



# PRI ACADEMIC NETWORK RI QUARTERLY

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## ‘LONG TERMISM’ IN FINANCIAL MARKETS

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**The PRI Academic Network's** goal is to bridge the gap between responsible investment research and practice. We bring academics and practitioners together, showcasing the best academic research to the investment industry, and ensuring that academia is responding to the research needs of investors and producing research that can help create a sustainable financial system.

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**The RI Quarterly** is produced by the PRI Academic Network and aims to be the go-to publication for investment professionals and anyone needing the latest research on responsible investment, but without the time to read through the original papers. Every issue will focus on a number of academic papers around a theme selected by the PRI's Academic Fellow, extracting the essentials of the argument and giving key findings in a clear and concise manner.

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# INTRODUCTION

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## TOWARDS MORE RESEARCH ON LONG TERMISM: A CALL FOR ACTION

Why is there so little academic research on long termism in financial markets? From a sustainability angle, this question is crucial. Particularly since creating a sustainable global financial system, which is the PRI's mission, depends on long term thinking and decision making. In other words, if the majority of market participants base their decisions predominantly on short periods in the near future, then too many market participants ignore the potentially large risks waiting after these short periods. An indication of how catastrophic these risks can be is illustrated by the recent global financial crisis. Hence, without a fundamental understanding backed by research on which factors motivate investment decision makers to focus on the long instead of the short term, creating a sustainable global financial system appears very challenging if not impossible.

However, policy makers have a substantial and increasing interest in long termism in financial markets – and, along with institutional investors such as CIPPIB's Mark Wiseman – are setting the scene in “long term capitalism” through work such as the UK's Kay Review, European Commission's work on long term financing, and the DEFRA risk assessment (illustrated here in “Climate Change Risk Assessment for the Biodiversity and Ecosystem Services Sector (2012)”, paper 4). So given that Finance academics teach thousands of students whose job it will be to serve institutional investors, sometimes as a future CIO, and given that academia is substantially funded by the tax payer, why have Finance academics been so sparsely interested in researching long termism in financial markets? Why does it take until 2012 for clever academics (i.e. Cremers and Pareek) to develop a recognised measure of the “length of time that institutional investors have held a stock in their portfolios” (Cremers, Pareek & Sautner, 2013: 3). Why have so few academics studied the valuation effects of legislation supporting long term sustainable financial markets (as Zeume does for the UK Bribery Act 2010 in “Bribes and firm value”, paper 3)?

The pessimist in me fears that many Finance academics do not recognise much responsibility deriving from their public funding and instead see their “market” as an oligopsony with a few editors of so called elite journals being their only relevant clients. The realist in me observes that most Finance Professors do not have a Bloomberg login and depend on an academic Chicago dataset (i.e. CRSP) for their asset pricing research that is only sufficient for US stocks, is inconsiderate of an investable equity index universes and barely known by any institutional investor. However, the optimistic in me sees small signs of change and believes that collaboratively, institutional investors can have a material impact on driving academic research on long termism. They might even be able to nudge academics to teach long termism to their students. Why am I optimistic? Institutional investors and their service providers who are PRI signatories are the clients of thousands of Finance graduates, who they hire every year and on whose tuition fees fund many Finance academics. Hence, if institutional investors were to collaboratively and consistently engage with Finance academics to focus more on the subject of long termism in specific and research relevant to the real world in general, these investor voices would be heard and acted on. A challenge to all our readers.

**Dr. Andreas G. F. Hoepner**  
Senior Academic Fellow, PRI

# LONG-TERM CAPITALISM

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In these articles, Barton and Wiseman outline their view that the short-term approaches to managing and investing in companies, approaches which were responsible for the financial crisis, still exist. Public trust in business and the capitalist system is at a low, driven by rising income inequality, high unemployment, and growing budget deficits, while governments feel increasingly compelled to intervene in the business environment. Major investors could help to restore faith in capitalism and promote a longer-term approach that would benefit both business and society.

Article summary written by Rachel Whittaker

Barton describes three key changes that are needed to shift from “quarterly capitalism” to “long-term capitalism”: a shift from short-term to long-term focus in business and investment, a broader focus on the interests of all corporate stakeholders, not only shareholders, and improving the effectiveness of corporate boards. Barton and Wiseman also outline four practical changes that institutional investors can make to their investment approach to support these systemic changes.

## REFOCUS CORPORATIONS ON LONG-TERM ISSUES

Business executives need to focus on the long-term issues to achieve long-term success, yet there is disproportionate pressure on company management to focus on the short-term. Average Western CEO tenure has dropped from 10 to six years since 1995 despite the complexity and size of companies growing, and the average holding period for U.S. equities was about seven years in the 1970s; today it is “more like seven months”.

