). This budget, however, is not fixed; in fact, it fluctuates depending on different scenarios with various probabilities (see *Appendix 1*), leaving space for speculation.

Carbon budget informs the concepts of ‘unburnable carbon’ and ‘stranded assets’. Burning and converting to energy all fossil fuels listed on the world’s capital markets will inevitably breach the global carbon budget (Ward, 2013). IEA (2012) had previously estimated that only a third of total fossil fuel reserves can be burnt. This was further confirmed by the GRI analysis (Ward, 2013), which adjusted the estimation to 40% in what they called ‘the idealised scenario’ and just 20% taking a precautionary approach. 60–80% of fossil fuel reserves of listed coal, oil and gas companies are therefore unburnable, yet they are assigned value in the financial statements of those companies. When such reserves lose value or turn into liabilities before the end of their expected economic life due to being unburnable, they become stranded assets. These findings pose a major risk for investors, and an even bigger threat to the global economy if current investment trends continue (IPCC, 2014; Mercer, 2015).

While it has been argued that markets are mispricing risk by valuing companies as if all their reserves will be burned, IPIECA (2014) and several other representatives of the fossil fuel industry (Hone, 2013; Statoil, 2015) have called those arguments speculative and suggested they were based on a number of assumptions, the most prominent of all being the belief that global governments will actually act upon the Cancun Accord and

commit to drastically cutting carbon emissions. Such a view is not ungrounded, as the Paris agreement, expected to be forged at COP-21 in 2015, will be largely based on individual nations' pledges, which then have to be held to account – the process that is historically known to be flawed, most notably US Congress having never ratified the Kyoto Protocol signed at COP-3 in 1997, with a subsequent withdrawal of Canada (Clark, 2015).

Regulation, however, is not the only risk able to strand assets. Research (Caldecott and McDaniels, 2014; Paun et al., 2015) has identified a number of further drivers, including economics (fall of oil prices), technology innovation (energy efficiency and advancements in renewables), litigation (carbon liability), evolving social norms and economic behaviour, etc. The Russian rouble collapse in late 2014 and an ongoing financial crisis is an example of how a potential fall in fossil fuel prices might take a heavy toll on an economy (although other important factors, such as international sanctions, have also played a major role (Gregory, 2015)).

Mercer (2015) has factored some of the aforementioned drivers into their investment modelling analyses, which showed the inevitability of the impact of climate change risks on investment returns. Investors are therefore urged to hedge their position by viewing climate change as an investment variable, shifting governance focus beyond the next quarter, and giving due attention to long-term issues (ibid.). GRI (Ward, 2013) reinforces this stance by suggesting that, given the situation, the investment process is flawed, as it defines risk as a deviation from the performance or market benchmarks. Evaluating investment against such benchmarks, which are based on past performance, might become inadequate in the light of newly evident long-term climate-related risks. It is thus clear that business-as-usual is no longer an option and short-termism would jeopardise investment goals.

2.2 Climate Degradation

Stranded assets is not the only financial risk to be taken into account. A warmer climate is bound to result in severe environmental change and natural capital depletion and degradation, posing systemic risks to financial stability (Caldecott and McDaniels, 2014). Mercer (2015) reports that, under a four degrees Celsius (4°C) scenario, chronic weather changes would negatively affect asset classes such as agriculture, timberland, real estate, and emerging market equities. VICE News (2015) brings to our attention that if low-lying nations are to be wiped off the map due to rising sea levels, it will have grave economic repercussions for nation states hosting climate refugees. Those are the risks seen on the longer investment horizon, but if not addressed now, they would have tremendous financial ramifications in the not-so-distant future. Such dichotomy of the two realities is highlighted in the Carbon Trust (2015) report: most businesses recognise that more radical changes are needed to face yet seemingly distant challenges, but suffice themselves with a modest change in order to meet today's needs.

2.3 Implications for Investors

In 2014, Second Swedish National Pension Fund (AP2, 2014, np) has notably divested from 12 coal and 8 oil-and-gas production companies, having stated that it is 'highly likely' that these companies may lose value due to 'serious climate-related financial risks' such as stranded assets. In fact, HSBC Global Research (Paun et al., 2015) identified 23 institutional asset owners (mostly American and European endowments and pension funds) who announced full or partial divestment from fossil fuel companies in the period from 2013 to 2015. Although divestment is not the sole strategy for managing climate investment risk, a growing number of institutional investors taking this pathway signals a certain solidarity of the investment community with the research professionals.

