

**MASTER**  
ECONOMICS OF BUSINESS AND STRATEGY

# **Impact of ESG Washing on financial and market performance.**

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## Acknowledgements

*“The game has its ups and downs, but you can never lose focus of your individual goals, and you cannot let yourself be beat because of lack of effort.”* - Michael Jordan.

Looking back at the last year, there were a lot of good things, but also a fair share of bad stuff. You are not the best when everything is working in your way, but you are not the worse either when everything seems to be falling apart. It is needed to be strong enough to keep going, do the effort, and push to achieve the desired goals, even in bad moments. Following, I would like to be thankful to those who help me during the hard moments.

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## **Abstract**

Climate change, resource use, social and governance problems are all part of the global sustainability movement, which is becoming more urgent. Environmental, social, and governance factors (ESG) factors were created so companies could be evaluated on these critical issues that the world faces. However, some companies use them to gain advantage against their competitors by engaging in ESG Washing practices that mislead stakeholders about their ESG commitment. The nature of this relationship between performance and ESG Washing is still unclear in previous research.

This study will shed light on a topic that is still understudied by examining the effect of ESG Washing on financial and market performance. Each pillar will be study individually to understand if washing in any pillar of the ESG methodology produces higher effects than in the others. It was covered 46 nations, including 23 developed and 23 emerging nations, during a period of 7 years, between 2021 and 2015. The study will enable a deeper understanding on this subject, in both developed and emerging countries, bringing important inputs for the different stakeholders.

It was possible to see that governance washing can positively affect financial performance, while greenwashing and social washing have no effect. However, the results did not hold during robustness checks, meaning that the research cannot affirmatively state that governance washing will enhance financial performance. Evaluating the market performance, it is increased by both greenwashing and governance washing, while social washing tends to have a negative effect. The results maintained stable through robustness checks. Moreover, while the effects found on financial performance were higher in developed countries, when assessing market performance not only the effects are smaller, but also greenwashing loses significance in emerging countries.

**Keywords:** ESG, ESG Washing, Sustainability, Financial Performance, Market Performance.

**JEL Classification:** M14

## Resumo

Mudanças climáticas, a utilização de recursos, os problemas sociais e de governação fazem parte do movimento global para a sustentabilidade, que é cada vez mais urgente. Fatores ambientais, sociais e de governação corporativa foram criados para que as empresas pudessem ser avaliadas nestas questões urgentes. No entanto, algumas empresas utilizam os mesmos para obter vantagens competitivas sobre os concorrentes, envolvendo-se em práticas de *ESG Washing*, enganando os diferentes *stakeholders* sobre seu compromisso com estes fatores. Contudo, a natureza da relação entre desempenho e *ESG Washing* ainda não está clara na literatura.

O presente estudo irá ajudar a esclarecer sobre um tópico ainda pouco estudado, estudando o efeito da *ESG Washing* no desempenho financeiro e de mercado. Cada pilar será analisado individualmente de modo a se verificar se práticas de *washing* em algum pilar ESG produz efeitos superiores aos demais. Foram incluídos 46 países, dos quais 23 são desenvolvidos e 23 são emergentes, num período de 7 anos, de 2011 a 2015. O estudo possibilitará uma compreensão profunda do assunto, trazendo conclusões importantes para os diversos *stakeholders*.

Verificou-se que a *governance washing* tem um efeito positivo no desempenho financeiro, enquanto a *greenwashing* e a *social washing* não mostraram qualquer efeito no mesmo. No entanto, os resultados não se verificaram nos testes de robustez, significando que este estudo não permite comprovar que a prática de *governance washing* tenha impacto na performance financeira. Já sobre o desempenho do mercado, houve um efeito positivo tanto da *greenwashing* quanto da *governance washing*, porém a *social washing*, tende a ter um efeito negativo. Os resultados mantiveram-se estáveis nos testes de robustez. Por fim, enquanto os efeitos encontrados sobre o desempenho financeiro foram maiores nos países desenvolvidos do que nos países emergentes, ao nível do desempenho do mercado, além dos efeitos serem menores, o *greenwashing* também perde significância.

**Palavras-chave:** ESG, ESG Washing, Sustentabilidade, Desempenho Financeiro, Desempenho de Mercado.

**Classificação JEL:** M14

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## 1. Introduction

Global concerns about sustainability have been raised all over the world. Many arguments have been posted to the role of businesses in sustainability and ethics so, besides their financial goals, companies have been called out to do their part to achieve society goals as well. Environmental, Social and Governance (ESG) factors were developed so businesses could be assessed based on their commitment to ethics and sustainability, increasing the transparency about their sustainable goals. Investors, stakeholders, and policymakers have heavily relied on these to access decisions since they view that companies performing better in these factors are better positioned to deal with uncertainties in the corporate world.

Although transparency, honesty, and accountability were the baseline of these practices, several problems arose throughout the years. The most popular information sources for stakeholders are reports and rating agencies, but they may also be a problem as they are yet to be totally reliable. The reports disclosed by companies do not have a standardized structure (Khan, 2022; Kotsantonis & Serafeim, 2019; Yu et al., 2020), the data on those reports is not verified (Basu et al., 2022; Kotsantonis & Serafeim, 2019; Yu et al., 2020) and, there is an absence of a leading rating agency and methodology (Huber & Comstock, 2017). These issues prompt some organizations to employ ESG Washing tactics (an extension of the popular term greenwashing), which capitalize on the ESG issues by overstating their devotion to sustainability (Bowen & Aragon-Correa, 2014; Delmas & Burbano, 2011; Lyon & Montgomery, 2015; Yu et al., 2020). Organizations employ these tactics, which are difficult for stakeholders to notice, to seem sustainable in the market while improving their performance (Mallin et al., 2013). Thus, unperceived ESG Washing is a problem that haunts the validity of ESG factors (Seele & Gatti, 2017).

Following, to examine the relationship between Environmental, Social, and Governance Washing and a company's performance, this study will use a quantitative research methodology. The goal of the research is to determine whether a particular ESG factor—environmental, social, or governance—has a greater effect on a company's financial and market performance when customers are misled. Consumers may preferably opt for companies that are sustainable in detriment of the one's that perform poorly on ESG aspects. Deceiving consumers about the extent of commitment towards ESG might boost performance. This study's main goal is to explain how customer deception in any of the ESG pillars affects a company's financial and market performance, establishing a

correlation between performance and ESG Washing. Thus, the study will shed light in the existing literature about this correlation, which is scarce and with mixed results found. Moreover, by taking the pillars independently, it will distinguish itself from previous studies who only analyse the environmental pillar.

This study will define ESG Washing as the difference between what a company states and what it actually does in ESG practices. Thus, the different ESG Washing variables, i.e., greenwashing, social washing, and governance washing will represent unperceived behaviours by stakeholders, not publicly known cases. The scope of the analysis will focus on this unnoticed, yet existing cases of ESG Washing by employing the methodology used by Yu et al. (2020), being the difference between a normalized peer-relative ESG disclosure score provided by Bloomberg and a normalized peer-relative ESG performance score provided by Refinitiv. The score allows to create a measure for ESG Washing across the different pillars since the ESG scores offered by Bloomberg focus on reports released by companies, while the one's done by Refinitiv are based on the performance of companies in ESG practices. Consequently, by using a normalized difference between the two, this study is able to capture unperceived behaviours by the different consumers.

To understand the impact of this strategy on performance has become increasingly relevant not only due to the increased tendency of engaging in this practice, but also because of its influence on several stakeholders. First, it impacts consumers since it misleads them about the efforts that companies are really making. Second, it also impacts companies as the ones that are making an effort can be undermined by those who engage in this type of behaviour. Third, it impacts investors. There are several investors that base their strategy in environmental, social, and governance issues so, being purposely dishonest about ESG claims has a direct impact on investors returns. Fourth, it has an impact on the environment in two-ways. The corporation not only does not benefit the environment, but it also discourages investors and customers from supporting companies that do. Finally, it is critical for policymakers to take legal action against firms that participate in these actions in order to safeguard the other parties.

To establish the correlation, it will be analysed companies belonging to the MSCI All World Index, aggregating 1653 companies from 23 developed countries and 23 emerging countries (MSCI, 2023) for a period of 7 years, between 2015 and 2021. By focusing on several countries, the research will be able to distinguish from previous studies

that often only analyse one country. The data will come from two datasets, Bloomberg ESG Data Service and Refinitiv Datastream – Eikon, where Return on Assets (ROA) will be used to account for financial performance and Market-to-Book Value of Equity (MBVE) represents a proxy of market performance. Regarding ESG Washing, it will be established following the methodology used by Yu et al. (2020), being the difference between a normalized peer-relative ESG disclosure score provided by Bloomberg and a normalized peer-relative ESG performance score provided by Refinitiv.

The research has two conclusions regarding the ESG Washing impact on financial performance. First, the study discovered that only governance washing could have an influence on a company's financial performance, with those businesses who practice it performing better financially. However, since the results did not hold on the robustness checks, the study cannot firmly affirm that engaging in governance washing will enhance financial performance. This discrepancy in robustness tests and results do not indicate endogeneity, which has been ruled out by the Wu-Hausman Test. Second, it was discovered that, when the sample was divided between developed and emerging nations, it was easier to profit financially from greenwashing and social washing in developing nations than in developed one's, where they appeared to have no effect. Furthermore, governance washing only had a favourable impact in developed countries, since it has no impact at all in emerging ones.

It was also evaluated the ESG Washing impact on market performance, from which two conclusions could also be reached. Market performance appears to be influenced by all three washing pillars, with greenwashing and governance washing boosting it and social washing harming it. Dividing the sample in developed and emerging countries it was found that the effects in market performance are smaller in emerging countries, with greenwashing losing significance in those countries.

The remaining of the research is organized as follows. Section 2 provides a literature review on the ESG, ESG Washing, and the current challenges faced, developing the hypothesis to be studied. Section 3 describes the methodology utilized to test the hypothesis, including a step-by-step construction of the washing variables. Section 4 defines the sample of the analysis and description statistics about the database used. Section 5 presents the results. Finally, section 6 displays conclusions, practical implications, limitations, and future research topics.

## 2. Literature Review

### 2.1. ESG Factors – Performance and Current Challenges

Economic, social, and environmental aspects have grown in prominence throughout the years, with stakeholders valuing not only performance, but also sustainability commitments towards society (Basu et al., 2022). ESG methodology was introduced as measure of corporate social responsibility (CSR), where companies must show commitment into three slopes: environmental, social, and governance (Alfalih, 2022; Chen & Xie, 2022). The environmental pillar, according to United Nations (2004), covers issues with the climate, harmful emissions, and toxic waste. For the social pillar, the challenges encountered are in the workplace, where considerations for human rights, safety, and relationships are required (United Nations, 2004). Measures dealing with transparency and fairness in accounting, disclosure, board structure, and compensation is what is inserted in the governance pillar (United Nations, 2004).

The likelihood of engaging in ESG practices is higher in bigger firms than in smaller one's (Chen et al., 2006). In fact, 96% of the world's 250 largest corporations report on these factors (KPMG International, 2022). For several reasons, including improved financial performance, regulation, and business reputation, businesses partake in these practices (Khan, 2022; Kim, 2019; Lyon & Montgomery, 2013; Yu et al., 2018). Yet, there is ongoing debate among academics over whether incorporating these elements would actually benefit companies apart from the obvious benefits and impact for society. (Cerciello et al., 2022; Friede et al., 2015; Ullmann, 1985).

Essentially, the nature of the relationship between ESG and performance still divides scholars (Alfalih, 2022; Friede et al., 2015; Khan, 2022). To establish this relationship, most scholars have used either market indicators - the most popular being Tobin's Q, while some also use MBVE (e.g., Testa et al., 2018) – or financial indicators - being the most used one's the Return on Assets (ROA) or Return on Equity (ROE) (Khan, 2022). Positive (Bofinger et al., 2022; Eccles et al., 2014; Friede et al., 2015; Margolis et al., 2009), negative (Buallay et al., 2021; Cerciello et al., 2022; Duque-Grisales & Aguilera-Caracuel, 2021; Lyon & Montgomery, 2015), or neutral (Horváthová, 2010; Humphrey et al., 2012; McWilliams & Siegel, 2001) effects are argued. To increase the complexity, factors such as industry type or company size might alter the overall effect of ESG practices (Porter & Kramer, 2011). Additionally, there is the prospect that the association between ESG and financial performance is bi-directional, whereby higher ESG translates into

greater business performance, which results in increased ESG (Lin et al., 2019; Waddock & Graves, 1997).

Some of the variations in findings can be attributed to different approaches, but this does not account for all of them. To this day, there is not a reference rating agency to provide official ESG ratings (Huber & Comstock, 2017). There are several rating agencies, each one with their own methodology, leading to different scores for the same company (Huber & Comstock, 2017). Different approaches and different rating agencies with different methodologies allow for the divergent findings about the relationship between ESG and performance.