Such short term outlooks have consequences. Executives focus their efforts on short-term targets despite the majority of equity value derived by analysts being based on

assumptions of longer-term cash flows. Asset owners, the pension funds, insurance companies, mutual funds, and sovereign wealth funds who hold roughly 35% of the world's financial assets, should have an interest in long-term value creation for their beneficiaries. However, their approach to hiring and assessing fund managers exacerbates the short-term focus through short-term contracts and performance targets. Stewardship advocates suggest big funds should set targets for the number of holdings and rates of turnover as well as performance based targets in their mandates, promoting a longer-term approach and improving asset owners' ability to be more involved business owners.

## SERVE THE INTERESTS OF ALL STAKEHOLDERS, NOT ONLY SHAREHOLDERS

Serving the interests of all stakeholders – employees, suppliers, customers, creditors, communities, the environment – is critical to maximising both long-term corporate and shareholder value. A McKinsey study in 2010 found that a majority of business executives and investors believe that environmental, social, and governance (ESG) initiatives create corporate value in the long-term, but most

### AUTHORS



Dominic Barton



Mark Wiseman

executives do not act on this belief out of fear that the financial markets will penalise their efforts. The outcome is that businesses are losing public trust, particularly in Western countries. The importance of this trend should not be ignored, as capitalism depends on public trust for its legitimacy and therefore its survival.

## IMPROVE BOARDS' ABILITY TO GOVERN LIKE OWNERS

Studies based on family-owned companies suggest that the most effective ownership structure tends to combine some exposure to public markets (for the discipline it engenders and capital access) with a committed, long-term major shareholder. Most large public companies have extremely fragmented ownership, and boards that are unwilling or unable to perform the single-owner-proxy role. As a result, CEOs are influenced by the stakeholders who make the most noise, not those with the long-term interests of the company at heart.



An “ownership-based” approach to corporate governance requires three things: more effective boards, more sensible CEO remuneration, and a new vision of shareholder democracy.

## 1. MORE-EFFECTIVE BOARDS

Non-executive board directors of public companies often spend as little as 12 days a year working with the company, while as many as 80% of non-executive directors lack industry-specific experience. To be effective, boards need to spend more time with the company and have relevant experience and knowledge to help them identify opportunities and reduce risks. In addition, boards need more-effective committee structures and resources to allow them to form independent views on strategy, risk, and performance. In essence, effective non-executive boards must be more professional and have a more meaningful strategic partnership with top management than they currently do.

## 2. MORE-SENSIBLE CEO PAY

There is often a disconnect between CEO pay and performance, contributing to the decline in public esteem for business. In the past stock options were thought to incentivise CEOs to act like owners but in practice short-dated options lead to a focus on meeting quarterly earnings estimates. On the other hand, even longer dated options (vesting after three years or more) can reward managers for simply riding industry- or economy-wide trends. In addition, few compensation schemes carry consequences for failure. Three key changes are needed:

- link compensation to the drivers of long-term value such as innovation and efficiency, not only to long term share price,
- extend the time frame for executive performance evaluations, e.g. rolling three-yearly,
- create downside risk for executives e.g. by requiring significant personal investment in the company through personal share ownership .



### 3. REDEFINED SHAREHOLDER “DEMOCRACY”

The increase in equity turnover in recent years has resulted in a situation whereby at any given annual meeting, a large proportion of voters may soon no longer be shareholders. It may be time for the “one share, one vote” principle of governance to give way to new rules that give greater weight to long-term owners, such as the rule in some French companies that gives two votes to shares held longer than a year, or to assign voting rights based on the average turnover of an investor’s portfolio.

## PRACTICAL APPROACHES FOR ASSET OWNERS

Many large owners have the scale and resources to influence the leaders of the businesses they invest in, but often they do not act like business owners. Instead, they delegate responsibility to consultants and allow investors with shorter time horizons to set equity prices in the public market. Barton and Wiseman suggest four steps that asset owners can take to promote a long-term approach to capitalism that benefits both business and society.

### 1. DEFINE LONG TERM OBJECTIVES AND RISK TOLERANCE

Asset owners should have a strategic plan defining their investment horizon, and acceptable downside risk and variation from benchmarks during this time period. The portfolio should be invested according to these criteria (which, in practice, is likely to mean greater allocations to illiquid asset classes such as infrastructure), and short-term underperformance tolerated if the long-term investment outlook remains good. Fund manager compensation structures should also be reviewed to reward long term performance, such as lower base fees, longer commitment periods and deferred performance-based fees.

