1 Literature Review

1.1 CFP as a broad meta-construct

CFP is a broad meta-construct and scholars have adopted three broad subdivisions: market-based, accounting-based, and perceptual measures (Orlitzky et al., 2003).

Market-based measures (e.g. price-earning ratio or Tobin's Q) consider that returns should be measured from the perspective of the shareholders (Cochran and Wood, 1984). They incorporate intangible assets and reputational effects (Busch and Hoffmann, 2011) and can be highly influenced by speculations, rumors and capital market breakdowns (Wright, 2004).

Accounting-based measures require profitability and asset utilization indicators such as Return on Asset (i.e. ROA) or Return on Equity (i.e. ROE) (Cochran and Wood, 1984; Wu, 2006). These indicators capture a firm's internal efficiency (Cochran and Wood, 1984). Indeed, Orlitzky et al. (2003) highlight that *"accounting returns are subject to managers' discretionary allocations of funds to different projects and policy choices, and thus reflect internal decision-making capabilities and managerial performance rather than external market responses to organizational (non-market) actions"*. Accounting-based indicators are highly influenced by the industrial sector characteristics (Montgomery and Wernerfelt, 1988).

Perceptual measures of CFP is a more subjective approach (Lu et al., 2014) based on external (e.g. Fortune magazine rankings) and internal (e.g. Management surveys) perceptual metrics (Peloza, 2009). These indicators ask survey respondents to provide subjective estimates of, for instance, the firm's *"soundness of financial position"*, *"wise use of corporate assets"*, or *"financial goal achievement relative to competitors"* (Orlitzky et al., 2003).

Based on a recent critical review, Lu et al. (2014) have shown that, of the three types of CFP measures, accounting-based ones are the most frequency used, followed by the market-based measures, and perceptual measures. Scholars also tend to alleviate weaknesses of one type of indicators by the use of another (McWilliams et al., 2006). For instance, King and Lenox (2002) and Delmas et al. (2015) have used ROA and Tobin's Q as proxies for approaching CFP. Menguc and Ozanne (2005) considered market share, sales growth and profit after tax. Husted and Allen (2007) used management surveys while Verschoor (1999) adopted the Fortune magazine rankings.

1.2 CEP as a broad meta-construct

CEP is also a broad meta-constructs and no common definition exist in the literature (Albertini, 2013; Endrikat et al., 2014). Scholars have used a wide variety of indicators as proxies for approaching the green performance of companies.

Albertini (2013) use a three-group classification to summarize CEP measures : (i) *Environmental Management Measures* (i.e. EMV) which mostly refer to environmental strategy, integration of environmental issues into strategic planning processes, environmental practices, process-driven initiatives, product-driven management systems, ISO 14001 certification, environmental management system adoption, and participation in voluntary programs (Molina-Azorín et al., 2009; Schultze and Trommer, 2012). (ii) *Environmental Performance Variables* (i.e. EPV) which are mostly measures quantified in physical units (carbon dioxide emissions, physical waste, water consumption, toxic release) that can be positive (emission reduction) or negative (emission generated) (Albertini, 2013). (iii) *Environmental Disclosure Variables* (i.e. EDV) such as information releases regarding toxic emission (Hamilton, 1995), environmental awards (Chen et al., 2018), environmental accidents and crises (Blacconiere and Patten, 1994), and environmental investment announcements (Gilley et al., 2000).

Endrikat et al. (2014) split up CEP into two sub-dimension. On the one hand, *process-based CEP* which can be linked to the EMV approach of Albertini (2013). It refers to *"a strategic level and focuses on managerial principles and processes such as environmental objectives, environmental policies, or environmental management structures"*. On the other hand, *outcome-based CEP* which can be linked to the EPV dimension of Albertini (2013). It reflects *"the observable and quantifiable results of these efforts (*Delmas et al.*, 2011) and refers to measures such as the number of released pollutants or the ratio of recycled waste to total waste"*. According to Xie and Hayase (2007), process-based CEP can be considered as a preliminary step of outcome-based CEP. Besides, scholars demonstrated that the first approach has a positive impact on the second one which in turn has a positive impact on financial performance (Chen et al., 2018; Li et al., 2017).

CEP can also be linked to the Environmental, Social and Governmental (i.e. ESG) framework or also called, Socially Responsible Investments (i.e. SRI). ESG investing provides criteria that allow investors and advisors to select investments that align with their values as well as their financial goals (Fulton et al., 2012). It applies a set of investment screens to select or exclude assets based on ESG criteria (Renneboog

et al., 2008). A plethora of organizations have developed methodologies to attribute an ESG score to companies and support investors who consider corporate governance insights into their investment processes. For instance, Sustainalytics, based in New York and Thomson Reuters with the Asset4 ESG database. Scholars (Halbritter and Dorfleitner, 2015; Miroshnychenko et al., 2017) have used these ESG scores as proxies for CEP.