Corporations also try to show compliance to the market not only by accomplishing ESG goals, but also by disclosing information on ESG activities (Mallin et al., 2013). Consequently, ESG disclosure, i.e., reporting on ESG factors, can have an impact on firm performance. Although, in accordance with relationship between ESG and firm performance, the debate on how disclosing ESG data affects performance is still unsettled (Alfalih, 2022; Chen & Xie, 2022). Despite most found interactions are positive (Alareeni & Hamdan, 2020; Chen & Xie, 2022; Khan, 2022), negative relationships (Buallay et al., 2021; Fatemi et al., 2018) were also found. Similar to the association between ESG performance and firm performance, Tobin's Q, ROA, and ROE were the most often employed metrics to assess the connection between ESG disclosure and performance (Khan, 2022).

Besides this unclear nature of the relationship, disclosing ESG data can enhance a company (Cerciello et al., 2022; Yu et al., 2020) by influencing cost of capital (Bax & Paterlini, 2022; Eliwa et al., 2021), risk (Atif & Ali, 2021; Banerjee et al., 2020), volatility (Bofinger et al., 2022), or financing (Bax & Paterlini, 2022). Eliwa et al. (2021) found that ESG and disclosing ESG data produced the same effects on the cost of capital, as lending institutions tend to provide easiest access to companies that perform better in these aspects. Moreover, companies with high ESG disclosure ratings have less tendency to default, which suggests that ESG disclosure and default risk are negatively associated (Atif & Ali, 2021). Aside from debt-related advantages, sharing a lot of ESG information tends to have two market effects: if a business is overvalued, it will increase that overvaluation, and if it is undervalued, it will reduce the gap between that value and the genuine firm worth (Bofinger et al., 2022).

As companies are aware of the benefits, there is an increased propensity to disclose more data about their ESG activities (Mallin et al., 2013; Slager et al., 2012). However,

there is yet to appear a universal structure for these reports, raising questions about their quality, precision, and truthfulness (Khan, 2022; Kotsantonis & Serafeim, 2019; Yu et al., 2020). Some firms take advantage of the absence of uniform reporting through overstating their positive measurements while understating the extent of their negative consequences (Fatemi et al., 2018; Li, 2008; Lyon & Montgomery, 2015). Furthermore, company disclosures lack full information (Cerciello et al., 2022), with some companies reporting to meet requirements (Kim & Lyon, 2015; Lokuwaduge & Heenetigala, 2017), as they are not forced to report on every measure (Yu et al., 2020). Concerns that investors may regard ESG operations as unprofitable is the cause for such a low level of information (Kim & Lyon, 2015).

In addition to the absence of standardization reporting, the data provided by firms is, usually, unaudited (Basu et al., 2022; Cerciello et al., 2022; Yu et al., 2020), shredding trust amongst investors, consumers, and policymakers (Cerciello et al., 2022). Firms strategically select the data they want to share (Clarkson et al., 2008; Yu et al., 2020), appearing to be doing a lot in the ESG area while, in fact, it is just empty words in a report (Basu et al., 2022; Cho et al., 2015; Marquis et al., 2016). Consequently, the problem that seems to be addressed, is actually producing negative consequences like information asymmetry, as consumers and investors are not able to evaluate the true extent of a company's actions (Kim & Lyon, 2015; Li et al., 2022; Yu et al., 2020). For example, it is difficult for citizens to adequately analyse the amount of CO<sub>2</sub> emissions released when companies are manufacturing their products (Meisinger, 2022). The lack of reliability of ESG reporting is also due to the absence of a government authority that actually analyses and verifies the true extent of the actions on these reports (Yu et al., 2020).

Although green companies or products are attractive to consumers (Cerciello et al., 2022), the ambiguity surrounding the data – unaudited and non-existing standardization reporting – leaves question marks open about ESG as a whole (Yu et al., 2020). Even ESG rating agencies (which, in theory, should be independent) are not 100% trustworthy (Basu et al., 2022). The methodologies used vary (Friede, 2019) and, in some cases, consulting services are provided from the rating agency to companies they evaluate, causing a clear conflict of interests (Basu et al., 2022). These problems give companies space to influence the market with their reports (Clarkson et al., 2008).

## 2.2. ESG Washing

Synchronization between ESG reporting and ESG performance is still not a reality (Yu et al., 2020). Thus, the topic of ESG Washing becomes a relevant concern on financial markets (Yu et al., 2020). ESG Washing can be viewed as an extension of the popular greenwashing (Candelon et al., 2021; Yu et al., 2020), where companies engage in this practice by providing deceived information, i.e., not being truthful about their ESG practices (Bowen & Aragon-Correa, 2014; Delmas & Burbano, 2011; Lyon & Montgomery, 2015; Yu et al., 2020). This strategy overstates the ESG measures, giving the impression that a corporation cares deeply about sustainability and ethics even though their actual performance falls well short of their claims (Lyon & Montgomery, 2015; Yu et al., 2020). As a result, corporations publish a lot of data to deceive stakeholders, hiding the poor ESG performance behind their statements, which benefits them but harms society (Bowen & Aragon-Correa, 2014; Yu et al., 2020). Thus, the disparity between a company's statements and practice may be viewed as the extent of their greenwashing practices (Testa et al., 2018).

Although this seems a problem only engaged by companies, the extent is much bigger. Governments, politicians, universities, research organizations, environmental policy experts, and industries were involved in ESG Washing (Lyon & Montgomery, 2015). Moreover, the United Nations, World Bank, and OECD faced several accusations of this behaviour in these organizations (Lyon & Montgomery, 2015). There is rising mistrust about ESG in the financial markets because of the involvement of so many significant organizations in ESG Washing (Chang, 2011; Lyon & Montgomery, 2015). Since the behaviour is intentional (Bowen & Aragon-Correa, 2014), this a question especially worrying.

As outlined by Yu et al. (2020), there are three main types of greenwashing. The first, is trying to improve a company's market value by misrepresenting disclosure (Marquis et al., 2016; Yu et al., 2020). By reporting substantial information, firms overstate the extent of their practices (Lyon & Montgomery, 2015; Yu et al., 2020). Another type is selective reporting with the intention to misguide stakeholders (Marquis et al., 2016; Yu et al., 2020). Companies strategically select the information they reveal, they give investors a false image of the company since they do not disclose negative data (Yu et al., 2020). Thirdly, there is also ESG Washing on products (Delmas & Burbano, 2011; Yu et al., 2020), in which corporations may claim that their items are 'eco' or 'environmentally friendly' in order to

boost revenue (Delmas & Burbano, 2011; Yu et al., 2020). Stakeholders find it difficult to identify these activities, making ESG Washing profitable for businesses at extremely low expense (Li et al., 2022). Without making substantial investments, businesses can demonstrate market compliance, handling pressures from stakeholders (Bowen & Aragon-Correa, 2014) and yet improve their financial success (Li et al., 2022; Mallin et al., 2013).

As a result, corporations find it simple to partake in ESG Washing due to external, organizational, and individual reasons. (Delmas & Burbano, 2011). Non-market external motivations are the key drivers of ESG Washing – regulation and monitoring play a big role (Delmas & Burbano, 2011). Regulation on ESG Washing is still scarce in most countries, giving authorities extremely little capacity to hold offenders accountable (Delmas & Burbano, 2011). Consequently, much of the monitoring is done by non-profit organizations (NGO) or media, with them doing their own research, trying to make companies pay in some way for their bad practices (Delmas & Burbano, 2011).

Although, standalone non-market external drivers do not explain everything – it is needed to consider market external reasons, as well as organizational and individual drivers (Delmas & Burbano, 2011). Consumers and investors are part of the market external drivers to ESG wash by forcing companies to become increasingly sustainable (Delmas & Burbano, 2011). Additionally, concern of being surpassed by their rivals can trigger ESG Washing by firms, making competition an market external driver (Delmas & Burbano, 2011). Those drivers are impacted by non-market external drivers since the lack of regulation and monitoring makes consumers disbelieve about the firm's ESG practices (Chang, 2011; Delmas & Burbano, 2011). Moreover, company characteristics, size, incentives, and values affect how businesses react to non-external factors; many businesses will react differently to the same circumstances (Delmas & Burbano, 2011). Finally, behaviour also influences the tendency to exaggerate the scope of ESG practices (Delmas & Burbano, 2011). Optimistic bias or narrow decision framing might influence decision-makers into thinking they will not be found indulging in these behaviours or neglecting the costs of actually putting the claimed measures into action (Delmas & Burbano, 2011).

There are many ways in which a company can mislead consumers. Even without real changes, selective disclosure, via which businesses report on their sustainability, might be valuable (Lyon & Montgomery, 2015; Marquis et al., 2016). Another form is empty claims with companies not fulfilling their promises to stakeholders, leaving their policies as only words without meaning (Lyon & Montgomery, 2015). Moreover, misleading discourse



and images was also found (Mason & Mason, 2012), whereby corporations use rhetorical strategies sway people's perceptions of them (Lyon & Montgomery, 2015). Also, although certified sustainability labels on products might be thought of as a defence against ESG Washing, there have been instances when they have been used fraudulently, raising doubts about them, even when they are legitimate (Lyon & Montgomery, 2015). Finally, because NGOs are not exempt from engaging in these behaviours, collaborations with them could also be a façade (Lyon & Montgomery, 2015). Thus, companies can be misleading their consumers in firm-level or product-level (Delmas & Burbano, 2011).

Firms ESG wash because they believe that it will produce positive outcomes. However, these practices have effects on the social welfare of society (Lyon & Montgomery, 2015). As the allegations increase, the distrust of stakeholders in ESG increases as well (Lyon & Montgomery, 2015; Marquis et al., 2016). The companies that seem to cause the greatest damage are the ones who enhance their disclosure, so their concerns are confirmed (Marquis et al., 2016). This negative perception by shareholders might cause a negative impact in the firm's profitability (Walker & Wan, 2012). However, some firms opt to adopt a 'brownwashing' strategy, that reports less than what they actually due in ESG factors, i.e., they understate the extent of their ESG practices (Testa et al., 2018). Due to the fact that some customers find ESG to be expensive and unproductive, businesses choose to brownwash in hopes of retaining these stakeholders (Testa et al., 2018).

In fact, the nature of the reaction of the market to ESG Washing is yet to be deeply studied (Du, 2015; Li et al., 2022), and most of the studies only analyse the environmental pillar of ESG. The relationships found were not unanimous, with studies finding positive (Amores-Salvado et al., 2023; Li et al., 2022), negative (Du, 2015; Walker & Wan, 2012) and inconclusive (Testa et al., 2018) relationships between ESG Washing and corporate performance. In a study where Chinese firms between the years 2011 and 2012 were analysed, Du (2015) tested the impact of perceived greenwashing practices on cumulative abnormal returns. Greenwashing, specified as a dummy variable that equalled 1 if a corporation was found greenwashing and 0 otherwise, was used by the author to measure the influence of ESG Washing exclusively on the environmental pillar. Du (2015) found a negative association between greenwashing and market performance measured by cumulative abnormal returns, proving that, when stakeholders perceive ESG Washing, they punish the company.

As stated before, these practices are not easily identified by stakeholders; thus, unperceived situations must also be considered to completely comprehend the correlation between ESG Washing and performance. Although the research done by Du (2015) established the relationship taking into account clear ESG Washing cases, Seele and Gatti (2017) argue that the relationship should consider unperceived cases. In a research by Walker and Wan (2012) which looked at more than 100 top Canadian businesses in the polluting industries, a negative correlation between greenwashing and financial success was also discovered. They were able to capture the dynamic character of the connection and consider any changes that take place over time by employing lagged ROA. Regarding greenwashing, it was defined by the difference between symbolic action and actual action. In their analysis of over 3500 enterprises from 58 countries using the same notion of greenwashing as Walker and Wan (2012), Testa et al. (2018) observed an insignificant correlation between "greenwashing" and performance, both financial and market. Relying on the same definition of greenwashing, i.e., the difference between what is communicated and what is done, Li et al. (2022) analysed 735 Chinese companies for 5 years, between 2013 and 2017, where ROA was positively impacted by greenwashing. Finally, Amores-Salvado et al. (2023) found that greenwashing has a positive effect on market performance, in their study of European, American, and Canadian companies throughout 4 years.

Thus, since just the environmental pillar is examined and the outcomes are not consistent, the research on the link between ESG Washing and performance is still in its early stages. It's also vital to consider that market responses to these behaviours may be easier to observe than financial responses, since markets react quickly to new information, while financial performance is observed mostly by the company's reports. Consequently, market performance should express the short-term reaction from stakeholders, whereas financial performance shows the long-term impact of ESG Washing. Moreover, Yu et al. (2020) outline that companies often use this practices to increase their market value and to show compliance to the different stakeholders so, one should expect a positive impact on performance. For all the reasons mentioned and given that the investigation will employ situations of unperceived ESG Washing, the following hypothesis is expected:

***Hypothesis 1 (H1):*** *Greenwashing, Social Washing and Governance Washing positively affect financial performance.*

***Hypothesis 2 (H2):*** *Greenwashing, Social Washing and Governance Washing positively affect market performance.*

ESG practices have been increasingly popular not only in developing countries, but also in emerging markets (Huang et al., 2020). Although this may seem a positive trend, adopting these practices in emerging countries comes at cost, since the companies that come from these countries are usually dependent of natural resources (OECD, 2012). Thus, these companies also engage in ESG Washing behaviours, despite the fact the characteristics are different (Huang et al., 2020). Firms that engage in these behaviours in emerging markets can gain real advantage over the competition given the unpredictability about competitors (Huang et al., 2020) and the major costs associated with these practices. Many companies might not be able to both compete in the market and be sustainable.