### 2. ACTIVE OWNERSHIP OF COMPANIES AND MARKETS

Engaging with company management on their long-term strategy can unlock greater value than simply selling an under-performing stock. Some evidence suggests that active ownership is more effective when done privately, though when public pressure is required to effect change large asset owners can play a leading role. Such asset owners should also participate in regulating and managing the financial markets, promoting financial reform in the best interests of their beneficiaries.

### 3. FOCUS ON LONG-TERM ECONOMIC NOT SHORT-TERM ACCOUNTING VALUE

Asset owners should encourage companies to share measures that truly reflect their long-term economic value, such as 10-year economic value added, and multiyear return of capital investments, and insist that their portfolio managers and analysts actually use this data to facilitate investment decision-making rather than focussing on standard accounting metrics and quarterly guidance.

### 4. INTERNAL GOVERNANCE STRUCTURES SUPPORTING LONG-TERM APPROACH

Asset owners must lead by example and align their own structure with a long-term approach, including experienced and effective boards, and internal policies that reduce short-term pressure and promote long-term interests.



*Barton, D. Capitalism for the Long Term. Harvard Business Review. March 2011. Available at: <http://hbr.org/2011/03/capitalism-for-the-long-term/ar/1>*

*Barton, D. and Wiseman, M. The Big Idea: Focusing Capital on the Long Term. Harvard Business Review, January-February 2014. Available at: <http://hbr.org/2014/01/focusing-capital-on-the-long-term/ar/1>*



# STOCK DURATION AND MISVALUATION

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## AUTHORS



Martijn  
Cremers



Ankur  
Pareek



Zacharias  
Sautner

In *Stock Duration and Misvaluation*, Cremers, Pareek and Sautner (2012) empirically investigate whether the presence of institutional investors with short investment horizons has an impact on stock prices. They conclude not only that short-term investors have a predictable impact on stock prices, but also that the length of time institutional investors tend to remain invested in a company increased slightly between 1985 and 2010, in contrast to the commonly held view that investor time horizons in general are shortening. Their findings fuel the ongoing public discussion of the impact that shorter investment time horizons can have on financial market efficiency, or on the actions of corporate management who may be influenced, or directly incentivised, by one- to two-year stock price movements.

Article summary written by Rachel Whittaker

From analysis of US equity prices over a twenty-five year period and the length of time that institutional investors remain invested in individual companies, Cremers et al demonstrate that an increase in the proportion of short-term institutional investors in a stock leads to a corresponding increase in the stock price. The price change tends to reverse over the following two years as the proportion of short-term investors in a stock returns to the average level. This pattern occurs with such regularity that the authors believe it indicates the initial price change is unrelated to a change in the outlook for the company, i.e. it is likely to be a price 'bubble' or a "speculative component", driven by the presence of short-term investors. The price reversal trend appears to be

strongest among the most over-valued stocks and stocks with characteristics such as illiquidity that make arbitrage (and thus correction of the pricing anomaly) less likely.

The core of the paper presents statistical evidence supporting the authors' conclusions, with the analysis focusing on a new method of measuring average investor holding period – stock duration. Stock duration is defined as the average length of time that each investor has held a particular stock (based on quarterly reported institutional holdings), averaged across all investors in that stock and weighted by the size of their holding. It differs from traditional methods of calculating investor holding period, such as share turnover, by considering the holding period for individual stocks not an average for all stocks. This is a critical assumption because in practice there can be a wide range of holding periods between the stocks held by an institution in different portfolios, or even within a single portfolio.

Using the stock duration method, Cremers et al find that institutional

investors' average holding period increased from 1.2 years to 1.5 years between 1985 and 2010. This finding contrasts with conclusions based on share turnover (the number of shares traded divided the number of outstanding shares), which grew by about 300% over the same period suggesting that average holding period decreased, and also contradicts conclusions based on fund turnover, which imply that the holding period remained relatively stable. To try and reconcile this difference the authors classify their data into four categories: banks and insurance firms; independent investment advisors and companies, e.g. mutual funds; pension funds, endowments and foundations (asset owners); and all other institutional investors. They find that pension funds and endowments had the longest median stock duration over the period (1.7 years) followed by banks and insurance companies (1.5 years). However the banks' stock duration was relatively stable (ranging from 1.2 to 1.8 years), while the pensions funds' stock duration increased from 0.85 years at the beginning of the period to 2 years at the end.