1.3 Two perspectives on CEP

Friedman (1970) considers investment in pollution efficient technology as a deviation from the profit maximization goal (i.e. an increase in cost). According to him, *"businessmen who want to promote desirably social ends... are unwitting puppets of the intellectual forces that have been undermining the basis of a free society"*. In recent decades, this paradigm has been widely challenged. The literature is showing growing evidence that improving a company's environmental performance can lead to better economic or financial performance.

Ambec and Lanoie (2008) demonstrated that the expenses incurred to reduce pollution can be partly or completely offset by gains made elsewhere. Porter and van der Linde (1995) argued that properly crafted environmental standards can trigger innovation offsets, allowing companies to improve their resource productivity. He redefined the self-concept of value creation. According to him, companies have to create shared value. Sharing value creation involves building economic value which addresses the current needs and challenges of the society (Porter et al., 2011; Porter and Kramer, 2011). In the same logic, Freeman (1984) calls for a radical rethinking of our firm's model. He argues that companies have to consider their stakeholders (i.e. any group or individual who can affect or is affected by the achievement of an organization's objectives (p25)) or otherwise face a negative contest from non-shareholder groups (e.g. boycotts, lawsuits, and protests). In other words, Freeman (1984) summarizes the idea that companies should consider corporate environmental performance as an undeniable cost of doing business.

1.4 Does it pay to be green?

More and more companies are developing profitable business strategies that deliver tangible social benefits (Testa et al., 2018) and that embrace the new business paradigm of Freeman (1984), Porter and van der Linde (1995) and Ambec and Lanoie (2008). However, others prefer keeping the old fashion way of Friedman (1970). This dichotomy has interested scholars and since they have sought to empirically answer the question, *"Does it pay to be green?"*. As claimed by Lu et al. (2014), in a competitive business world, answering this question is crucial to provide a genuine economic justification to the new paradigm.

The relationship between CEP and CFP has been broadly discussed in the literature and led to inconsistent empirical findings (Endrikat et al., 2014). Two major opposite trends emerged. Some scholars provided evidence of a positive link between CEP and CFP while others have demonstrated a negative relationship.

Delmas et al. (2015) found that improving CEP causes a decline in ROA while an increase in Tobin's q. Unlike Cavaco and Crifo (2014) and Muhammad et al. (2015), who obtained a positive relation between ROA and CEP while no relation between Tobin's Q and CEP. Results of Miroshnychenko et al. (2017) show that internal green practices (i.e. pollution prevention and green supply chain management) are the major environmental drivers of financial performance, while external green practices (i.e. green product development) play a secondary role in determining financial performance. Besides, according to them, the adoption of ISO 14001 appears to have a negative impact on financial performance. Fernando et al. (2010) observed that all else equal, toxic firms can realize a higher valuation by becoming environmentally neutral but they found no such financial benefit to neutral firms becoming green. Busch and Hoffmann (2011) found that process-based CEP (in terms of carbon management) negatively affects CFP, while outcome-based CEP (in terms of carbon emissions) has a positive influence on CFP. Song et al. (2017) provided evidence that environmental management is significantly positively related to financial performance in the following year while no significant in the current year. Fisher-Vanden and Thorburn (2008) found that companies announcing membership in environmental programs experience significantly negative abnormal stock returns. Results of Przychodzen and Przychodzen (2015) indicate that companies involved in environmental innovation process were generally characterized by higher ROA and ROE and lower earnings retention ratio.

Some scholars advanced that the multidimensionality of CEP and CFP constructs is one reason why the conclusion of the relationship has been so mixed (Albertini, 2013; Endrikat et al., 2014). However, the large number of studies in the last three decades allowed the appearance of recent meta-analyses[1] (Albertini, 2013; Busch and Friede, 2018; Dixon-Fowler et al., 2013; Endrikat et al., 2014; Lu et al., 2014; Orlitzky and Benjamin, 2001; Orlitzky et al., 2003; Wang et al., 2016; Wu, 2006) and all confirm that indeed it does pay to be green. More precisely, a positive and bidirectional relationship does exist between CEP and CFP meaning that successful firms may have the resources necessary to improve their environmental performance, which in turn increases financial benefits that can be invested back into further improvements of CEP (Endrikat et al., 2014).

1.5 When does it pay to be green?

Griffin and Mahon (1997) were the first to call for studies that look at the CEP-CFP relation over time. While scholars has been mainly answering the question: *"Does it pay to be green?"* some have recently tried to move forward and gained interest in answering the call of Griffin and Mahon (1997) with the following question: *"When does it pay to be green?"* (Manrique and Martí-Ballester, 2017).