Moreover, consumers of developing countries are not as familiar with the concepts of sustainable companies as the one's of developed economies (Huang et al., 2020). Companies may use customers' lack of awareness to their advantage by using ESG Washing to promote their products, services or even the enterprise as sustainable. Although some countries have a few regulations to address this issue (Delmas & Burbano, 2011), the lack of regulation is still a problem also in developing economies. Thus, this study hypothesizes the following:

***Hypothesis 3 (H3):*** *Greenwashing, Social Washing and Governance Washing will have a superior effect in financial performance in emerging countries than in developing countries.*

***Hypothesis 4 (H4):*** *Greenwashing, Social Washing and Governance Washing will have a superior effect in market performance in emerging countries than in developing countries.*

### **2.3. Contribution to the Literature**

Researchers have studied the relationship between greenwashing and performance, meaning that they focus on just one pillar of ESG methodology. This study will contribute to literature by analysing all 3 pillars separately. The study will be able to analyse the effects of Social Washing and Governance Washing on performance in addition to shedding light on the conflicting findings made by earlier studies on the relationship between Greenwashing and success. Moreover, by adopting the methodology used by Yu et al. (2020), it is possible to capture unperceived cases of ESG Washing, enhancing the analyses.

By capturing these unnoticed situations, the study is able to truly understand the reactions of stakeholders to ESG Washing. Additionally, the study's ability to assess the impact on market and financial performance allows it to assess both the short and long-term effects of ESG Washing.

Moreover, most studies only focus on either one country (Du, 2015; Li et al., 2022; Walker & Wan, 2012) or in one continent (Cerciello et al., 2022), meaning that their results could be limited to the specific region chosen. For example, in China laws regarding the environment vary according to region and they also have a major problem of environmental pollution (Li et al., 2022). These factors make China a country where unperceived cases of Greenwashing might be advantageous to companies, making them an interesting place to study the effects. By enlarging the sample, this study will be able not only to capture these effects of emerging economies such as China, but also the effects on developed countries. Additionally, the study will examine a period of seven years, two of which were marked by a global pandemic. Other studies have analysed fewer years (Cerciello et al., 2022; Du, 2015; Li et al., 2022; Walker & Wan, 2012). Finally, the number of countries in the sample allows to separate developed countries from emerging economies. Thus, this study will be able to measure the effect of ESG Washing on both developed and developing countries, understanding the different characteristics of both.

### **3. Methodology**

#### **3.1. Dependent Variable – ROA & MBVE**

Most recent studies studying the relationship between ESG Washing and financial performance have used ROE or ROA as a proxy of financial performance (e.g., Cerciello et al., 2022; Khan, 2022; Li et al., 2022; Testa et al., 2018). The primary model of this study will contain ROA as a dependent variable to assess the influence of ESG Washing has on financial performance. ROA is the net income divided by total assets.

MBVE will be used to measure market performance, as per Testa et al. (2018). Market performance will be measured by the ratio between the company's market capitalization and the book value of equity. Instead of the simple ratio, it will be used the natural log to avoid skewed distributions and bring normality.

#### **3.2. Independent Variables**

##### *ESG Washing*

ESG Washing is still complex to evaluate due to the difficulty of identifying unperceived practices. Consequently, scholars have measured it in various ways. Du (2015) opted for analyse only the perceived cases of ESG Washing, introducing dummy variable that was 1 if a company had engaged in these activities, and 0 otherwise. Although, there are other cases that go unnoticed that need to be taken into account in order to establish a precise connection (Seele & Gatti, 2017). Thus, further research was conducted that considered the situations that were not noticed, and ESG Washing was identified as the discrepancy between reporting and performance.

Yu et al. (2020) defined ESG washers as companies that disclose large amounts of data to seem sustainable when, in reality, they performed poorly in ESG aspects. To correctly evaluate the extent of unperceived ESG Washing practices, the author created a peer-relative score that represented the position of the company compared to its peers. As it assesses the company's relative strengths and weaknesses in comparison to other firms in the same sector, using peers enables scoring to be defined according to industry criteria, resulting in a more extensive and precise review of the company's performance. Using the same methodology proposed by Yu et al. (2020), ESG Washing and the 3 pillars will be expressed as followed:

### *ESG Washing*

$$= (\text{peer relative Bloomberg ESG Disclosure Score}) - (\text{peer relative Refinitiv ESG Score}) \quad (4.1)$$

Both Bloomberg and Refinitiv use completely different approaches to construct their ESG ratios. Bloomberg builds its ratios using 'as-reported' ESG Data that the firm has made available in sustainability reports, annual reports, websites, or other public sources (Bloomberg Professional Services, 2023; Huber & Comstock, 2017). As stated before, there are several issues with ESG reporting, therefore relying ESG ratings on reports results in biased assessments since corporations have an opportunity to emphasize their dedication to ESG practices. Refinitiv bases their ESG ratings on performance of companies, covering all ESG aspects having 630 measures grouped in 10 categories that then convert into an industry weighted ESG ratio (Refinitiv, 2022). Refinitiv provide an objective ESG rating that is based on results by using these metrics.

Since Bloomberg scores only take into consideration what a firm reports and Refinitiv considers a company's performance in ESG elements, this approach developed by Yu et al. (2020) enables the acquisition of a proxy for unperceived cases of ESG Washing. The peer relative score will be obtained as follows:

$$\text{normalized peer relative score ESG Disclosure Score: } \frac{\frac{D_{ij}}{100} - \bar{D}}{\sigma_D} \quad (4.2)$$

$$\text{normalized peer relative score ESG Performance Score: } \frac{\frac{P_{ij}}{100} - \bar{P}}{\sigma_P} \quad (4.3)$$

Where:  $D_{ikj}$ : ESG Bloomberg disclosure score of company  $i$  in the year  $j$ ;

$\bar{D}$ : Average of industry specific ESG Bloomberg disclosure scores;

$\sigma_D$ : Standard deviation of industry specific ESG Bloomberg disclosure scores;

$P_{ikj}$ : ESG Refinitiv performance score of company  $i$  in the year  $j$ ;

$\bar{P}$ : Average of industry specific ESG Refinitiv performance scores;

$\sigma_P$ : Standard deviation of industry specific ESG Refinitiv performance scores.

The first step into obtaining peer relative score is to divide the ESG Score provided by rating agencies by 100 so the values can be between 0 and 1. The data must then be normalized to the same scale in order to make comparisons and interpretations easier and to minimize the effect of outliers. To facilitate comparisons and interpretations, as well as minimize the effect of outliers, the data will be normalized to the same scale by subtracting the mean and dividing by the standard deviation according to the industry in which the company is inserted. Consequently, the proxy of ESG Washing will be the difference between the normalized peer relative score ESG Bloomberg disclosure score and the normalized peer relative score ESG Refinitiv performance score:

$$ESG\ Washing = \frac{\frac{D_{ij}}{100} - \bar{D}}{\sigma_D} - \frac{\frac{P_{ij}}{100} - \bar{P}}{\sigma_P} \quad (4.4)$$

Greenwashing, Social Washing & Governance Washing

It is feasible to create a score that indicates the degree of "washing" for each ESG pillar, i.e., greenwashing (environmental pillar), social washing, and governance washing, by separating the various ESG categories, which results as follows:

$$Greenwashing = \frac{\frac{D_{ije}}{100} - \bar{D}_e}{\sigma_{D_e}} - \frac{\frac{P_{ije}}{100} - \bar{P}_e}{\sigma_{P_e}} \quad (4.5)$$

$$Social\ Washing = \frac{\frac{D_{ijs}}{100} - \bar{D}_s}{\sigma_{D_s}} - \frac{\frac{P_{ijs}}{100} - \bar{P}_s}{\sigma_{P_s}} \quad (4.6)$$

$$Governance\ Washing = \frac{\frac{D_{ijg}}{100} - \bar{D}_g}{\sigma_{D_e}} - \frac{\frac{P_{ijg}}{100} - \bar{P}_g}{\sigma_{P_e}} \quad (4.7)$$

Where:  $D_{ike}$ : Environmental disclosure score of company  $i$  in the year  $j$ ;  
 $\bar{D}_e$ : Average of industry specific environmental disclosure scores;  
 $\sigma_{D_e}$ : Standard deviation of industry specific environmental disclosure scores;  
 $P_{ije}$ : Environmental performance score of company  $i$  in the year  $j$ ;

$\bar{P}_e$ : Average of industry specific environmental performance scores;  
 $\sigma_{P_e}$ : Standard deviation of industry specific environmental performance scores;  
 $D_{iks}$ : Social disclosure score of company  $i$  in the year  $j$ ;  
 $\bar{D}_s$ : Average of industry specific social disclosure scores;  
 $\sigma_{D_s}$ : Standard deviation of industry specific social disclosure scores;  
 $P_{ijs}$ : Social performance score of company  $i$  in the year  $j$ ;  
 $\bar{P}_s$ : Average of industry specific social performance scores;  
 $\sigma_{P_s}$ : Standard deviation of industry specific social performance scores;  
 $D_{ikg}$ : Governance disclosure score of company  $i$  in the year  $j$ ;  
 $\bar{D}_g$ : Average of industry specific governance disclosure scores;  
 $\sigma_{D_g}$ : Standard deviation of industry specific governance disclosure scores;  
 $P_{ijg}$ : Governance performance score of company  $i$  in the year  $j$ ;  
 $\bar{P}_g$ : Average of industry specific governance performance scores;  
 $\sigma_{P_g}$ : Standard deviation of industry specific governance performance scores;

The expected ESG Washing scores are threefold. A positive one, implying that the firm is sharing more information than their real performance. A neutral one, when companies align their disclosure with their performance. Negative results are also conceivable when businesses use the "brownwashing" tactic to understate their success on ESG issues.

### 3.3. Control Variables

Multiple controls will be incorporated into the model, improving the model specification and increasing the accuracy of the estimations. Additionally, since controls capture effects between the independent variables and dependent variable that would not otherwise be seen, endogeneity may be addressed. Therefore, this will be a vital step to guarantee the analysis's robustness. To do so, the quarterly model from Buchanan et al. (2018) is adapted to a yearly model. Also, some of the variables use different proxies due to data availability.



### Firm Size

Company characteristics are one of ESG Washing drivers. Smaller firms have limited capital and need to be meticulous on how to spend it. ESG policies are therefore more expensive for smaller enterprises to implement than for larger ones. As Chen et al. (2006) noticed, bigger companies have higher tendency to engage in these factors, making controlling for size critical to understand the behaviour and performance of firms across different sizes. Moreover, business size may significantly affect profitability (Dang et al., 2017), but this connection is complicated and varies depending on the context (Cerciello et al., 2022), thus controlling for firm size will result in a more accurate response to the research question. The natural log of the total assets will control the impact of business size (Buchanan et al., 2018).

### Leverage

Although Buchanan et al. (2018) used the total debt to assets to measure leverage, in this study leverage will be established debt-to-equity ratio. Leverage is widely used in finance to comprehend the risk associated with a specific company, as companies that present an high debt-to-equity ratio may have difficulties to get more capital in the future (Cerciello et al., 2022). Also, a company with increased leverage might be more cautious with their endeavours so, using leverage as a control may avoid biased results. Additionally, debt may be strategically employed to either restructure the capital structure to lower the cost of capital or to get tax benefits. In the end, the link between debt and influence is still ambiguous, with writers identifying both adverse and favourable associations (Cerciello et al., 2022).

### Growth

Assessing growth is crucial because it may be used to track changes in the economy through time; otherwise, inaccurate findings may follow. As it tracks the percentage rise in revenues, revenue growth often represents a company's growth. In this study, to serve as a proxy of growth, the log difference of revenues in the year t and the year t-1 will be used, as was also by Testa et al. (2018). The study believes that capturing growth through logarithmic will yield a better understanding of this variable than the one used by Buchanan et al. (2018), where it was only used growth as the increase of revenue in percentage points.

### Liquidity

Companies with higher liquidity are more likely to be able to meet short-term obligations so, accounting for liquidity will allow to eliminate this effect. Buchanan et al.

(2018) used cash and short-term investments to evaluate liquidity and the ability for companies to address urgent costs. However, the databases at our display, did not hold sufficient data to correctly evaluate this matter. Liquidity will then be established by using the current ratio, i.e., dividing current assets by the current liabilities (Walker & Wan, 2012; Yu et al., 2020). A positive relationship between liquidity and the propensity to adopt environment tendencies was found previously (Lee & Rhee, 2007) so, control for this variable will also be important.

#### Asset Turnover

Asset turnover is a great measure of efficiency, allowing to understand how much return a company is able to generate through its assets. Following Alareeni and Hamdan (2020), asset turnover will be used so the study is able to account for these differences in operational efficiency and improve the overall model quality. Moreover, there are industries that require greater asset investment thus, including it in the analysis the model will be able to address these differences across industries. The ratio of revenues to total assets will be used to calculate asset turnover. Moreover, since there was not quality data available for the ratio fixed assets to assets used in Buchanan et al. (2018), it was thought necessary to add another variable related to assets.