The authors posit that the increase in both stock duration and in share turnover over the time period studied can be explained by a shift towards indexed investments, which by their nature are longer term and therefore increase stock duration, and an increase in 'high frequency trading' (typically intra-day, automated trading), partly driven by a reduction in the overall cost of trading. Since stock duration only considers stocks held for more than one quarter it ignores both high frequency trading and short-term adjustments to institutional portfolios, and the authors therefore believe that stock duration is a more robust reflection of the underlying trend in holding period by institutional investors.

Having demonstrated that stock duration, as a measure of investors' time horizon, can predict changes in equity pricing, Cremers et al consider why the temporary speculative components are not removed through normal market arbitrage. They find that the predictive power of stock duration is only evident in stocks that have barriers to arbitrage, such as lower liquidity or higher idiosyncratic volatility. They also find some evidence – though not highly significant – that stocks held by short-term investors may be more likely to be overvalued, while those held by long-term investors are more likely to be undervalued. Again, these results are strongest in the group of stocks with barriers to arbitrage.

In concluding, the authors summarise their key findings as being firstly, the stable or lengthening "stock duration" for stocks since 1985, and secondly, the association between short term investors and temporary equity price distortions. Their results also support academic theories on investor overconfidence, which suggest that short-term investors may be more prone to overconfidence and hence can cause over valuations.



Cremers, M., Pareek, A. and Sautner, Z. (2012) *Stock Duration and Misvaluation*. Available at SSRN: <http://ssrn.com/abstract=2190437>

# BRIBES AND FIRM VALUE

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In *Bribes and Firm Value*, Zeume investigates whether the ability to use bribes creates company value. He asserts that the use of bribes is common in business, citing a worldwide survey that estimates one third of companies use bribes to win public procurement contracts. Since most cases of bribery go undetected, there is limited research on the use and impact of bribes. Where research does exist, the samples are typically biased and small.

Article summary written by Rachel Whittaker

## AUTHOR



Stefan  
Zeume

The passage of the UK Bribery Act 2010 (the Act) is used to empirically evaluate the impact of anti-bribery regulation on the valuation of UK companies. This regulation was unexpected, creating a unique opportunity to analyse the impact of new legislation on equity prices. The author finds that UK companies operating exclusively in the most corrupt regions of the world experienced a 6% drop in value after the Act was passed, compared with companies operating exclusively in the least corrupt regions. From this he concludes that companies do benefit from the ability to use bribes, and anti-bribery regulation reduces shareholder value. Certain types of companies benefit more from the ability to use bribes, mainly those companies that are in concentrated industries, are not subject to the US Foreign Corrupt Practices Act through a US cross-listing, and not part of the FTSE4Good index.

## ANALYSIS

The primary hypothesis is that companies operating in regions with high corruption levels will experience a larger drop in firm value when anti-bribery legislation is passed. Bribery is defined by the Act as “offering, giving or promising to give a financial or other advantage to a person in exchange for that person improperly performing a relevant function”. The Act was not discussed publicly or in the media until the day it was

passed by a government commission, and significantly tightened UK anti-corruption legislation. The Act made it a criminal offence to use bribes or to fail to have in place internal controls that prevent individuals from making or receiving bribes, with penalties including unlimited fines for companies and potential prison terms for individuals –significantly increasing the potential cost of making bribes to both UK companies and foreign companies with UK exposure. The study analyses the stock price of UK companies on the day of, and the day after, the news of the passage of Act was made public.

Data is drawn from standard industry sources including Datastream for stock prices, uses Transparency International (TI) for information on the relative perceived corruption in different countries, and RiskMetrics/ISS for corporate governance data. The sample includes 645 listed UK companies for which the author found sufficient stock return and subsidiary data. Zeume evaluates a company-specific ‘corruption exposure’ based on a weighted average of the TI Corruption Perceptions Index for its subsidiary countries.

## RESULTS

The central finding is that companies with a higher corruption exposure are more negatively affected by the introduction of anti-bribery regulation. For each additional standard deviation above the average exposure to

corrupt countries, a company's value drops by around 0.5%, up to a maximum 6% drop for the company operating exclusively in the country with the highest perceived corruption score (Somalia). The drop in value may in part be due to the potential loss of business if bribes are not used, but also due to the costs of implementing the internal controls required by the Act, which may be higher for companies operating in corrupt regions. The results hold within industries, so are not driven by industry-level corruption.

A secondary finding is that subsequent to the introduction of the Act, UK companies (including European companies with exposure to the UK and therefore affected by the Act) expanded into high corruption regions much more slowly than their peers in Europe, and revenue from corrupt regions lagged revenue generated by non-UK companies, suggesting that an inability to use bribes does in fact limit companies’ ability to operate.