A number of academics have examined the implications of climate investment risk for institutional asset owners. Jones et al. (2013) have modelled the impact of resource constraints on the actuarial profession. Brimble et al. (2010) looked at the regulatory role in managing climate investment. Baker (2009) and Guyatt et al. (2012) elaborated on the strategical decision making in relation to climate change uncertainty. The question clearly remains how institutional asset owners view their portfolio exposure to climate investment risk. This is the very problem that the current paper seeks to investigate.

3. Methodology

From the literature review herein, it is evident that further research is required into the institutional investors' perspective on climate change as an investment risk. The key research question of this study is how institutional asset owners view their portfolio exposure to climate investment risk. In particular, the paper will examine the extent of recognition of climate investment risk and approaches to its management among UK's largest trust-based defined contribution schemes (see below).

The following procedure was employed to identify relevant participants. The AODP (2015a) *Global Climate 500* index that has rated and ranked world's largest institutional asset owners (including pension funds, insurance companies, sovereign wealth funds, and endowments) was taken as the basis for this study. Further filtering criteria were applied:

- The United Kingdom was selected as a geographical relevance criterion.
- 'Leaders' were separated from 'laggards', i.e. D and X rated investors, according to the AODP (2015b) methodology and rating. 'Laggards' have been identified by AODP to do little or nothing to address climate investment risk, and are therefore of limited relevance to this study.
- Trust-based schemes were separated from contract-based funds due to differences in regulation. The latter are regulated as financial products, whereas the former have designated fiduciaries (usually the Board of Trustees) who are legally bound to 'exercise their investment powers in the interests of members and beneficiaries' (The Pensions Regulator, 2015, np), the concept also known as 'fiduciary duty'. Some activist lawyers have argued that the need for asset owners to account for climate change related investment risks sits at the core of their fiduciary duty (Smith, 2015).
- Defined contribution (DC) schemes were separated from defined benefit (DB) and hybrid schemes. Members of DB schemes receive pension promised by the provider, which doesn't depend on investments. Members of DC schemes have to deal with a fluctuating value of their pension depending on investment performance (Gov.uk, 2015). They are directly affected by the investment decisions of their fiduciaries.

The pool of institutional investors directly accountable for investing beneficiaries' money was thus created. From it, key persons were singled out and subsequently contacted requesting a research interview. By talking to the identified representatives of the investment industry, it was anticipated to get a first-hand perspective on climate change viewed as a financial risk by institutional asset owners. Due heed was paid to ethical issues throughout the process. The interview questionnaire was compiled based on the literature review section. The semi-structured approach was chosen in order to have flexibility in addressing individual issues different asset owners deal with. The interviews

with three representatives of different asset owners were carried out either remotely or in person, recorded (having asked for permission verbally), anonymised, and transcribed to allow for further data collation and analysis. The main themes used for further analysis emerged from the common threads in the interviews. The synthesis of the interview data was achieved by adapting the procedure used by Killian (2010). The findings are presented and the conclusions are drawn in the sections that follow. Due to the small sample size and a limited scope of the research, the claims that are further made can only be viewed in the context of the current case study, and they are not representative of the investment industry as a whole.

4. Findings

The research has found that the climate investment risk is largely recognised among institutional asset owners, though levels of recognition vary. Generally, the risk is perceived to be lower and less probable than that projected by IPCC (2014), Mercer (2015), and other researchers, as described in the Literature Review section. The underlying causes of varying degrees of climate investment risk recognition are found to be in short-termist approach to investment and high reliance on third parties to manage climate investment risk.

This section explores the major themes that have emerged from the interviews (see *Table 1*), while the section that follows discusses research findings in more detail and examines the differences in the perception of climate investment risk between institutional asset owners and the literature review.

Main themes:	Interview with a Trustee Chair (AO1)	Interview with a Head of Investment Operations (AO2)	Interview with a Sustainability Manager (AO3)
Recognition of climate investment risk	Recognises to a level of being aware of it	Recognises across various asset classes	They are going to measure the carbon footprint of their portfolio
Low perceived risk of climate investment	Doesn't see it as a big or probable risk; still sees fossil fuels to be profitable in the long run	Admits it's not a risk they quantified; still sees potential in fossil fuel investments; talks about sustainability premium	Admits their trustees are uncertain about the issue and the research behind it
Short-termist approach to investment	Thinks climate risk is only to be looked at if it is affecting the industry at present	Views short-termism as a 'natural thing'	Believes in investment in fossil fuels despite having admitted its long-term loss-making
High reliance on third parties to manage climate investment risk	Believes asset managers are able to make the best decision and are not to be instructed	Their board considers forming a directive, but currently only delegates responsibility	They only provide third parties with the relevant information, then rely on their decisions

Table 1. Research Findings

5. Discussion

An analysis of the interviews revealed four broad themes of the differences in the perception of climate investment risk and their underlying causes. Those are: recognition of climate investment risk, low perceived risk of climate investment, short-termist approach to investment, and high reliance on third parties to manage climate investment risk.