#### Operating Margin

Another control that will be used is operating margin, offering evidence on other particular factors influencing financial performance outside profitability. This is possible because the study will isolate the effects of other variables of interest, by maintaining profitability constant. Thus, operating margin will act as our control for profitability. Operating margin will be measured as the ratio of earnings before interests and taxes (EBIT) and revenues (Chen & Xie, 2022; Yu et al., 2018).

#### Capital Expenditure/Book Assets

The research believes that is necessary to control for investment efficiency, i.e., if the investments made produce the desired outcomes. Additionally, businesses operating in capital-intensive industries may see a different ROA than those operating in less capital-intensive industries. A ratio of capital expenditures to book value of assets will be employed to control for this (Buchanan et al., 2018).

The research wanted to explore also ESG Washing as whole, not just divided by pillars. However, the Bloomberg database did not provide a global ESG Disclosure Score

so, without an ESG Score, it was not possible to compute an ESG Washing variable. The main model, including all the variables and controls, is presented below:

$$ROA_{it} = \beta_0 + \beta_1 GreenW_{it} + \beta_2 SW_{it} + \beta_3 GW_{it} + \beta_4 Controls_{it} + u_i + \varepsilon_{it} \quad (4.8)$$

$$MBVE_{it} = \beta_0 + \beta_1 GreenW_{it} + \beta_2 SW_{it} + \beta_3 GW_{it} + \beta_4 Controls_{it} + u_i + \varepsilon_{it} \quad (4.9)$$

Where: *GreenW<sub>it</sub>*: Greenwashing score of company i in the year t;

*SW<sub>it</sub>*: Social Washing score of company i in the year t;

*GW<sub>it</sub>*: Governance Washing score of company i in the year t;

*Controls<sub>it</sub>*: Vector that includes all control variables;

*u<sub>i</sub>*: Within-entity error term;

*ε<sub>it</sub>*: Overall error term.

## 4. Data

### 4.1 Sample

As previously highlighted by Huber and Comstock (2017), there are numerous rating agencies, each one with their unique methodology, scope and coverage. As a result, outcomes will differ depending on the chosen database. Two datasets will be used for this study.

The first, is the Bloomberg ESG Data Service. Bloomberg launched their ESG Data Service in 2009, when they acquired New Energy Finance (Huber & Comstock, 2017). They evaluate companies annually, based on their reporting on ESG factors. Over 88% of all corporations are included in the Bloomberg database, and their process is centred on standardizing the reports that companies produce, dating as far as 2006 (Bloomberg Professional Services, 2023). In this dataset it will be needed the ESG disclosure score, a measure that shows the quantity of information that the firm makes available to the public.

The second one is the Refinitiv Datastream – Eikon. Refinitiv has one of the largest ESG databases on the market and bases its ESG Score on the performance of the firms it evaluates. With the acquisition of the ASSET4 dataset, Refinitiv now has 12 500 firms that are assessed weekly using their ESG approach (Refinitiv, 2022). Their methodology is transparent and takes into account the company's size and the peculiarities of the sector it operates in (Refinitiv, 2022). The three ESG pillars are each evaluated using over 180 assessment criteria (Refinitiv, 2022), giving the overall ESG Score as well as scores for each of the three pillars separately.

The MSCI All Country World Index, which includes 2833 firms from 23 developed countries and 23 emerging countries, was used as the study's sample (MSCI, 2023). Although MSCI All Country World Index includes 24 emerging economies, data for companies of Peru were not available, resulting in the country being excluded from the sample. The developed countries included in this index are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom and the United States of America, while the emerging countries are Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Philippines, Poland, Qatar, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates, representing 85% of the world

market capitalization (MSCI, 2023). The research will be able to stand out from earlier works by employing a global index rather than a country-specific one, which allows to produce more accurate results, evaluating both developed and emerging countries. Regarding the time span that will be analysed, it will be a period of 7 years from 2015 to 2021. Previous studies have used a period of 5 years to analyse this ESG Washing (e.g. Li et al., 2022; Yu et al., 2020) however, the pandemic years could bias conclusions because they were atypical years, with fast downfall and a fast recovery as well.

The Refinitiv Workspace for Students' screener software was first utilized to create the sample. It was started by narrowing the universe to only include companies that were included in the MSCI All Country World Index, which brought us to 2833 businesses. After that, filters were added to the database to eliminate businesses that had no value for either of the three pillars (environmental, social, and governance) in either of the years. The same number of companies were still left after applying these restrictions, demonstrating how comprehensive the Refinitiv database is. Finally, in the Refinitiv Workspace for Students it was added all the variables necessarily to estimate the model.

To continue building the sample, it was used a Bloomberg Terminal at Nova School of Business and Economics to retrieve information about performance regarding the three pillars. In the terminal, it was not allowed to filter by MSCI All Country World Index so, it was retrieved the information necessary about all available companies, leaving with 5982 companies. Then, it was necessary to clean the data, comparing the sample of Refinitiv with the sample of Bloomberg to search for the same companies. For that it was used excel, searching for duplicate values in the companies' names, deleting all that were non-duplicates. Afterwards, companies that did not have values for either of the pillars in any of the years were eliminated, leaving 2499 companies from 11 sectors to study.

Since all the firms had been identified, it was time to establish the variables for greenwashing, social washing, and governance washing. Throughout the 7 years of analysis and the 2499 companies, the number of observations was 17494 although, not all these observations had values for ROA, MBVE, Greenwashing, Social Washing, and Governance Washing. Observations that did not meet the requirement of having values for those variables were also excluded from the model, leaving 8743 observations for ROA and 8532 for MBVE throughout 1653 companies. Table 1 overviews the number of observations in each sector, with industrials representing 19,4% of the sample.

Additionally, table 2 displays the observations broken down by nation, with the United States and Japan having the highest representation (24,8% and 12,1%, respectively).

**Table 1.** Number of observations by country.

| Country                    | Number of Observations | Percentage |
|----------------------------|------------------------|------------|
| Australia                  | 238                    | 2,699%     |
| Austria                    | 21                     | 0,2402%    |
| Belgium                    | 43                     | 0,492%     |
| Brazil                     | 132                    | 1,510%     |
| Canada                     | 314                    | 3,591%     |
| China                      | 633                    | 7,240%     |
| Chile                      | 45                     | 0,515%     |
| Colombia                   | 6                      | 0,069%     |
| Czech Republic             | 7                      | 0,080%     |
| Denmark                    | 70                     | 0,801%     |
| Finland                    | 53                     | 0,606%     |
| France                     | 322                    | 3,683%     |
| Germany                    | 228                    | 2,608%     |
| Greece                     | 18                     | 0,206%     |
| Hong Kong                  | 473                    | 5,410%     |
| Hungary                    | 7                      | 0,080%     |
| India                      | 358                    | 4,095%     |
| Indonesia                  | 75                     | 0,858%     |
| Ireland                    | 27                     | 0,309%     |
| Israel                     | 5                      | 0,057%     |
| Italy                      | 92                     | 1,052%     |
| Japan                      | 1054                   | 12,055%    |
| Korea; Republic (S. Korea) | 293                    | 3,351%     |
| Kuwait                     | 13                     | 0,149%     |
| Malaysia                   | 136                    | 1,556%     |
| Mexico                     | 93                     | 1,064%     |
| Netherlands                | 70                     | 0,801%     |

|                          |      |         |
|--------------------------|------|---------|
| New Zealand              | 31   | 0,355%  |
| Norway                   | 46   | 0,526%  |
| Philippines              | 59   | 0,675%  |
| Poland                   | 32   | 0,366%  |
| Portugal                 | 28   | 0,320%  |
| Qatar                    | 3    | 0,034%  |
| Saudi Arabia             | 27   | 0,309%  |
| Singapore                | 71   | 0,812%  |
| South Africa             | 143  | 1,636%  |
| Spain                    | 95   | 1,087%  |
| Sweden                   | 122  | 1,395%  |
| Switzerland              | 145  | 1,658%  |
| Taiwan                   | 342  | 3,912%  |
| Thailand                 | 166  | 1,899%  |
| Turkey                   | 51   | 0,583%  |
| United Arab Emirates     | 14   | 0,160%  |
| United Kingdom           | 372  | 4,255%  |
| United States of America | 2172 | 24,842% |

**Table 2.** Number of observations by sector.

| Sector                 | Number of Observations | Percentage |
|------------------------|------------------------|------------|
| Communication Services | 542                    | 6,199%     |
| Consumer Discretionary | 1036                   | 11,849%    |
| Consumer Staples       | 982                    | 11,231%    |
| Energy                 | 593                    | 6,783%     |
| Financials             | 157                    | 1,796%     |
| Health Care            | 606                    | 6,931%     |
| Industrials            | 1692                   | 19,353%    |
| Information Technology | 924                    | 10,568%    |
| Materials              | 1188                   | 13,588%    |
| Real Estate            | 496                    | 5,673%     |
| Utilities              | 527                    | 6,028%     |

## 4.2. Descriptive Statistics

Table 3 provides descriptive statistics for all the variables. Again, the mean and median shows that companies prefer to engage in brownwashing behaviours in all 3 components of ESG, instead of strategies that enhance their sustainable involvement. While the maximum and minimum values for Greenwashing and Social Washing are similar those for Governance Washing have minimum values that are substantially lower than those for Greenwashing and Social Washing while additionally exhibiting maximum values that are noticeably lower.

**Table 3.** Descriptive statistics.

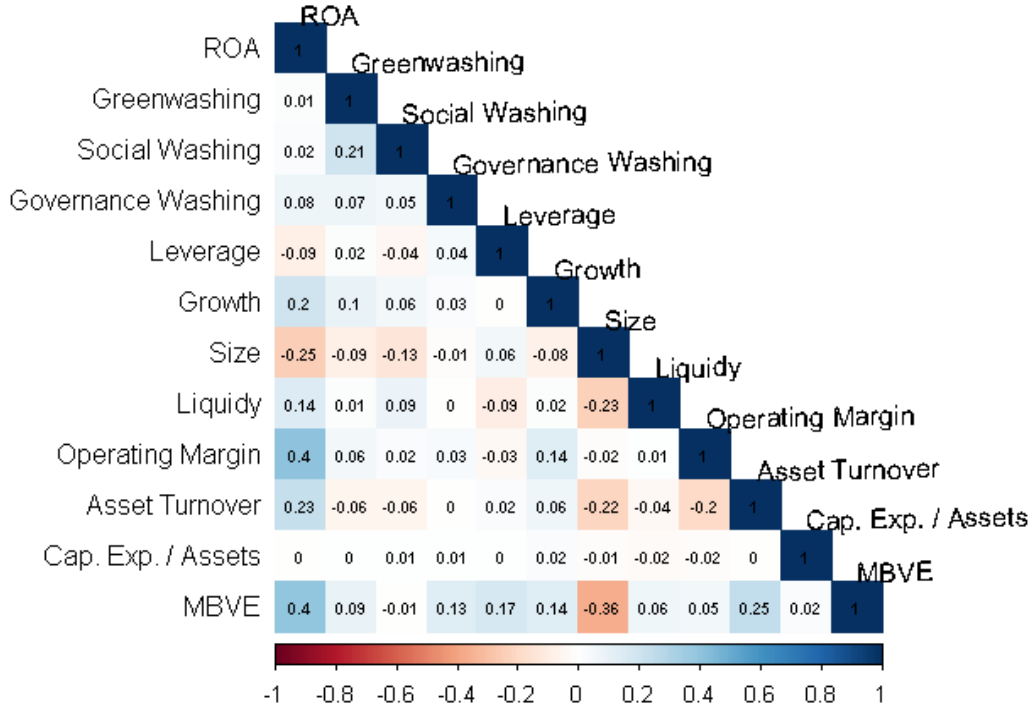
| Statistic                  | N    | Mean   | St. Dev. | Min.    | Max.   | Median |
|----------------------------|------|--------|----------|---------|--------|--------|
| Greenwashing               | 8743 | -0,040 | 0,958    | -2,482  | 5,142  | -0,073 |
| Social Washing             | 8743 | -0,010 | 0,958    | -2,418  | 4,990  | -0,092 |
| Governance Washing         | 8743 | -0,018 | 0,862    | -3,822  | 2,824  | -0,012 |
| Leverage                   | 8743 | 0,474  | 0,402    | -22,962 | 7,944  | 0,444  |
| Growth                     | 8743 | 0,023  | 0,095    | -0,914  | 2,038  | 0,018  |
| Size                       | 8743 | 9,539  | 1,251    | 5,131   | 13,965 | 9,528  |
| Liquidity                  | 8743 | 1,650  | 1,267    | 0,032   | 35,183 | 1,358  |
| ROA                        | 8743 | 0,062  | 0,080    | -2,759  | 0,846  | 0,053  |
| Capital Expenditure/Assets | 8743 | 0,048  | 0,037    | 0,000   | 0,418  | 0,039  |
| Operating Margin           | 8743 | 0,157  | 0,290    | -9,212  | 8,200  | 0,122  |
| Asset Turnover             | 8743 | 0,754  | 0,578    | 0,002   | 5,494  | 0,633  |
| MBVE                       | 8532 | 1,033  | 1,014    | -6,803  | 7,115  | 0,911  |

Multicollinearity can be a problem when creating a model. Thus, Figure 1 provides a correlation matrix amongst the variables. Operating margin ( $r=0,40$ ) showed the largest correlations with the dependent variable in terms of positive linkages, nevertheless this value only indicates moderate correlation, not multicollinearity. Size expressed a negative correlation with MBVE ( $r=-0,36$ ), ROA ( $r=-0,25$ ), liquidity ( $r=-0,23$ ), and asset turnover ( $r=-0,22$ ). This means that the assets of larger firms do not produce returns as high as those of smaller firms. Multicollinearity shouldn't be a problem for this study, taking into



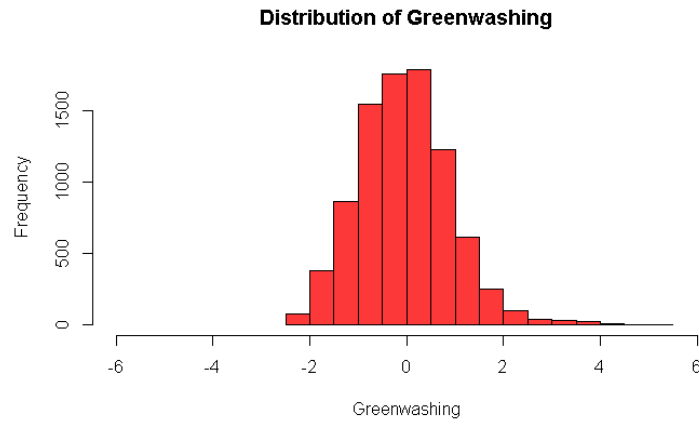
account all the variables, as the highest value discovered ( $r=0,40$ ) simply denotes modest correlation.