Other findings include:

- Companies that are already subject to anti-bribery regulation in the US are less negatively affected by the UK legislation than companies that are not subject to the US regulation.
- Companies that are part of the FTSE4Good UK Index (which includes companies that fulfil a range of corporate social responsibility criteria) are less negatively affected by anti-bribery legislation than companies that





are not part of the FTSE4Good index

- Companies operating in more concentrated (define?) industries, i.e. with fewer competitors, are more negatively affected by anti-bribery legislation, possibly because the use of bribes increases in less competitive industries.
- Companies with strong corporate governance are more negatively affected by anti-bribery legislation. Zeume posits that this is because well-governed companies have higher potential reputation costs, and finds only weak support for the theory that anti-bribery regulation should strengthen internal monitoring.

The results are robust to comparisons with companies operating in corrupt regions but not subject to the UK anti-bribery regulation. Such companies do not experience abnormal negative returns during the time period being studied suggesting that the impact on UK exposed companies is all due to the new regulation. Zeume also excludes the possibility that other events around the same time cause the price movements. Examining stock price performance around media coverage of anti-bribery regulation over a longer period, 2000-2013, similar patterns of results are found i.e. that companies with higher exposure to corrupt regions are more negatively affected to corrupt regions on days when media news flow suggests an impending increase in regulation.

## CONCLUSIONS

Zeume concludes that individual companies can benefit from the ability to use bribes as long as some of their competitors use bribes. Localised anti-bribery legislation that impacts some companies but not others in a global marketplace reduces shareholder value for the regulated companies. However the research does not lead to any conclusions on the broader implications for economies of either allowing or limiting corruption. Indeed, although companies may benefit from making bribes, they may benefit more from a worldwide ban on bribery.

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Zeume, S. (2014) *Bribes and Firm Value*. Available at SSRN: <http://ssrn.com/abstract=2179437> or <http://dx.doi.org/10.2139/ssrn.2179437>

# ENVIRONMENTAL AND SOCIAL CONSEQUENCES OF CLIMATE CHANGE

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In 2012 the UK Government's Department for Environment, Food & Rural Affairs and Environment Agency (DEFRA) produced a Climate Change Risk Assessment (CCRA) evaluating the main climate-related risks and opportunities in eleven sectors in the UK, over the course of the current century to 2100. The intention was that it will be used to identify priority areas for action and develop a national adaptation programme. This article summarises the main environmental and social consequences of climate change and the impact of key socio-economic factors as identified in the CCRA sector report on Biodiversity and Ecosystems Services. This sector in particular was chosen for in-depth analysis since biodiversity is essential to human survival and well-being, through food production and energy security, as well as financial and social factors such as leisure, tourism, education, and cultural value placed on nature.

Article summary written by Rachel Whittaker

## ENVIRONMENTAL CONSEQUENCES OF CLIMATE CHANGE

The CCRA identified thirteen major environmental risks resulting from the impact of climate change on biodiversity. The report outlines the current risk status, the potential impact of climate change on each risk factor, the implications for the ecosystem services sector, and the implications for adaptation. Here we outline the salient elements of each risk.

It should be noted that the CCRA considers the risks of a changing climate in the UK only, not the risks to which the UK may be exposed from global climate-related events. There is likely to be an impact on the UK economy from climate-related disruption elsewhere in the world, for example, through international trade, supply chains, and migration. As yet, there is little research on the likelihood and potential impact of such events.

### CHANGES IN SOIL MOISTURE LEVELS

Most habitats and species in the UK are adapted to a rather wet environment. Climate change forecasts expect moisture levels to decrease, so habitats that are sensitive to moisture levels will suffer if the climate becomes much drier. Reduction in function of loss of habitats could impact food production, water supply and quality, and use of land for tourism and leisure. Reduced soil moisture is also linked to increased risk of wildfires, and the vulnerability of species to pests and disease. Potential adaptations to this risk are highly species and site specific, such as developing new woodland areas and managing bog land, with no universal solution.

### EXTREME FLOODING AND COASTLINE CHANGES

A coastal environment is dynamic and with high biodiversity, supporting a wide range of species. Changes in sea level can change coastal habitats through erosion or sediment deposits, providing both risks and new opportunities to plant and animal species. Some coastal features also play an important role in protecting human settlements from flooding.

Typically coastal changes occur over a long period of time but events such as storm surges and major flooding can lead to large-scale changes in a short period of time (although this is rare). Climate change is expected to lead to sea level rise and both loss of habitats and creation of new ones around the whole of the UK, with South West and East England worst affected. All studies project significant losses of coastal habitats, but since coastal land often provides leisure, landscape and tourism benefits, adapting and managing new coastal habitats could be cost-effective.

