

# Untitled

Kinif Pierrick

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## Introduction

Over the past decades, humanity is progressively becoming aware of the finiteness of earth's resources and its impact on the current global warming. The club of Rome, with their book *"The limits to growth"*, concluded that *"if the present growth trends in world population, industrialization, pollution, food production, resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years"* [Meadows1972: p23]. In the nineties, HoughtonClimateChange19951996 have also pleaded that *"in the absence of mitigation policies, greenhouse gas emissions will continue to rise during the next century"* (p9). This will *"increase the global mean surface air temperature relative to 1990 of about 2°C by 2100...leading to harsh climatic repercussions"* (p23).

Over the last 30 years, these predictions has started to come true. For the first time in 400 000 years, atmospheric carbon dioxide crossed, in 1950, the level of 300 parts per million<sup>1</sup> (i.e. ppm) [PieterTans2018; Petit1999]. According to the NOAA's Annual Greenhouse Gas Index, the atmospheric abundance of CO2 has increased by an average of 1.80 ppm per year from 1979 to 2016 [Butler2016]. In May 2018, the global level of carbon dioxide has reached 410 ppm [PieterTans2018]. This increase led to direct effects

Since the last 19th century, the average temperature of the planet increased by 1.1 degrees Celsius. Most of the warming occurred in the past 35 years, with 16 of the 17 warmest years on record occurring since 2001. [Hansen2010; GistempTeam2018]. Data from NASA's Gravity Recovery and Climate Experiment show Greenland lost 150 to 250 cubic kilometers of ice per year between 2002 and 2006, while Antarctica lost about 152 cubic kilometers of ice between 2002 and 2005 [GistempTeam2018]. Church2006 has shown that, in the last century, the global sea level rose about 8 inches. Due to a high carbon dioxide absorption level[Sabine2004], the acidity of surface ocean waters has increased by about 30 percent [NOAAsPacificMarineEnvironmentalLaboratory] leading, *inter alia*, to harsh repercussions to corals.

Ecosystem degradation and resources depletion engender a threat to firm's longevity [Dowell2000]. In his speech at Lloyds of London 2015, Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board, identified climate change as one of the most material threats to financial stability [Elliott2015]. The BusinessandSustainableDevelopmentCommission2017 (p12) report stated: *"... businesses need to pursue social and environmental sustainability as avidly as they pursue market share and shareholder value... If they don't, the costs and uncertainty of unsustainable development could swell until there is no viable world in which to do business."* In other words, adopting environmental strategies ensure companies' competitiveness and survival in the near future.

Testa2018 have shown that, due to institutional pressure or the influence of stakeholders, a majority of companies have integrated, either substantially or symbolically (i.e. greenwashing), proactive environmental practices. However, according to Scarpellinieconomicfinanceinterface2016, green projects are still not common in companies of many countries because of significant barriers and a negligible culture of excluding sustainable development from an organization's strategy.

People's actions reflect a variable mix of altruistic motivation, material self-interest, and social or self-image concerns [BenabouIncentivesProsocialBehavior2006]. Hence, for more than 40 years, scholars have analyzed the Corporate Environmental Performance (i.e. CEP) and Corporate Financial Performance (i.e. CFP) nexus to provide evidence that it does pay to be green and to convince companies to incorporate environmental sustainability into their core values and strategies [Ludecadedebatenexus2014].

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<sup>1</sup>A concentration of 300 ppm means that for every million air particles, 300 of them are carbon dioxide molecules, namely a carbon concentration of 0.03%.

The International Organization for Standardization [ISO2013] defines CEP as “*measurable results of an organization’s management of its environmental aspects*”. The CFP construct assess the outcomes of business strategy [Bansal2014] and is a primary, fundamental indicator for organizational performance and long-term survival of an organization [Hamann2013].

The relationship between CEP and CFP had been broadly discussed in the literature and led to inconsistent empirical findings [EndrikatMakingsenseconflicting2014]. Two major opposite trends emerged. Some scholars [Delmas2015; MiroshnychenkoGreenpracticesfinancial2017] provided evidence of a positive link between CEP and CFP while others [Busch2011a; Fernando2010] have demonstrated a negative relationship. This inconclusiveness may come from the multidimensionality of both focal constructs [Griffin1997; EndrikatMakingsenseconflicting2014; Albertini2013] given that commonly shared understanding or conceptualization of CEP and CFP has not been established so far [Etzion2007; Hamann2013].

Indeed, EndrikatMakingsenseconflicting2014 argue that a two-group classification of CEP can be deduced from the literature. (i) Process-based CEP which refers to “*a strategic level and focuses on managerial principles and processes such as environmental objectives, environmental policies, or environmental management structures*”. (ii) Outcome-based CEP which reflects “*the observable and quantifiable results of these efforts [Delmas2011a] and refers to measures such as the amount of released pollutants or the ratio of recycled waste to total waste*”. Regarding CFP, scholars have adopted three broad subdivisions: market-based (i.e. investor returns), accounting-based (i.e. accounting returns), and perceptual (i.e. survey) measures [Ludecadedenexus2014]. Furthermore, the multidimensionality of CFP includes a wide array of estimations that may capture a firm’s ability to generate value in the short-term and company’s future growth prospects assessed by the external stakeholders [Opler1994].

EndrikatMakingsenseconflicting2014 have highlighted the need for a better understanding of the multidimensionality of both CEP and CFP constructs. Furthermore, King2002 suggested that “*When does it pay to be green?*” may be a more important question than “*Does it pay to be green?*”. Griffin1997 were the first to call for research that look at the CEP-CFP relation over time. Busch2018 demonstrated that, at a meta-research level, evidence of a time dependency on the CEP-CFP link are not significant and that the call of Griffin1997 remains, to date, unanswered. Therefore, using a panel data of 393 US publicly traded companies for the period 2012-2014, this study explores whether the combined effect of process-based and outcome-based Corporate Environmental Performance (i.e. CEP) influences Corporate Financial Performance (i.e. CFP) and observes the time influence (i.e. short-term vs long-term) of the relationship.

The rest of the paper is organized as follows: the next section reviews the literature regarding the CEP-CFP nexus. Then, I describe my database and methodology. Next, the results are presented and discussed. Finally, I summarize the main contributions to the literature and highlight potential future research.