**Figure 1.** Correlation matrix.

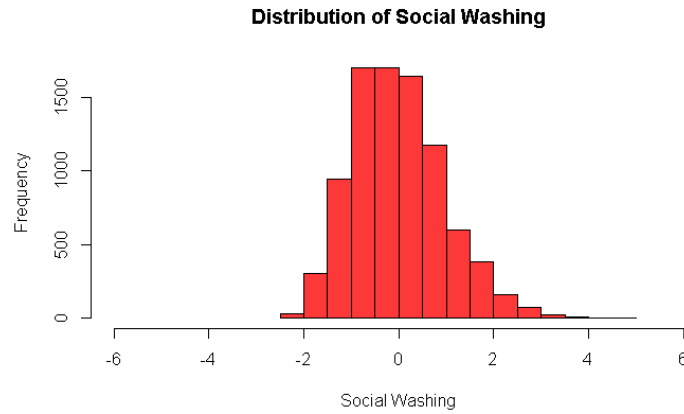


The distribution of observations of Greenwashing, Social Washing and Governance Washing are shown in Figure 2, Figure 3, and Figure 4, respectively. As it is observable and, in line with the findings of Yu et al. (2020), some companies opt to understate their achievements in ESG matters in order to keep investors who view ESG policies as expensive and insignificant to the firm. One surprising fact was that the median was negative for all the three variables, indicating that more companies engage in brownwashing strategies, despite the negative relation found by Testa et al. (2018).

**Figure 2.** Distribution of peer-relative greenwashing scores



**Figure 3.** Distribution of peer-relative social washing scores



**Figure 4.** Distribution of peer-relative governance washing scores

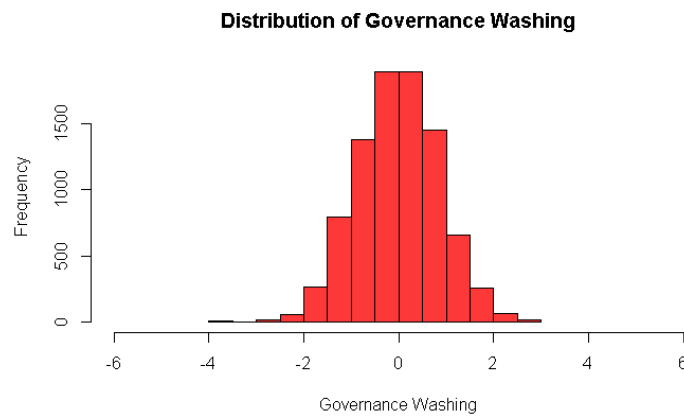


Table 4 presents the average values of Greenwashing, Social Washing, and Governance Washing by sector. Energy, Materials, and Utilities all had positive values for the three key variables of interest, indicating that these industries are more likely than

others to use these ESG Washing techniques across all categories. On the other hand, Communication Services, Consumer Discretionary, Industrials, and Information Technology have negative values across all categories, meaning that they are more prone to engage in brownwashing strategies. The value that raises some concern is the Greenwashing value demonstrated by companies belonging to the financial sector ( $r=1,471$ ). Although, since the financial sector represents less than 2% of the sample, this should not be an issue. However, this result indicates that businesses inserted in the financial sector have high values of greenwashing, i.e., they try to mislead consumers in order to look sustainable and gain financial advantage.

**Table 4.** Average values of greenwashing, social washing, and governance washing by sector.

| Sector                 | Firm Percentage | Average Greenwashing | Average Social Washing | Average Governance Washing |
|------------------------|-----------------|----------------------|------------------------|----------------------------|
| Communication Services | 6,199%          | -0,1509              | -0,017                 | -0,105                     |
| Consumer Discretionary | 11,849%         | -0,144               | -0,054                 | -0,037                     |
| Consumer Staples       | 11,232%         | -0,031               | -0,008                 | 0,049                      |
| Energy                 | 6,783%          | 0,054                | 0,088                  | 0,027                      |
| Financials             | 1,796%          | 1,471                | 0,063                  | -0,022                     |
| Health Care            | 6,931%          | -0,236               | 0,115                  | -0,169                     |
| Industrials            | 19,353%         | -0,080               | -0,027                 | -0,014                     |
| Information Technology | 10,568%         | -0,172               | -0,085                 | -0,062                     |
| Materials              | 13,588%         | 0,115                | 0,048                  | 0,039                      |
| Real Estate            | 5,673%          | -0,080               | -0,180                 | 0,019                      |
| Utilities              | 6,028%          | -0,018               | 0,026                  | 0,014                      |

Table 5 shows the average Greenwashing, Social Washing, and Governance Washing for developed countries and emerging economies. Neither emerging countries nor developed ones adopt a brownwashing strategy for all 3 pillars. Developed countries takes low values across the 3 categories, although with a tendency to brownwash in the

environmental and social pillars. In emerging countries are prone to ESG wash in the social pillar, while brownwash in the other two, demonstrating a stronger tendency on the governance pillar. Additionally, the sample comprises more developed-country enterprises than emerging-country ones.

**Table 5.** Average values of greenwashing, social washing, and governance washing by developed and emerging countries.

|                            | <b>Percentage</b> | <b>Average Greenwashing</b> | <b>Average Social Washing</b> | <b>Average Governance Washing</b> |
|----------------------------|-------------------|-----------------------------|-------------------------------|-----------------------------------|
| <b>Developed Countries</b> | 69,347%           | -0,024                      | -0,088                        | 0,079                             |
| <b>Emerging Countries</b>  | 30,653%           | -0,076                      | 0,168                         | -0,236                            |

## 5. Results

The study's findings will be presented in this section. The hypothesis for financial performance will be examined first, followed by the hypothesis for market performance. As a result, the first H1 and H3 will be evaluated, followed by the H2 and H4. This section also contains robustness checks to ensure the accuracy of the results and mitigate endogeneity.

### 5.1 ESG Washing Impact on Financial Performance

When using panel data there are several ways to determine the estimation method of the main model, including Between Estimator, First Differences Estimator, Pooled Ordinary Least Squares (OLS), Fixed Effects and Random Effects. The difference in the estimation methods is how they deal with the error terms.

Between Estimator, First Differences Estimator, and Pooled OLS were excluded from the options for this study. The between estimator is an OLS approach that accounts only for the individual dimension, ignoring the time dimension of the sample. Since both dimensions important are considered important, this is not a viable option. Pooled OLS was also excluded because it ignores the differences between individuals. As stated, both time and individual dimensions are important for the analysis, so Pooled OLS is also not the option. Finally, the first differences estimator similarly only takes into account time-invariant variables and has the significant drawback of omitting the first observation for every individual, since for each entity in the panel it subtracts the prior observation from the present observation, which might make the model less robust.

There were two alternatives available: fixed effects or random effects. The primary goal of the fixed effects model is to eliminate endogeneity, by allowing for heterogeneity amongst individuals. It accounts for individual variations by estimating the model based on various regression line intercepts for distinct people. The model works by introducing a dummy for each observation of the effect needed to control, also known as Least Squares Dummy Variable (LSDV). For example, to control for time effects, it is needed a dummy for each year. This way of computing a fixed effects model can bring multicollinearity problems, due to having too many variables. Alternatively, one can use the within estimator, which subtracts the Between Estimator from the original model. In this case, there is the need that the within transformed regressors are not correlated with the error term. Moreover, the within estimator focuses on “within” individuals, meaning that any

variables that are time-invariant will be absorbed by the fixed effects. Since the constant is a term that is time-invariant, that term will be absorbed by the fixed effects model estimated by the within estimator. It is important to note that this method could also diminish adjusted r-squared due to the within estimator's ability to decrease the dependent variable's fluctuation.

Regarding random effects, the time-invariant part of the error term is treated as part of error component that varies over time and individual. A random variable is used to treat individual effects, usually following a normal distribution. The random effects model takes into account that members of the panel were chosen at random, therefore a random intercept should also be used to quantify their features.

The Hausman Test was used to determine which of fixed effects and random effects was more appropriate to estimate the model. It tests the consistency and efficiency of the random effects model compared to the fixed effects model. Fixed effects should be used if the p-value is statistically significant; in the case that p-value is not statistically significant, the random effects is more suitable. Table 6 shows that the p-value was inferior 0,05, indicating that the fixed effects model was the one to use.

**Table 6.** Hausman Test for Random Effects and Fixed Effects.

| <b>Chisq.</b> | <b>Degrees of Freedom</b> | <b>P-Value</b> |
|---------------|---------------------------|----------------|
| 305,93        | 10                        | 0,000          |

The study will then use a fixed effects model, estimated by the within estimator. The model will be regressed three times in accordance with equation 4.8 to assess Hypothesis 1. First, to measure the impacts of all the elements of ESG Washing on ROA, the fixed effects will be individual and time. Only individual fixed effects and temporal fixed effects will be present in Models 2 and 3, respectively. By doing so, the study is able to see if the effects are significant and if the results vary throughout the different implied effects. Results are presented in table 7 with heteroskedastic and serial correlation robust standard errors. The adjusted r-squared was decreased and the constant term was absorbed by the within estimator, as expected.

**Table 7.** Regression results controlling for individual and time effects, individual effects, and time effects.

|                                       | <b>Model 1<br/>Individual and Time<br/>effects</b> | <b>Model 2<br/>Individual<br/>Effects</b> | <b>Model 3<br/>Time Effects</b> |
|---------------------------------------|--|---|---------------------------------|
| <b>Greenwashing</b>                   | 0,002<br>(0,001)                                   | 0,001<br>(0,001)                          | -0,001<br>(0,001)               |
| <b>Social Washing</b>                 | -0,000<br>(0,001)                                  | -0,0002<br>(0,001)                        | -0,001<br>(0,001)               |
| <b>Governance<br/>Washing</b>         | 0,004**<br>(0,002)                                 | 0,004**<br>(0,002)                        | 0,006***<br>(0,001)             |
| <b>Leverage</b>                       | -0,015<br>(0,013)                                  | -0,015<br>(0,013)                         | -0,013<br>(0,010)               |
| <b>Size</b>                           | 0,017***<br>(0,006)                                | 0,022***<br>(0,005)                       | -0,008***<br>(0,001)            |
| <b>Growth</b>                         | 0,055***<br>(0,013)                                | 0,064***<br>(0,012)                       | 0,100***<br>(0,024)             |
| <b>Liquidity</b>                      | 0,003***<br>(0,001)                                | 0,003***<br>(0,001)                       | 0,007***<br>(0,001)             |
| <b>Operating Margin</b>               | 0,134***<br>(0,023)                                | 0,135***<br>(0,023)                       | 0,124***<br>(0,007)             |
| <b>Capital<br/>Expenditure/Assets</b> | 0,042<br>(0,031)                                   | 0,036<br>(0,030)                          | 0,076***<br>(0,016)             |
| <b>Asset Turnover</b>                 | 0,113***<br>(0,009)                                | 0,112***<br>(0,008)                       | 0,040***<br>(0,002)             |

|                                   |            |            |            |
|-----------------------------------|------------|------------|------------|
| <b>Number of<br/>Observations</b> | 8743       | 8743       | 8743       |
| <b>Individual Effects</b>         | Yes        | Yes        | No         |
| <b>Time Effects</b>               | Yes        | No         | Yes        |
| <b>R-Squared</b>                  | 0,407      | 0,422      | 0,326      |
| <b>Adj. R-Squared</b>             | 0,267      | 0,286      | 0,184      |
| <b>F-Statistic</b>                | 485,458*** | 516,207*** | 348,946*** |

Note: Table 7 presents the results for equation 4.8., where in column one was employed individual and time fixed effects. Columns two and three only used individual fixed effects and time fixed effects, respectively. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

These findings on model 1 demonstrate that greenwashing and social washing, two of our three major variables, are not statistically significant. Thus, companies do not gain financial advantage by misleading consumers in the environmental and social pillar. Governance washing is statistically significant for p-value<0,05 indicating that ESG

Washing practices to boost financial performance only work on the governance pillar. Thus, misleading consumers in this pillar affects financial performance.