### INCREASED RISK FROM PESTS, DISEASE, AND INVASIVE NON-NATIVE SPECIES

These issues are interlinked and the risk is expected to increase due to climate change because many species are climate sensitive, and also because generally warmer winters provide a more conducive environment for non-native species and pathogens. Most of the research to date has focussed on human health effects, but the risk also applies to broader biodiversity. There is already legislation to prevent the introduction of non-native species

(either deliberate or accidental), which may displace existing species and lead to the introduction of new pests and diseases as well as disrupt agriculture. However, many have already been introduced in the UK and it is possible that a changing climate may favour non-native species to the detriment of native ones.

### **SPECIES UNABLE TO TRACK CHANGING CLIMATE SPACE**

Species distribution is often associated with a particular range of climate parameters, so changing climate is likely to shift their preferred habitat either geographically or in terms of size. Some species may not be able to find an available and suitable new habitat, leaving them vulnerable to extinction. In turn this reduces biodiversity and potentially the resilience of the local ecosystem. Human management of local ecosystems may be possible but the outcome is uncertain.

### **IMPACT OF CLIMATE MITIGATION PROGRAMMES**

This consequence is indirectly related to climate change, resulting from

human responses to mitigate the effects. The risks and opportunities are location specific and may include attempts to introduce more sustainable energy systems or reduce greenhouse gas emissions. Given the UK's commitment to increasing the proportion of energy it obtains from renewable sources by 2020, it is likely there will be increasing number of renewable energy schemes across the UK and the consequences for biodiversity depend on the land use that it replaces and the management of disruption to the local landscape and wildlife. Planning regulations are in place to manage the impact but often there are unintended consequences, such as the impact of wind farms on birds through turbine blade collision, and the lesser known issue of the impact on bats through lung damage from the drop in air pressure near turbines.

### **CHANGES IN SOIL ORGANIC CARBON**

The organic content of soil influences the supply of nutrients and water to plants and the release of greenhouse

gases. All components of soil are considered to be at risk from climate change, reducing the ability of the ecosystem to function. Land use change has been the biggest driver of changes in soil organic carbon in the UK and soil erosion is also a problem. While climate change may lead to increased atmospheric carbon dioxide which could potentially increase plant productivity, temperature increases are likely to increase biomass decomposition (reducing soil organic carbon) and the combination of drier summers and wetter winters to increase soil erosion. Adaptation responses should focus on protecting active peatlands that sequester large amounts of carbon.

### **CHANGES IN SPECIES MIGRATION PATTERNS**

Many animals, especially birds, migrate to warmer climates in winter. Changing climates can therefore impact migration patterns. This may present both risks and opportunities to migratory species. Observations suggest that patterns are already changing, in terms of geography and timing, behaviour which itself might be considered an adaptation to climate change. However concern is that it may impact breeding patterns and successes.

### **INCREASED WATER TEMPERATURE**

Aquatic species are generally highly sensitive to water temperatures, and the stratification of water bodies can also be impacted by climate change, affecting the supply of oxygen and nutrients which in turn affects fish growth and viability. Adaptation possibilities include direct management of the local ecosystem through release of cooler water into stream and rivers, planting tree shade, and modifying stream topography, though there is limited evidence on whether this is likely to be effective.

Impacts on water quality  
Water pollution is a major source of damage to aquatic habitats. It can occur through human and agricultural waste deliberately or accidentally deposited in water bodies, and can be exacerbated by low rainfall. Climate change may





lead to a change in rainfall patterns, and indirectly impact the use of fertilisers in agriculture. The key challenge is to reduce pollution at its source.

Generalist species benefiting at the expense of specialists  
Changing environments will benefit species that have less specific habitat requirements, possibly leading to an overall reduction in biodiversity. The magnitude of the effect from climate change will depend on the rate of change, since a rapid change makes it more difficult for a specialist species to adapt.

### INCREASED RISK OF WILDFIRES

Hotter, drier summers, and reduced soil moisture as described above, lead to greater fire risk. This can result in habitat destruction and species extinction, as well as increased soil erosion and water pollution. In practice most wildfires are started by people, either deliberately or accidentally,

hence active management of access and leisure is critical to adaptation.

### REDUCED WATER QUANTITY

A reduction in water supply due to climate change combined with an increase in demand for agricultural irrigation will have an impact on the ability of aquatic ecosystems to maintain and replenish. It is known that low water flows can lead to increases in pollution and nutrient concentrations. This can affect both wildlife and drinking water. The potential drying-up of watercourses also has implications for wider landscape amenity.