5.1 Recognition of climate investment risk

The research has found that the climate investment risk is largely recognised among institutional asset owners, though levels of recognition vary. While AO1 believes she has to be aware of the risk in her role, AO2 fully recognises the risk on the personal level, but admits that their institution hasn't yet quantified or addressed the risk as needed. At the moment of interviewing AO3, they were planning to quantify the risk by measuring the carbon footprint of their portfolio and then taking appropriate actions.

This finding should not be surprising per se, as all represented asset owners were rated highly on the AODP Global Climate 500 index, meaning they have taken certain actions to address and manage the risk posed by the likelihood of stranded assets and climate degradation, as outlined in the literature review. However, the implications of this finding inform the causes of varying approach to managing climate investment risk on the portfolio level.

5.2 Low perceived risk of climate investment

Generally, the risk is perceived to be lower and less probable than that projected by IPCC (2014), Mercer (2015), and other researchers. In fact, some see it as “one in one thousand years event” (AO1), whereas research suggests it's going to be a variety of devastating events that are almost certain to happen if two degrees target is not achieved (IPCC, 2014; Mercer, 2015). Others admit to having a limited knowledge on the topic.

When asked to comment on the industry as a whole, interviewees were succinct: “For a lot of asset owners, I don't think this risk is a big issue” (AO1). “They don't believe that this is something they have to get worked up about at this time, rightly or wrongly. It's a challenge to get it up the agenda” (AO2). This indicates that AP2 (2014) and 23 others (Paun et al., 2015) who have recently shown solidarity with the issue might as well be the only institutional asset owners perceiving climate investment risk as high.

Such understanding may be conditioned by a strong belief in profitability of fossil fuels. Two of the three persons interviewed believed that fossil fuel industry still has potential.

The third person admitted that the business case for coal was clear-cut, yet she still hoped that the profitability might be restored due to technological advancement (such as carbon capture and storage) or failure of global governments to form an agreement at COP-21. A belief forms the basis for such thinking, therefore, belief in profitability of fossil fuels will result in a lesser interest in sustainable investment, and, vice versa, belief in sustainability premium will result in shifting capital away from carbon-heavy investment:

It's difficult, but it does involve a belief, because essentially what you're saying is that these types of assets should be avoided, because the risk/return trade-off is not as good as for investment in a sustainable company. And the reason why that trade-off isn't so good is because actually all these risks (regulatory, political, etc.) that are associated with these, are not associated with these other companies. There is a tie-up between sustainable investing and thinking that there is a sustainability premium that you can get by investing away from mining, oil companies, and so on. (AO2)

The recent history of subprime mortgage crisis demonstrates that risk can indeed be mispriced. This parallel was voluntarily drawn by one of the interviewees, and yet she failed to apply same judgement to climate investment risk:

There could be an event any day that makes us say 'why didn't we pay any attention to that'. Governance is an enormous risk. [...] With a benefit of hindsight, we look back on the financial crisis, we all knew that nobody had a clue of what they were doing in the banks. You would say that governance is a long-term risk, but then something happens, and the whole thing blows a huge hole in your portfolio. (AO1)

5.3 Short-termist approach to investment

The underlying causes of varying degrees of climate investment risk recognition are found to be in short-termist approach to investment and high reliance on third parties to manage climate investment risk.

AO1 boldly stated that it isn't her job to consider those risks unless they take place at present. AO3 admitted that investments in fossil fuels had no future, yet was willing to stick to them while they are still profitable, foregoing long-term risks. AO2 summarised: "That's just a natural thing, the way the system just doesn't respond to long-term threats".

The dichotomy of the two realities that was highlighted in the Carbon Trust (2015) report was clearly evident throughout the interviews:

Whereas lots of the climate change, we should be changing things now, in order to be in a better position in a 50 years time, no doubt about that, but the reality is that people just don't have that longer horizon when it comes to investment. (AO2)

5.4 High reliance on third parties to manage climate investment risk

Ultimately, who is responsible for addressing climate investment risk? Persons interviewed had varying perspectives on the issue. While AO3 was exercising caution by saying that their trustees were 'not yet ready' to take on responsibility, AO1 was rather direct in dismissing the idea of managing climate investment risk as a part of her fiduciary duty: "It's not my job to use [beneficiaries'] money to write social or environmental roles in the world". PRI (2015) contradicts: "a decision not to invest in a high-carbon asset because of financial concerns about stranded assets is likely to be seen as consistent with fiduciary duties".