In governance washing the relationship found with ROA was a positive one, meaning that misleading consumers in the governance pillar of the ESG methodology, companies tend to increase this measure, in average, by 0,4%, *ceteris paribus*. Although this may not seem much of an increase, if the company considered has 250 million in net income, an increase of 0,4% is an increase of 1 million in net income.

The results on the governance pillar are not surprising since the study used the methodology proposed by Yu et al. (2020) that allows to model unperceived ESG Washing cases. However, regarding greenwashing and social washing, the results are, in fact, surprising. One would think that companies would gain financial advantage by looking more sustainable than what they really are. In theory, consumers are not able to identify which statements are true and which are not so, one would expect that a positive significant relationship would be found in all 3 categories. Since only in governance washing this was found, hypothesis 1 is only verified for governance washing.

When analysing controls, it is particularly intriguing that the variable leverage did not show statistical significance. Although it has some advantages, leverage is frequently a barrier for businesses since it reduces their financial flexibility due to risk, expense, restrictions on future borrowing, and even their inability to make significant investments in the future. Thus, one would expect that a negative and statistically significant relationship would be found. Furthermore, the ratio capital expenditures to assets was also statistically insignificant, demonstrating that it has no influence on ROA.

Regarding size, growth, liquidity, operating margin, and asset turnover, they all yield positive significant relationships with the dependent variable, for  $p\text{-value} < 0,01$ . It is important to note that the strong positive relationship found in size is interesting, due to complexity of the relationship between firm size and ROA (Cerciello et al., 2022).

Moving to model 2, where only individual fixed effects were employed, there is not many differences to be reported comparing to model 1. Our main variables stay stable in significance and relation with ROA, with governance washing demonstrating the same influence on ROA. Greenwashing and social washing remain statistically insignificant. Controls are all still identical to those in model 1 in every way. Also, there is a small increase in r-squared, improving the overall significance of the model when only individual fixed effects are used.



Only time fixed effects were included in model 3, and outcomes of the relevant variables are identical to those of models 1 and 2. Due to this consistency of the results, it may be concluded that greenwashing and social washing has none or, at most, a minimal influence on ROA. Furthermore, this analysis concludes that deceiving customers in the Governance Pillar increases returns since governance washing remains favourably related with ROA throughout the three models.

In controls, the research discovered that model 3's outcomes were distinct from those of models 1 and 2. First, as opposed to the positive association seen in models 1 and 2, size now has a negative correlation with the dependent variable, for  $p\text{-value} < 0,01$ . As stated before, the link between size and returns is complicated and depends on other factors, according to Cerciello et al. (2022). Additionally, the ratio between capital expenditures to assets become significant under model 3 for  $p\text{-value} < 0,01$ . Finally, growth almost doubles the influence it showed in model 1, while asset turnover decreases to more than half the previous values found.

All of these discrepancies, together with the fact that R-Squared decreased to 0,326, make one wonder if time effects are accurate and if they are indeed necessary. Thus, it was conducted a Lagrange Multiplier Test (Breusch & Pagan, 1980) to test if time effects were indeed necessary or, if just implying individual effects would be better. The results of the test are provided in table 8. The  $p\text{-value} < 0,05$  indicates that time fixed effects are necessary, meaning that model 1 with both individual and time effects will be used to test hypothesis 3.

**Table 8.** Lagrange Multiplier Test for Time Effects.

| Chisq. | D.F. | P-Value |
|--------|------|---------|
| 90,301 | 1    | 0,000   |

**Table 9.** Regression Results for Developed and Emerging Countries.

|                           | Model 4<br>Developed Countries | Model 5<br>Emerging Countries |
|---------------------------|--------------------------------|-------------------------------|
| <b>Greenwashing</b>       | -0,001<br>(0,002)              | 0,004**<br>(0,002)            |
| <b>Social Washing</b>     | 0,002<br>(0,001)               | -0,003*<br>(0,002)            |
| <b>Governance Washing</b> | 0,004**<br>(0,002)             | 0,003<br>(0,002)              |
| <b>Leverage</b>           | -0,011<br>(0,012)              | -0,057***<br>(0,023)          |
| <b>Size</b>               | 0,014*                         | 0,025**                       |

|  |                     |                     |
|--|---------------------|---------------------|
|  | (0,007)             | (0,011)             |
| <b>Growth</b>                          | 0,052***<br>(0,013) | 0,059***<br>(0,017) |
| <b>Liquidity</b>                       | 0,002**<br>(0,001)  | 0,010**<br>(0,005)  |
| <b>Operating Margin</b>                | 0,129***<br>(0,026) | 0,138***<br>(0,041) |
| <b>Capital Expenditure/<br/>Assets</b> | 0,001<br>(0,001)    | 0,057*<br>(0,033)   |
| <b>Asset Turnover</b>                  | 0,121***<br>(0,011) | 0,115***<br>(0,016) |

|                               |            |            |
|-------------------------------|------------|------------|
| <b>Number of Observations</b> | 6064       | 2681       |
| <b>Individual Effects</b>     | Yes        | Yes        |
| <b>Time Effects</b>           | Yes        | Yes        |
| <b>R-Squared</b>              | 0,353      | 0,553      |
| <b>Adj. R-Squared</b>         | 0,212      | 0,425      |
| <b>F-Statistic</b>            | 272,036*** | 258,128*** |

Table 9 presents the results for equation 4.8., where column one used only developed countries as sample, and column two used emerging countries. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

To test hypothesis 3, we used model 1 that included both time and individual fixed effects. The results are presented in table 9 with heteroskedastic and serial correlation robust standard errors. It is important to note that the results found for developed countries is the most similar to the one's found in model 1. Developed countries represent a major part of our sample so, this result was already anticipated.

As expected, there are several differences between developed and emerging countries. Companies have more difficulty in gaining financial advantage by ESG Washing in developed countries. In an environment where more resources are employed to stop ESG Washing practices, the results shows that companies in developed countries struggle to effectively take advantage of these misleading practices in the environmental and social pillar. However, in emerging countries greenwashing and social washing become statistically significant for the first time.

This study hypothesized that the effects of ESG Washing across the different pillars would be greater on emerging countries due to the less regulation available and less awareness of consumers to recognize and punish these types of practices. Apart from the result of governance washing which, for the first time, showed no statistical significance in emerging countries, the hypothesis holds. Surprisingly, social washing showed a negative

association with the dependent variable ROA for  $p\text{-value} < 0,1$ . So, social washing has an impact on ROA, but only in emerging nations where, on average, decreases ROA by 0,3%, *ceteris paribus*.

Given that, apart from the model only including observations for emerging countries, the only variable that showed statistical significance was governance washing, it was decided to see if cross-pillar interactions could have an impact on ROA. Thus, four new variables will be included, corresponding to interactions between the explanatory variables. Table 10 shows the results with heteroskedastic and serial correlation robust standard errors. Interestingly, the interaction between the three variables did not show relevance to influence ROA. However, greenwashing when combined with either social washing or governance washing showed significance for  $p\text{-value} < 0,1$  and  $p\text{-value} < 0,05$ , respectively. This means that financial advantage can be achieved by ESG Washing in the environmental pillar combined with one of the other two pillars.

**Table 10.** Regression results with cross-pillar interactions.

|   | <b>Model 6<br/>Cross-Pillar Interaction</b> |
|---|---|
| <b>Greenwashing</b>   | 0,001<br>(0,001)                            |
| <b>Social Washing</b>   | -0,0002<br>(0,001)                          |
| <b>Governance Washing</b>                                     | 0,004**<br>(0,002)                          |
| <b>Greenwashing * Social Washing</b>                          | 0,001*<br>(0,001)                           |
| <b>Greenwashing * Governance Washing</b>                      | 0,003**<br>(0,001)                          |
| <b>Social Washing * Governance Washing</b>                    | -0,0003<br>(0,001)                          |
| <b>Greenwashing * Social Washing *<br/>Governance Washing</b> | 0,0001<br>(0,001)                           |
| <b>Leverage</b>   | -0,014<br>(0,013)                           |
| <b>Size</b>   | 0,017***<br>(0,006)                         |
| <b>Growth</b>   | 0,054***<br>(0,013)                         |
| <b>Liquidity</b>  | 0,003***<br>(0,001)                         |
| <b>Operating Margin</b>                                       | 0,135***<br>(0,023)                         |

|                                    |                     |
|------------------------------------|---------------------|
| <b>Asset Turnover</b>              | 0,114***<br>(0,009) |
| <b>Capital Expenditures/Assets</b> | 0,002<br>(0,001)    |

|                           |            |
|---------------------------|------------|
| <b>Observations</b>       | 8745       |
| <b>Individual Effects</b> | Yes        |
| <b>Time Effects</b>       | Yes        |
| <b>R-Squared</b>          | 0,408      |
| <b>Adj. R-Squared</b>     | 0,268      |
| <b>F-Statistic</b>        | 347,831*** |

Table 10 presents the results for equation 4.8. adding cross-pillar interactions. Both individual and time fixed effects were employed. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

It is reasonable to compare the results obtained by this study about the ESG Washing influence on financial performance to those of earlier studies. As stated before, this is an area that needs to be looked at in-depth since there are few studies about it, previous studies present mixed results, and usually only greenwashing is considered. However, this research obtained a statistical insignificance that was earlier found by Testa et al. (2018) in their study in 58 countries about the impact of unperceived greenwashing in financial performance. In China, Li et al. (2022) looked into the same connection and discovered a link between greenwashing and financial performance. The outcome of this study was the same when the impact on developing nations was assessed. Moreover, the results found were contrary to those of Walker and Wan (2012), where a negative effect appeared in Canada. Differences can be attributed to differences in methodology and sample size since selecting a single nation limits the study's generalizability and exposes it to bias and effects that are particular to that country.

## 5.2. ESG Washing Impact on Market Performance

The estimates made in the past for financial performance will be recreated for market performance. Following Testa et al. (2018), the dependent variable will change - instead of ROA, it will be used the natural log of ratio Market-to-Book-Value of Equity to evaluate H2. Moreover, instead of individual fixed effects, it will be employed sector fixed effects in equation 4.9. since it is believed to be important to control for industry-specific market characteristics. Results are presented below in table 11 with heteroskedastic and serial correlation robust standard errors.

**Table 11.** Regression results using MBVE as dependent variable.

|                                       | <b>Model 7<br/>Sector and Time<br/>effects</b> | <b>Model 8<br/>Sector Effects</b> | <b>Model 9<br/>Time Effects</b> |
|---------------------------------------|--|-----------------------------------|---------------------------------|
| <b>Greenwashing</b>                   | 0,062**<br>(0,025)                             | 0,075***<br>(0,026)               | 0,075***<br>(0,007)             |
| <b>Social Washing</b>                 | -0,084***<br>(0,023)                           | -0,070***<br>(0,023)              | -0,070***<br>(0,014)            |
| <b>Governance<br/>Washing</b>         | 0,160***<br>(0,032)                            | 0,157***<br>(0,033)               | 0,140***<br>(0,007)             |
| <b>Leverage</b>                       | 1,191***<br>(0,088)                            | 1,204***<br>(0,090)               | 1,220***<br>(0,060)             |
| <b>Size</b>                           | -0,265***<br>(0,027)                           | -0,263***<br>(0,027)              | -0,276***<br>(0,023)            |
| <b>Growth</b>                         | 0,682**<br>(0,267)                             | 0,810***<br>(0,288)               | 0,974***<br>(0,237)             |
| <b>Liquidity</b>                      | -0,0003<br>(0,012)                             | 0,001<br>(0,013)                  | 0,027**<br>(0,013)              |
| <b>Operating Margin</b>               | 0,355**<br>(0,163)                             | 0,333**<br>(0,161)                | 0,258***<br>(0,064)             |
| <b>Capital<br/>Expenditure/Assets</b> | 1,227**<br>(0,515)                             | 0,965*<br>(0,521)                 | -0,068<br>(0,239)               |
| <b>Asset Turnover</b>                 | 0,257***<br>(0,070)                            | 0,241***<br>(0,071)               | 0,341***<br>(0,019)             |

|                                   |            |            |            |
|-----------------------------------|------------|------------|------------|
| <b>Number of<br/>Observations</b> | 8532       | 8532       | 8532       |
| <b>Sector Effects</b>             | Yes        | Yes        | No         |
| <b>Time Effects</b>               | Yes        | No         | Yes        |
| <b>R-Squared</b>                  | 0,250      | 0,243      | 0,253      |
| <b>Adj. R-Squared</b>             | 0,248      | 0,241      | 0,093      |
| <b>F-Statistic</b>                | 283,643*** | 273,115*** | 238,399*** |

Note: Table 11 presents the results for equation 4.9., where in column one was employed sector and time fixed effects. Columns two and three only used sector fixed effects and time fixed effects, respectively. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

The results change drastically when evaluating market performance instead of financial performance. Our three main explanatory variables become significant, for p-value<0,05, using the model with sector and time fixed effects. However, social washing expressed a negative relationship with market performance, decreasing, on average, market performance by 8,4%. This surprising result could be attributable to some reasons. First, it

is possible that customers are able to recognize social washing and penalize businesses that engage in it. Yet, there is no prior evidence to suggest that investors or consumers might recognize these behaviours, making this choice appear unlikely. Second, certain social pillar-related problems could be at blame. Companies could have struggled to match shareholders' expectations and their goals in this specific pillar, suffering negative market effects as a result. Third, it may also be explained by investors placing more value on the other two pillars, viewing the social pillar as a cost rather than an investment, penalizing the firm for giving too much attention to that pillar.