While the impact of climate change on some species is already well understood, less is known about the interactions of different species and of habitat change. The inevitable impact of climate change on most ecosystems is exacerbated by human-driven factors such as land use change and pollution. Some ecosystems may prove resilient

to some climate change impacts, but the evidence suggests that most need to be supported by a planned adaptation response if irreversible changes to ecosystems are to be prevented.

## SOCIAL CONSEQUENCES

Many of these issues described above are not unique to biodiversity and ecosystems services. Those that are particularly interdependent with other sectors include floods and coastal erosion, water quality and availability, land use change, pollution and invasive species. In addition the CCRA outlines several social consequences:

- **Health:** many diseases affecting people are also found in animal and plant habitats. A rise in pests and disease may have an impact on human health.



- **Economy:** much of the UK's natural environment and landscape is a great cultural and tourism asset; protecting it will have benefits for cultural well-being and the economy.
- **Governance and regulation:** many ecosystems are already partly managed and will need human intervention to adapt to a changing climate, organised on a sufficiently broad scale.
- **Social attitudes:** the ability to adapt will depend on public perception and willingness; including changes in the way we view the value of natural assets and non-market goods in economic assessments.

## SOCIO-ECONOMIC FACTORS CONTRIBUTING TO CLIMATE CHANGE RISKS

Six key socioeconomic drivers were identified within the CCRA and their impact on biodiversity considered:

**Population demands:** changes in the size and distribution of populations and related social pressure in the form of, for example, housing and education. This is believed to impact all biodiversity risks such as soil changes, species behaviour, water quality, and in particular increased risk from pests and diseases.

**Global stability:** events such as war, natural disasters and economic crises can affect global stability, with less stability associated with a high degree of pressure on governments. Its impact on biodiversity is less significant than some of the other socio-economic factors, and seen mainly in increased risk from pests and diseases through international trade, climate mitigation programmes, and changes in species' migration patterns through local conditions at the breeding or winter sites or along migration routes.

**Distribution of wealth** affects and can be affected by changes in coastal land use as a result of sea level rises, since coastal land provides a number of ecosystem services such as tourism, recreation and food production. Climate mitigation programmes can also be influenced and in sensitive areas there is increased risk of wildfire with increases human leisure use, and an impact on water availability as demand goes up.

**Consumer values:** the direction of change in consumer values towards either wealth generation and material goods, or towards leisure and a focus on non-market goods and services such as conservation, affects many areas of biodiversity especially an increased risk from pests and disease through greater global trade in increasingly "exotic" goods.

**Local versus national government decision-making** is likely to impact all biodiversity risks but in particular climate mitigation measures, which are strongly influenced by public perception, such as developing an energy strategy and use of renewable energy,

Urbanisation versus rural development strongly affects many areas of biodiversity including species behaviour and soil changes through land use change, and water quality and availability through increasing demand for irrigation water versus water for consumption.

Human well-being is inextricably linked with the environment, in often complex way. Some human populations are particularly vulnerable to the effects of natural hazards, changes to the clean water supply, or disruption to primary industries such as agriculture through climate change. In addition, the cultural benefits of the environment, such as leisure and well-being, can also be lost through changes to the environment.



Department for Environment, Food & Rural Affairs and Environment Agency (DEFRA). *Climate Change Risk Assessment for the Biodiversity and Ecosystem Services Sector (2012). Chapter 4: Sector risk analysis (Tier 2), and Chapter 5: Socio-economic change.*

# PRI ACADEMIC NETWORK CONFERENCE 2014: CALL FOR PAPERS

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a collaboration between



## BRIDGING THE GAP BETWEEN ACADEMICS AND PRACTITIONERS

The PRI Initiative, the David O'Brien Centre for Sustainable Enterprise at Concordia University, and 3ci at Carleton University are pleased to announce the Seventh Annual Academic Network Conference on Responsible Investment, to be held 22-24 September 2014 at the Hilton Montréal Bonaventure, Montréal, Canada. For the first time, the PRI Academic Network Conference will be held in the same week and venue as the main PRI In Person 2014 event (September 24-26) which last year attracted over 400 institutional investors.

Details of the conference will be posted on the [PRI website](#) as they become available. All enquiries should be directed in the first instance to [academic@unpri.org](mailto:academic@unpri.org).

The overall theme for the conference is Bridging the Gap between Academics and Practitioners. We invite paper submissions and panel proposals addressing this, particularly in the following areas:

- ESG Integration
- ESG Reporting and transparency.
- Shareholder Engagement.
- Short termism and structural market failures.
- Social finance.

