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A benchmarking framework to evaluate business climate change risks: A practical tool suitable for investors decision-making process



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ABSTRACT

A fundamental concern for the investor community is to identify techniques which would allow them to evaluate and highlight the most probable financial risks that could affect the value of their asset portfolio. Traditional techniques primarily focus on estimating certain conventional social-economic factors and many fail to cover an array of climate change risks. A limited number of institutional documents present, to a somewhat limited extent, some general-defined types of business climate change risks, which are deemed most likely to influence the value of an investors' portfolio. However, it is crucial that stakeholders of businesses and scholars consider a wider range of information so as to assist investors in their decision making. This paper aims at establishing a new framework to operationalize and quantify an array of business climate change risks to provide more comprehensive and tangible information on non-traditional risks. This framework relies on the benchmarking – scoring systems and Global Reporting Initiative (GRI) guidelines, and is applied to various Greek businesses that are certified by Environmental Management and Audit Scheme (EMAS).

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Introduction

Today, the results of climate change are associated either positively or negatively with a business's operation. On the one hand, a number of scholars have supported that climate change will create promising financial conditions suitable for many entrepreneurs and prospective investors to exploit a number of new opportunities such as climate bonds and environmental bonds (Dunn, 2003; Pfeifer and Sullivan, 2008; Brouhle and Harrington, 2009). Okereke (2007) identified that the UK FTSE 100 companies have placed topics associated with climate change at the forefront mainly as a tool to maximize profit and as a result of institutional pressures. On the other hand, climate change is considered responsible for many financial losses that might effect the investors' portfolio value. The extent to which a company is effected by various climate risks depends on the sector a business operates in, such as mining companies, water utilities and sport firms (Scott et al., 2003; Pearse et al., 2011).

A number of international organizations, that operate either as business initiatives or investor financed projects, have lately divided climate change risks of businesses in four fundamental categories, physical risks, reputational risks, regulatory risks and litigations risks (CDP, 2011; Coburn et al., 2011). The physical risks are essentially associated with the effects of extreme weather events (e.g. hurricanes, droughts) on businesses' operation and production or on the different stages of

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the supply chain. The reputational risks are related to the harmful actions of consumers and local communities against businesses (e.g. boycotts, protests) due to the improper day-to-day operation of businesses with regards to various climate change aspects (e.g. Green House Gas emissions). The regulatory risks are associated with the additional costs that might burden the financial structure of businesses when they try to adhere to the requirements of climate change regulations (e.g. CO₂ emissions act, clean air act, energy taxes). Finally, litigation risks are associated with offences committed by businesses concerning the climate change aspects of legislation (Coburn et al., 2011).

The prospect of these types of risks having an effect on the cash-flow structure of businesses and their viability is substantially very obscure (CDP, 2011). One indicative example could be the threats posed to businesses which are located around coastal zones. These businesses constantly put at risk their operations as a rise in sea level could require them to relocate their facilities. Another example of businesses which are exposed to climate change risks are those which operate with a vulnerable supply chain as the production process is dependent on regions in which extreme weather events have already happened or frequently occur. The escalation of such risks has recently been strongly associated with the security of investors (CERES, 2011). Considering the portfolio theory, Wellington and Sauer, (2005) supported that climate change risks could be classified in two distinctive groups, systematic risk when the effect of climate change on a specific business is transferred to the overall sector and unsystematic when these types of risks affect only the interior environment of the business, that is to say only within the borders of a business.

These themes have lately gained great momentum from the investor community. Except for the international organizations that request relative information, a number of international investor groups have emerged which require climate change information with regards to a businesses' operation such as the Investor Network on Climate Risk (INCR), Institutional Investors Group on Climate Change (IIGCC), and Asia Investor Group on Climate Change (AIGCC). Similarly, a series of ethical investor groups have been established which seek to identify explicit information published by businesses about the level of their environmental performance (Newell, 2008). This trend is also placed under the so-called term of Social Responsible Investment (SRI) that has indicated a growing consciousness for climate change issues either as a threat to their financial returns or as a chance to maximize their income. Anguilera et al. (2006) highlighted that this trend is adopted by institutional investors in order to avoid "a) the long-term financial implications in a wide range of industries from the physical changes that climate change is bringing about, and (b) the short-term costs of greenhouse gas emissions under the EU's Emissions Trading Scheme to some particularly vulnerable industries such as insurance, re-insurance and energy" (p. 154).

Investors require sufficient information about climate change effects on a businesses' operation in order to make safer decisions. Thus, many scholars have proposed various carbon accounting systems to record these types of information (Lohmann, 2009; Burritt et al., 2011). Nevertheless, Kolk et al. (2008) stated that despite the positive impact of current international private initiatives which are designed to urge businesses to disclose appropriate information for climate change, "neither the level of carbon disclosure that CDP [Carbon Disclosure Projects] promotes nor the more detailed carbon accounting provide information that is particularly valuable for investors, NGOs or policy makers at this Stage" (p. 719).

However, many existing corporate social responsibility, environmental and sustainability reports include, inter alia, information regarding business practices to mitigate climate change problems. The common practice to evaluate these reports is based on scoring/ benchmarking systems. The proposed methodological framework makes the voluntary disclosed information of reports comprehensible and comparable.

In this sense, this paper provides a scoring/ benchmarking system so as to draw relative useful information from a business's environmental reports. The proposed system relies on current scoring/ benchmarking systems logic to draw comparative and quantifiable information to create an overall ranking system to examine businesses in order to assist investors and each interested party in selecting the businesses with less exposure to climate change risk (Nikolaou and Tsalis, 2013). This system was applied to a range of EMAS statements from a sample of Greek businesses that operate in various sectors.

The rest of the paper includes four sections. The first section includes theoretical background regarding climate change risks, carbon accounting systems and social responsible investments. The second section describes the methodology followed by ranking of the firms examined according to their climate change disclosures. The third section analyzes the findings of this research alongside findings and similarities in the relative literature. Finally, the fourth section includes the conclusions of this paper and focuses on describing the most important contributions the paper makes to the current literature.

Theoretical underpinnings

Considerable effort has been made lately by various official actors within an international context to encourage modern communities to actively participate in reducing CO₂ emissions (Arrow et al., 1996; Stern, 2007). Similarly, a number of international treaties and agreements have been signed (not necessarily by the majority of countries) such as the Kyoto protocol (Weinhofer and Hoffmann, 2010). Additionally, international scientific movements focus on identifying solutions for climate change (Intergovernmental Panel for Climate Change, IPCC). These efforts have encouraged several governments to enact specific instruments to convince responsible actors (households and businesses) to tackle the challenges of climate change. Some categories that these instruments fall into are as follows: command and control (e.g. air emission acts), economic (e.g. energy taxes) and self-regulated (e.g. carbon footprint, ISO 14064) (Goulder and Schneider, 1999; Martin and Rice, 2010).

In this context, the business community has adopted various management and technological strategies to mitigate their CO₂ emissions or shift to a less energy-intensive behavior. Apart from the aforementioned categorization of government

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