Regarding greenwashing and governance washing, the results are the one's expected. Both expressed a positive significant relationship with MBVE for  $p\text{-value} < 0,05$  and  $p\text{-value} < 0,01$ , respectively, meaning that deceiving consumers in those pillars produce market gains. The results are much higher than those of ROA, with greenwashing increasing, on average, 6,2% the MBVE while governance washing can increase 16%. Companies can gain market advantage by engaging in those two practices. The results for the main variables are also the same when only sector fixed effects or time fixed effects are employed. Thus, hypothesis 2 holds for greenwashing and governance washing, failing for social washing.

**Table 12.** Regression Results using MBVE as dependent variable for Developed and Emerging Countries.

|                           | <b>Model 10<br/>Developed Countries</b> | <b>Model 11<br/>Emerging Countries</b> |
|---------------------------|---|--|
| <b>Greenwashing</b>       | 0,064**<br>(0,030)                      | 0,018<br>(0,032)                       |
| <b>Social Washing</b>     | -0,066**<br>(0,028)                     | -0,066***<br>(0,017)                   |
| <b>Governance Washing</b> | 0,152***<br>(0,030)                     | 0,046**<br>(0,022)                     |
| <b>Leverage</b>           | 1,565***<br>(0,102)                     | 0,406***<br>(0,097)                    |
| <b>Size</b>               | -0,248***<br>(0,025)                    | -0,414***<br>(0,039)                   |
| <b>Growth</b>             | 0,717**<br>(0,291)                      | 1,027***<br>(0,286)                    |
| <b>Liquidity</b>          | -0,005<br>(0,012)                       | 0,001<br>(0,029)                       |
| <b>Operating Margin</b>   | 0,397**<br>(0,198)                      | 0,241<br>(0,240)                       |

|  |                     |                     |
|--|---------------------|---------------------|
| <b>Capital Expenditure/<br/>Assets</b> | 1,128<br>(0,945)    | 2,427***<br>(0,362) |
| <b>Asset Turnover</b>                  | 0,260***<br>(0,060) | 0,238***<br>(0,082) |

|                               |            |            |
|-------------------------------|------------|------------|
| <b>Number of Observations</b> | 5884       | 2648       |
| <b>Sector Effects</b>         | Yes        | Yes        |
| <b>Time Effects</b>           | Yes        | Yes        |
| <b>R-Squared</b>              | 0,285      | 0,307      |
| <b>Adj. R-Squared</b>         | 0,282      | 0,301      |
| <b>F-Statistic</b>            | 232,602*** | 116,325*** |

Note: Table 12 presents the results for equation 4.8., where column one used only developed countries as sample, and column two used emerging countries. Both sector and time fixed effects were employed. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

It was also performed the same analysis done in section 5.1. where the results are estimated dividing the sample between developed and emerging countries. Those are expressed in table 12 with heteroskedastic and serial correlation robust standard errors. The results are surprising. The expected outcome was the effects of ESG Washing would be greater in emerging countries. However, H4 did not hold since the values for the three variables are either equal or inferior to the one's in developed countries. Furthermore, greenwashing loses significance in emerging countries, meaning that greenwashing does not bring market benefits to companies. Also, the effect of governance washing is significantly inferior to the one found in developed economies. This result can be attributed to investors in emerging countries viewing ESG practices as costly. Thus, if a company is ESG Washing, i.e., appearing to be even more sustainable than what it really is, investors will tend to look for substitutes for their investments. Nevertheless, the effect of governance washing is still positive, just not as higher as in developed countries.

**Table 13.** Regression results using MBVE as dependent variable with cross-pillar interactions.

|                           | <b>Model 12<br/>Cross-Pillar Interaction</b> |
|---------------------------|--|
| <b>Greenwashing</b>       | 0,061**<br>(0,024)                           |
| <b>Social Washing</b>     | -0,083***<br>(0,023)                         |
| <b>Governance Washing</b> | 0,159***                                     |

|   |                      |
|---|----------------------|
|   | (0,031)              |
| <b>Greenwashing * Social Washing</b>                          | -0,012<br>(0,017)    |
| <b>Greenwashing * Governance Washing</b>                      | -0,020**<br>(0,010)  |
| <b>Social Washing * Governance Washing</b>                    | -0,020<br>(0,015)    |
| <b>Greenwashing * Social Washing *<br/>Governance Washing</b> | -0,004<br>(0,017)    |
| <b>Leverage</b>   | 1,187***<br>(0,089)  |
| <b>Size</b>   | -0,265***<br>(0,027) |
| <b>Growth</b>   | 0,680**<br>(0,265)   |
| <b>Liquidity</b>  | -0,0003<br>(0,012)   |
| <b>Operating Margin</b>                                       | 0,351**<br>(0,162)   |
| <b>Asset Turnover</b>   | 0,258***<br>(0,069)  |
| <b>Capital Expenditures/Assets</b>                            | 1,215**<br>(0,515)   |

|                           |            |
|---------------------------|------------|
| <b>Observations</b>       | 8532       |
| <b>Individual Effects</b> | Yes        |
| <b>Time Effects</b>       | Yes        |
| <b>R-Squared</b>          | 0,251      |
| <b>Adj. R-Squared</b>     | 0,248      |
| <b>F-Statistic</b>        | 203,581*** |

Note: Table 13 presents the results for equation 4.8. adding cross-pillar interactions. Both sector and time fixed effects were employed. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

This study will also include cross-pillar interactions to evaluate their impact on market performance. Table 13 presents the results with heteroskedastic and serial correlation robust standard errors. Unexpectedly, only one interaction was statistically significant. This is the cross-pillar interaction between greenwashing and governance washing for p-value<0,05, which has a detrimental effect on market performance and reduces it by, on average, 2%. Consequently, mixing washing in several pillars does not result in improved outcomes. Instead, businesses grow their market share by engaging in either governance washing or greenwashing, with the latter's impacts being more pronounced.



In market performance, negative correlations with the variable greenwashing had been found (Du, 2015). However, those findings were in perceived cases of greenwashing, making sense that the market penalizes companies engaging in these practices to boost capitalization. When, unperceived cases are evaluated, a positive relationship stood (Amores-Salvado et al., 2023), as it did in this study. Moreover, Testa et al. (2018) did not encounter statistical significance between greenwashing and marker performance.

### **5.3. Robustness checks**

Robustness checks will be carried out in this part to judge the reliability of the obtained results. By changing the model specifications, this will enable the study to test the stability of the results. This will allow to check if the conclusions made are, in fact, relevant.

Additionally, endogeneity—the association between the explanatory variable and the error term—is one of the research's primary concerns. If exogeneity is violated, results in skewed and inconsistent coefficients that prevent mining for the analysis. There are three endogeneity sources. First, omitted variable bias, which occurs when one or more important variables are left out of the model and cause skewed results. Second, simultaneity bias, in which the explanatory variable predicts the result variable. Thirdly, measurement error shows a discrepancy between the variables' observed and true values.

Following Testa et al. (2018), it was decided to utilize an instrumental variable (IV) regression since it allows to handle endogeneity and examine the validity of the results. For a candidate to be able to be an adequate instrumental variable, there are certain conditions that need to be met. The first requirement is that there must be either a negative or positive correlation between the instrument variable and the endogenous variable. It must also not be correlated with the error term (or omitted variable). Finally, it must only be correlated with the dependent variable only through the endogenous variable, not on its own. In the case that it is correlated with the dependent variable on its own, the variable in question belongs in the main model.

The variables that meet the conditions above were the lagged values of our variables of interest greenwashing, social washing, and governance washing. Lagged variables are commonly used in literature for these purposes since they easily meet the aforementioned criteria. Thus, this study will use as instrumental variables lagged greenwashing, lagged social washing, and lagged governance washing in a panel data two-

stage least squares regression. Results for both financial and market performance are presented in table 14 with heteroskedastic and serial correlation robust standard errors.

**Table 14.** Robustness check using lagged greenwashing, lagged social washing, and lagged governance washing in panel data two-stage least squares regression.

|                                    | <b>Financial Performance:<br/>ROA</b> | <b>Market Performance:<br/>MBVE</b> |
|------------------------------------|---------------------------------------|-------------------------------------|
| <b>Greenwashing</b>                | 0,0004<br>(0,004)                     | 0,065**<br>(0,029)                  |
| <b>Social Washing</b>              | 0,002<br>(0,003)                      | -0,109***<br>(0,028)                |
| <b>Governance Washing</b>          | 0,005<br>(0,005)                      | 0,193***<br>(0,038)                 |
| <b>Leverage</b>                    | -0,032***<br>(0,007)                  | 1,189***<br>(0,086)                 |
| <b>Size</b>                        | 0,013*<br>(0,007)                     | -0,262***<br>(0,029)                |
| <b>Growth</b>                      | 0,060***<br>(0,013)                   | 0,581*<br>(0,325)                   |
| <b>Liquidity</b>                   | 0,004***<br>(0,001)                   | 0,002<br>(0,014)                    |
| <b>Asset Turnover</b>              | 0,114***<br>(0,010)                   | 0,257***<br>(0,071)                 |
| <b>Operating Margin</b>            | 0,123***<br>(0,024)                   | 0,497***<br>(0,239)                 |
| <b>Capital Expenditures/Assets</b> | 0,052*<br>(0,027)                     | 1,331**<br>(0,535)                  |

|                           |             |             |
|---------------------------|-------------|-------------|
| <b>Observations</b>       | 6996        | 6996        |
| <b>Individual Effects</b> | Yes         | No          |
| <b>Sector Effects</b>     | No          | Yes         |
| <b>Time Effects</b>       | Yes         | Yes         |
| <b>R-Squared</b>          | 0,445       | 0,248       |
| <b>Adj. R-Squared</b>     | 0,288       | 0,246       |
| <b>F-Statistic</b>        | 4373,995*** | 2323,533*** |

Note: Table 14 presents the results for the robustness checks using panel data two-stage least squares in equations 4.8. and 4.9., respectively. Individual and time fixed effects were employed in the first column, while sector and time fixed effects were used in second column. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

Analysing the results for market performance, it is possible to see that they are very similar to those found previously. The three main washing variables maintain their

significance and their relationship with market performance for  $p\text{-value} < 0,05$ , indicating that the results are robust. However, looking at the robustness checks for financial performance, it is possible to see that the only significant washing variable – governance washing – loses its significance when performing the panel data two-stage regression. There are three possible explanations for this. First, given that this involved financial performance, it is possible that washing the governance pillar in one year only has financial implications on the financial performance of the following year. Second, it could be attributed to endogeneity problems. Third, the governance washing effect may only have an effect on corporate financial performance when it is done for consecutive years. To understand the source of this result, it will be tested explanation one and two. If those are ruled out, then companies need to governance wash for more than one year to improve their financial performance.

The lagged variables will be used in equation 4.8 in order to assess the first proposed explanation and comprehend its importance in corporate financial performance. Table 15 shows the results with heteroskedastic and serial correlation robust standard errors. As it is possible to see, by introducing the lagged variables in equation 4.8., none of them showed statistical significance. Thus, the first possible explanation is not valid since washing in the governance pillar in year  $t-1$  as no effect on the financial performance of year  $t$ .