## CONFERENCE PRIZES

Sustainalytics Prize for Excellence in RI Research – an international award which recognizes the most outstanding conference paper by a student or students (€2500) and the most outstanding conference paper by an academic or academics (€3500). The judges of the prize will be the [Steering Committee](#) of the Academic Network, plus a nominee of Sustainalytics. The awards will be made at the conference dinner on 23 September, 2014.

Those wishing to be considered for a prize should indicate this in their application.

Information on the FIR-PRI European Research Awards 2014 will be available on the dedicated website [here](#) with the award ceremony repeated at the conference.





## APPLICATION REQUIREMENTS FOR CONFERENCE PAPERS

Working drafts or extended abstracts of their papers (minimum 8 pages; all stylistic conventions accepted) will be considered for the conference by **15 June 2014**. For the Sustainalytics Prize a full paper must be submitted **no later than 1 August 2014**.

Applicants are invited to submit their application through the link [here](#).

Extended abstracts should include:

- Summary of the significance of the research
- Relevance to the conference theme and specifically to institutional investors
- Description of research methods and findings
- Expected contribution to theory and / or practice

The document must be accompanied by a cover page that includes:

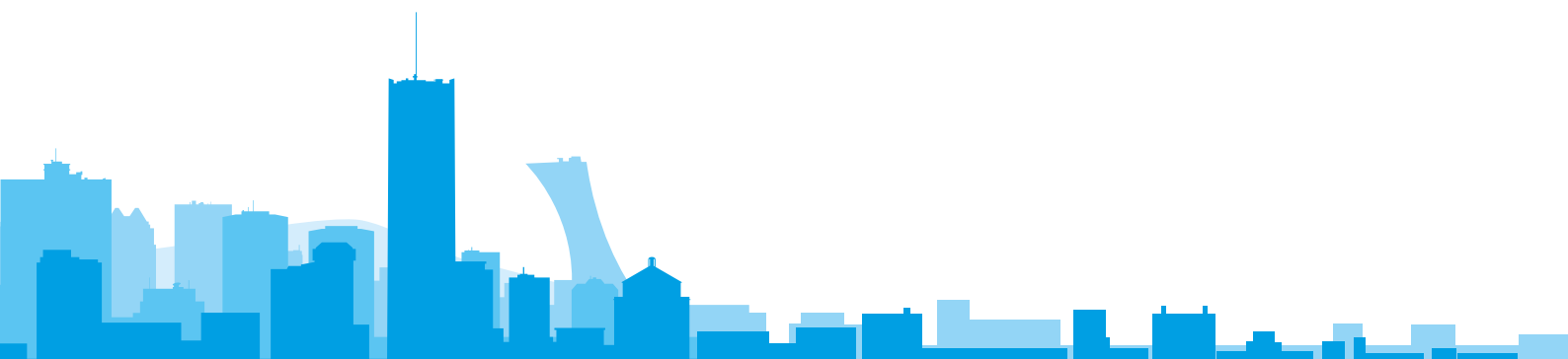
- The candidate's contact information
- A working title
- The conference theme/s being addressed
- Biographical information on the author(s),
- Agreement that working papers can be featured on the PRI website post the conference

## JUDGING CRITERIA

Proposed conference papers will be reviewed by a selection panel of academics and investment professionals. Judging criteria include:

- Practical significance of the research, particularly the potential to apply research in investment environments
- Contribution to responsible investment research
- Originality of subject of study or approach; there is an emphasis on empirical analysis
- Methodological strength
- Applicability for institutional investors and PRI signatories

GET MORE INFORMATION



The PRI is an investor initiative in partnership with  
**UNEP Finance Initiative** and the **UN Global Compact**.

#### United Nations Environment Programme Finance Initiative (UNEP FI)

UNEP FI is a unique partnership between the United Nations Environment Programme (UNEP) and the global financial sector. UNEP FI works closely with over 200 financial institutions that are signatories to the UNEP FI Statement on Sustainable Development, and a range of partner organisations, to develop and promote linkages between sustainability and financial performance. Through peer-to-peer networks, research and training, UNEP FI carries out its mission to identify, promote, and realise the adoption of best environmental and sustainability practice at all levels of financial institution operations.

More information: [www.unepfi.org](http://www.unepfi.org)



#### UN Global Compact

Launched in 2000, the United Nations Global Compact is both a policy platform and a practical framework for companies that are committed to sustainability and responsible business practices. As a multi-stakeholder leadership initiative, it seeks to align business operations and strategies with 10 universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to catalyse actions in support of broader UN goals. With 7,000 corporate signatories in 135 countries, it is the world's largest voluntary corporate sustainability initiative.

More information: [www.unglobalcompact.org](http://www.unglobalcompact.org)