AO2, on the other hand, had a different perspective. According to him, trustees themselves need to decide whether managing climate investment risk is a part of their fiduciary duty. This belief would underpin their investment strategy. Such his position goes in accord with the recommendations of the Mercer's report:

To embed these considerations in the investment process, the first step is to develop climate-related investment beliefs alongside other investment beliefs. These can then be reflected in a policy statement, with related investment processes evolved accordingly. (Mercer, 2015)

While asset owners ponder whether managing climate investment risk is a part of their fiduciary duty or not, they entrust third parties with this responsibility. All three confirmed they relied on the sustainability policies of their asset managers to address the issue. In fact, AO1 was strong in her belief that asset managers had higher expertise in it than her, and, therefore, she had no right to 'second-guess' them.

6. Final section

This study has served to expand knowledge in the field of sustainable investment. It showed the varying levels of climate investment risk acknowledgement. The argument that has been developing since at least COP-1 in 1995 doesn't seem to have fully convinced institutional asset owners. The short-termist approach still prevail.

The implications for policy and practice are therefore grave. As investors are unlikely to lead the necessary change, austere regulation is needed to set the framework for investment actions.

The findings of this study should be interpreted with caution as the author only looked at a small sampling of institutional asset owners narrowed down by strict criteria for inclusion, thus, results are expected to be skewed.

Further investigation is required to corroborate the findings. Future research might also shift the emphasis from the supply side (fossil fuel companies) onto various approaches to satisfying the demand (renewable energy, advancements in technology).

Finally, recommendations for the industry are put forward:

- Asset owners should work alongside with researchers accessing climate investment risk in order to achieve the level of detail that both parties are happy with.
- Asset owners should seek longer investment horizon to be able to address long-term risks.
- Asset owners should take ownership for managing climate investment risk and decrease reliance on third parties.

Appendices

Appendix 1: Analysis of carbon budgets

Each temperature target implies a different carbon budget. Here we explore the carbon budgets for temperature rises of 1.5, 2.0, 2.5 and 3.0°C. For each temperature rise we provide budgets which give a 50% probability and an 80% probability of limiting global warming to that level.

The following are the fossil fuel carbon budgets from 2013 to 2049, taking into account annual emissions so far this century:

Maximum temperature rise (°C)	Fossil fuel carbon budget 2013–2049 (GtCO ₂)	
	50%	80%
Probability of not exceeding temperature threshold		
1.5	525	-
2.0	1075	900
2.5	1275	1125
3.0	1425	1275

This budget, however, is only a fraction of the carbon embedded in the world's indicated fossil fuel reserves, which amount to 2,860 GtCO₂.

Source: Ward, 2013.

Appendix 2: Interview questionnaire

1. Do you consider the need to respond to climate change-related investment risk as a moral issue or a business case?
2. What is your position on stranded assets risk in the most exposed fossil fuels sectors (i.e. North American coal production; tar sands oil in Canada, and various deep offshore oil plays)?

CTI says: Stranded assets are fossil fuel energy and generation resources which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return (i.e. meet the company's internal rate of return), as a result of changes in the market and regulatory environment associated with the transition to a low-carbon economy.

3. What is your policy on portfolio decarbonization as an investment strategy? What is your perspective on the UNEP FI's Portfolio Decarbonization?

Decarbonization is the process through which investors reduce portfolio exposure to greenhouse gas emissions and align their portfolios with the climate economy of the future. This includes current emissions as well as future emissions such as those embedded in fossil-fuel reserves. There are different approaches to portfolio decarbonization which can be achieved across asset classes, including engagement, divestment, as well as techniques such as 'best-in-class' and 'negative screening'.

4. Have you tracked whether the implementation of aspects of a portfolio decarbonization policy affected your financial returns?
5. Is climate change risk an issue, which you feel asset consultancies provide adequate advice on? How do you feel asset managers rate in managing climate change risk?
6. Do you consider protection of your fund's investments from the risks associated with high-carbon assets as part of your fiduciary duty to protect member savings and maintain returns?
7. How would you rate the ability of many UK's largest institutional asset owners to protect the investments of their members from carbon and climate risk? How does the UK financial industry perform with regards to peers in Europe and other jurisdictions with regards to reporting and disclosure on climate risk?

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