Zhang and Chen (2017) have shown that CEP has a negative relationship with short-term financial performance and a positive relationship with long-term CFP. Delmas et al. (2015) observed that the more a company decreases carbon emissions, the more positive the investors' perceptions of future market performance, and the lower its short-term financial performance. Song et al. (2017) have shown that corporate environmental management has a significant positive correlation with future financial performance while no significant correlation with current financial performance. Manrique and Martí-Ballester (2017) demonstrated that in times of economic crisis, firms which improve their corporate environmental performance improve their corporate financial performance, this effect being weaker for firms in developed countries, where only the short-term corporate financial performance improves than for firms in emerging and developing countries, where the short and long-term corporate financial

[1]Initially, the literature focused on the link between Corporate Social Performance (i.e. CSP) and Corporate Financial Performance. Orlitzky and Benjamin (2001) were the first to consider CEP as apart from CSP. Given that Busch and Friede (2018) could not detect statistically significant differences between the effects of environmental CEP and social-related CSP on CFP and concludes that good CSP pays off, whether social or environmental related, this study considers CSP equals to CEP.

performance improve. Chen et al. (2018) have shown that a firms green performance not only impact an organization's financial performance in that particular year but also impact the year that follows.

Those empirical results provide pieces of evidence that no common consensus have been found yet to answer the question: *"When does it pay to be green?"*. To that extent, Busch and Friede (2018) demonstrated that at a meta-research level, the evidence of a time dependency on the CEP-CFP link is not significant and that the call of Griffin and Mahon (1997) remains to date unanswered.

To capture the time dimension in the CFP-CEP nexus, scholars consider accounting-based measures as a proxy for short-term CFP and market-based measures as a proxy for long-term CFP (Delmas et al., 2015; Endrikat et al., 2014; Manrique and Martí-Ballester, 2017; Miroshnychenko et al., 2017; Zhang and Chen, 2017). Indeed, Endrikat et al. (2014) highlight that on the one hand, accounting-based measures capture immediate impacts but do not seize long-term effects, unlike market-based measures which integrate estimations of a firm's future prospects and reflect the notion of external stakeholders.

Taking into account previous theoretical arguments and considering varying empirical findings with regards to the CEP-CFP nexus, this study hypothesizes the following :

Hypothesis 1. Process-based CEP have a positive impact on Outcome-based CEP
Hypothesis 2. Outcome-based CEP have a positive impact on short-term CFP
Hypothesis 3. Outcome-based CEP have a positive impact on long-term CFP
Hypothesis 4. Process-based CEP have a positive impact on short-term CFP
Hypothesis 5. Process-based CEP have a positive impact on long-term CFP

The research framework of this study, inspired by Li Suhong et al. (2017) and Chen et al. (2018), is summarized in figure 1.1.

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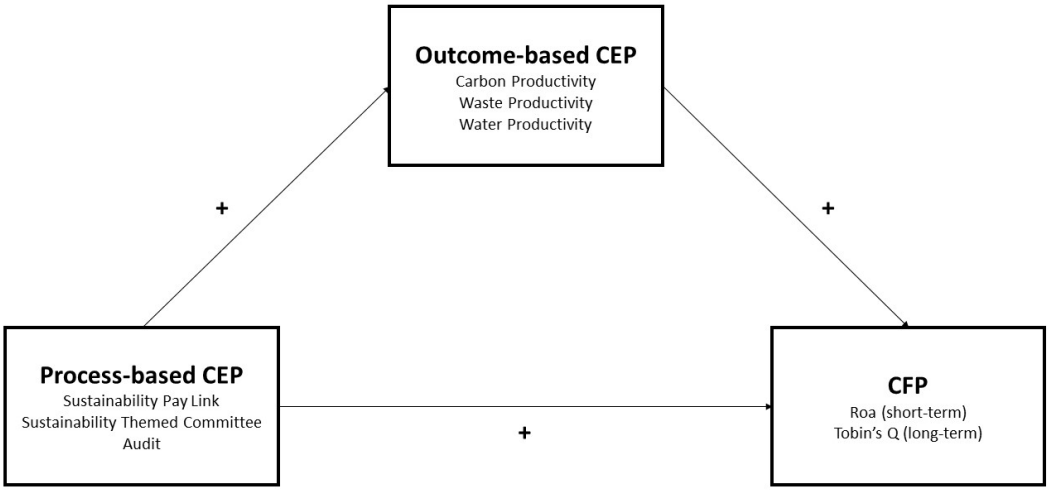

Figure 1.1: Research Framework

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