**Table 15.** Regression results including lagged greenwashing, lagged social washing, and lagged governance washing.

|                                  | <b>Dependent Variable:<br/>ROA</b> |
|----------------------------------|------------------------------------|
| <b>Greenwashing</b>              | 0,001<br>(0,001)                   |
| <b>Social Washing</b>            | -0,001<br>(0,001)                  |
| <b>Governance Washing</b>        | 0,003**<br>(0,001)                 |
| <b>Lagged Greenwashing</b>       | 0,000<br>(0,002)                   |
| <b>Lagged Social Washing</b>     | 0,001<br>(0,002)                   |
| <b>Lagged Governance Washing</b> | 0,001<br>(0,001)                   |
| <b>Leverage</b>                  | -0,032***<br>(0,007)               |
| <b>Size</b>                      | 0,012*                             |

|                                    |                     |
|------------------------------------|---------------------|
|                                    | (0,007)             |
| <b>Growth</b>                      | 0,060***<br>(0,012) |
| <b>Liquidity</b>                   | 0,004***<br>(0,001) |
| <b>Asset Turnover</b>              | 0,114***<br>(0,010) |
| <b>Operating Margin</b>            | 0,123***<br>(0,024) |
| <b>Capital Expenditures/Assets</b> | 0,052**<br>(0,027)  |

|                           |            |
|---------------------------|------------|
| <b>Observations</b>       | 6996       |
| <b>Individual Effects</b> | Yes        |
| <b>Time Effects</b>       | Yes        |
| <b>R-Squared</b>          | 0,446      |
| <b>Adj. R-Squared</b>     | 0,289      |
| <b>F-Statistic</b>        | 337,790*** |

Note: Table 15 presents the results for equation 4.8. adding lagged greenwashing, lagged social washing, and lagged governance washing. Both individual and time fixed effects were employed. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

The Wu-Hausman Test will be applied to check for endogeneity, by regressing the endogenous variables on the instrumental variables. In this research case, greenwashing, social washing, and governance washing, need to be estimated using lagged greenwashing, lagged social washing, and lagged governance washing, respectively. After the estimation, the residuals will be saved and used as a variable in equation 4.8. In the case that the residuals are significant, there is presence of endogeneity, whereas if the residuals are not statistically significant, the results are exogenous. Since endogeneity is a concern in the results for both market and financial performance, the test will be performed for both. The results of the Wu-Hausman Test are presented in table 16 with heteroskedastic and serial correlation robust standard errors. The residuals shown no statistical significance so, endogeneity is not a problem for either financial or market performance.

**Table 16.** Wu-Hausman Test for endogeneity.

|                       | <b>Financial Performance:<br/>ROA</b> | <b>Market Performance:<br/>MBVE</b> |
|-----------------------|---------------------------------------|-------------------------------------|
| <b>Greenwashing</b>   | 0,0002<br>(0,004)                     | 0,070***<br>(0,026)                 |
| <b>Social Washing</b> | 0,001<br>(0,003)                      | -0,083***<br>(0,024)                |

|                                    |                      |                      |
|------------------------------------|----------------------|----------------------|
| <b>Governance Washing</b>          | 0,005<br>(0,005)     | 0,163***<br>(0,032)  |
| <b>Leverage</b>                    | -0,032***<br>(0,007) | 1,190***<br>(0,086)  |
| <b>Size</b>                        | 0,013*<br>(0,007)    | -0,260***<br>(0,029) |
| <b>Growth</b>                      | 0,060***<br>(0,013)  | 0,570*<br>(0,327)    |
| <b>Liquidity</b>                   | 0,004***<br>(0,001)  | 0,001<br>(0,014)     |
| <b>Asset Turnover</b>              | 0,114***<br>(0,010)  | 0,261***<br>(0,071)  |
| <b>Operating Margin</b>            | 0,123***<br>(0,024)  | 0,498**<br>(0,244)   |
| <b>Capital Expenditures/Assets</b> | 0,052*<br>(0,027)    | 1,318**<br>(0,547)   |
| <b>Resid Greenwashing</b>          | -0,0001<br>(0,004)   | 0,020<br>(0,016)     |
| <b>Resid Social Washing</b>        | -0,003<br>(0,003)    | 0,014<br>(0,014)     |
| <b>Resid Governance Washing</b>    | -0,002<br>(0,004)    | 0,008<br>(0,032)     |

|                           |            |            |
|---------------------------|------------|------------|
| <b>Observations</b>       | 6996       | 6996       |
| <b>Individual Effects</b> | Yes        | No         |
| <b>Sector Effects</b>     | No         | Yes        |
| <b>Time Effects</b>       | Yes        | Yes        |
| <b>R-Squared</b>          | 0,446      | 0,250      |
| <b>Adj. R-Squared</b>     | 0,289      | 0,247      |
| <b>F-Statistic</b>        | 337,790*** | 178,458*** |

Note: Table 16 presents the results for equations 4.8. and 4.9., respectively, adding the residuals obtained for greenwashing, social washing, and governance washing. Individual and time fixed effects were employed in the first column, while sector and time fixed effects were used in second column. Heteroskedastic and serial correlation robust standard errors in parenthesis. Significance is denoted by: \* if p-value<0,1; \*\* if p-value<0,05; and \*\*\* if p-value<0,01.

It was tested the first and second possible explanation for the difference in the results and the robustness checks for financial performance, where neither of those appeared to be true. Thus, it is possible that governance washing only impacts financial performance if done in consecutive years. This discrepancy found in the robustness tests does not allow this study to firmly affirm that governance washing positively impacts corporate financial performance.

## 6. Conclusions

### 6.1. Conclusions

The aim of the study was to evaluate the effect of misleading consumers in each pillar of ESG on corporate performance. It was used an approach that made it possible to capture unnoticed ESG Washing behaviours once customers had trouble recognizing such. It was analysed 1653 companies through a period of 7 years between 2015 and 2021. One of the main features of the research is that ESG Washing was evaluated by evaluating the three components separately. Thus, it was able to contribute to the brief existing literature about ESG Washing which normally would only consider the environmental pillar or the three pillars together. Moreover, employing the methodology of Yu et al. (2020) to create the variable ESG Washing, unperceived cases of ESG Washing were captured.

In theory, consumers would not be able to correctly distinguish companies that are sustainable from the ones that are just appearing to be sustainable. Moreover, the results found on previous studies have found contradictory results in either the impact of ESG on performance and the impact of ESG Washing on performance. As the methodology employed was able to capture some of these misleading practices, one would think that the effects on corporate financial performance would be positive. Thus, the first hypothesis was that the effect of each variable of ESG Washing would impact corporate financial performance positively. However, only one of the three main variables showed influence in ROA. Governance washing showed a positively impact on ROA. The research found that misleading consumers in the governance pillar possibly increases ROA by 0,4% when individual and time effects are employed.

To test the validity of the results found, robustness checks were performed using the lagged variables of greenwashing, social washing, and governance washing as instrumental variables in a two-stage least squares model. By using instrumental variables, endogeneity was also tested for. In those checks, governance washing showed no statistical significance. The research though of three possible explanations for this: (a) The effects of governance washing only impact corporate financial performance in the next year; (b) There is presence of endogeneity; (c) Governance Washing needs to be done consecutively to positively impact performance. After running additional tests, it was concluded that neither (a) or (b) where possible. However, it is not possible to firmly assure that governance washing positively impacts financial performance.

It has thought that would also be interesting to see if different combinations of pillars could contribute to advantages on performance for companies. Four new variables were added to the main model, corresponding to the interaction between the pillars and the three pillars combined. The aim was to see if any combination of the three pillars could be exploited by companies. Results shown that the combination of the three pillars could not directly influence corporate financial performance. Moreover, the cross-interaction between greenwashing and social washing showed a weak positive effect for  $p\text{-value} < 0,1$ , while combining greenwashing with social washing can increase ROA by 0,3% considering a  $p\text{-value} < 0,05$ . Although the expectations where to found positive relationships for financial performance in all variables, this did not happen, even when cross-pillar interactions where added.

Regarding the distinction between developed and emerging countries, this study hypothesized that the effects observed would be greater in countries belonging to the developing economies category. Corporations in these nations lack the means to pursue ESG practices, which are frequently expensive, and consumers find it increasingly harder to judge the legitimacy of corporations' actions compared to the one's in developed countries. To estimate this, the sample was divided between developed and emerging countries, where the results for developed countries where the one's more similar to the findings including the whole sample. Companies belonging to developed countries also could only gain advantage using ESG Washing techniques by deceiving consumers in the governance pillar, since the other two pillars did not show any statistically significance on ROA. Regarding greenwashing, it appears that it affects positively ROA on emerging countries for a  $p\text{-value} < 0,05$ . Thus, companies are able to deceive consumers in the environmental pillar and gain advantage from this practice. However, social washing was surprisingly negatively associated with corporate financial performance for  $p\text{-value} < 0,1$ . It is not beneficial for companies to lie in this matter given that they do not gain any advantage by doing so.

Moreover, it was also evaluated the impact of ESG Washing on market performance. Although they still cannot identify the veracity of the majority of ESG statements, theoretical, investors should have superior knowledge about ESG factors than the average consumer so, they may react differently to ESG Washing practices. Therefore, examining the effect of ESG Washing on financial performance would aid in determining whether or not their responses are the same as those displayed by customers.

In order to assess the influence of the ESG Washing on market performance, the MBVE was used as a proxy for it. The results changed compared to the one's found in financial performance, with the three main variables becoming significantly related to MBVE. It was found that greenwashing and governance washing positively impacts market performance, with the later having a much bigger impact. As expected, companies are able to gain market share by misleading consumers about their sustainability. Although, social washing expressed a surprising negative relationship with market performance, meaning that deceiving consumers in the social pillar of ESG can lead to losses in market share. In this research's opinion, this result can be attributable to either companies failing to align their objectives in the social pillar with the objectives of their shareholders, or to shareholders viewing activities related to social pillar as costly. These results hold when robustness checks were performed, also eliminating endogeneity concerns.

It was also introduced cross-pillar interactions for market performance, where only the interaction between greenwashing and governance washing showed significance. This interaction negatively impacts MBVE, which is a surprise since both variables independently showed a positive impact on market performance. Moreover, when the sample is divided in developed and emerging countries, the effects on market performance in emerging countries are inferior than those in developed countries. This result can be attributed to investors viewing investments in ESG practices as costly to the firm, preferring that the company invested the money to be invested elsewhere.

## **6.2. Practical Implications**

It is crucial to comprehend how the outcomes may contribute to the understanding of this thinly studied subject in the actual world. This section will go through how the study can be useful to various decision-makers.

First, this research is important for managers. Apart from social washing decreasing market performance, these practices do not seem to produce negative effects on performance. Moreover, social washing in emerging markets also seems to decrease financial performance. However, managers should be careful when attempting to use ESG Washing to boost their company's financial or market performance. If these behaviours are perceived by the different stakeholders, the consequences might be severe. Consumers may lose the trust in the company and stop buying their products or services in favour of more sustainable alternatives. The same could happen with investors, with them shifting their



investments to other alternatives. Authorities may also take legal action against the corporation since it isn't following the demands of accountability, transparency, and ethical behaviour.

Second, media can play an active role in moderating ESG Washing. They can expose cases of ESG Washing by verifying and investigating (collaborating with experts) the statements that companies make. Also, as the concept of ESG and ESG Washing is still not very well understood by the average consumer, media can help in educating consumers and raising popular awareness.

Third, although media can monitor ESG Washing, policymakers have a huge role regarding the accountability of companies. Although companies only seem to gain financial advantage by engaging in governance washing, when analysing market performance, greenwashing and governance washing can be important in gaining advantage against competition. Nevertheless, there are other benefits from ESG Washing besides the financial and market factors such as reputation increases, compliance, easier access to capital, and decreasing stakeholders' pressures to be sustainable. Thus, there needs to be increased control to stop these behaviours, since they come at the expense of the different stakeholders. Introducing new regulation and add an independent organization to verify the truth in company's actions can help increase the transparency surrounding ESG by reducing the information asymmetry. Moreover, ESG practices are still costly to introduce, especially for companies of emerging countries. To increase commitment to ESG, this problem should also be in the mind of policymakers.

### **6.3. Limitations and Future Research**

The study has some limitations that can be used in future research. The sample used in the analysis, the MSCI All-Country World Index only covers large and mid-cap enterprises. One might find different results by changing the sample to small-cap enterprises. Moreover, due to data availability only 7 years were studied, where 2 of these years were pandemic years. Extending the analysis for a larger number of years can lead to different results from the one's found by this research.

Additionally, this study used the methodology of Yu et al. (2020) so that unobserved behaviours of ESG Washing were captured. This methodology is based on the ratings of Bloomberg and Refinitiv, where the first has an ESG rating methodology bases on reports, while Refinitiv's methodology is based on actual performance. Thus, it allowed

to obtain values for ESG Washing that captured the unobserved extent of it. However, future studies might use different methodologies already available (e.g., Cerciello et al., 2022; Du, 2015; Li et al., 2022; Testa et al., 2018) and see if the results for the different pillars hold. This is still a subject that still needs more in-depth analysis so, adopting different methodologies to study the same phenomena would always be an interesting work.

The methodology used also allowed to distinguish between companies that opted for an ESG Washing strategy from the one's that preferred a brownwashing strategy. In future works, could be interesting to compare both strategies to see if there is increased advantage in pursuing one rather than the other. Moreover, in this study the financial sector expressed extremely high values of greenwashing when compared to the other sectors. Using a sample composed by only companies belonging to the financial sector could potentially shed light to the reasons on such high values.

The results found also pave the way for future studies. Social washing demonstrated a negative relationship with market performance in the full model and when the sample was divided in developed and emerging countries. Although this research states some possible reasons to try to explain this relationship, future research can play an important role by looking deeply into the complexity of this relationship. Future studies can give valuable insights into to the reasons behind this negative relationship found. It was also found the effects of ESG Washing on market performance was inferior in developing countries than in developed countries. Emerging countries have different characteristics in either market, consumers, or investors. Analysing the reasons for that results could result in a better understanding of the characteristics and challenges of these countries.

Finally, the differences between the robustness checks and the results for the ESG Washing impact on financial performance could also be a topic for further discussion. Clearly, the relationship between the two variables is complex so, further studies, using different methodologies to define ESG Washing, different samples than the one used, or different estimation methods could explore the nature of this relationship to further understand their relationship.

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