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The Mediating Role of Reputation in the Relationship Between Non-Financial Performance and Financial Performance

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Abstract

While academics have reached a consensus on the existence of a positive relationship between non-financial performance and financial performance, ongoing research indicated that there are variables that mediate this relationship. This study examines if a company's reputation among the public mediates the relationship between four measures of non-financial performance and financial performance. A fixed effects model is used to study this. The analysis is done with the use of a panel data set of 79 U.S. companies with 479 observations from 2008-2018. The results show that non-financial performance has a positive effect on a company's reputation among the public. Furthermore, the results show no support for relationships between non-financial performance and financial performance or reputation and financial performance. Therefore, this study finds no support for a mediating effect of reputation in the relationship between non-financial performance and financial performance. However, the results of this study are not robust.

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1. Introduction

In 1950, General Robert Wood, who led Sears' rapid postwar growth, listed the ''four parties to any business in the order of their importance as customers, employees, community, and stockholders''. He maintained that if the appropriate needs and interests of the first three groups were looked after effectively, the company's stockholders would be the beneficiaries. Profit, in General Wood's view, was a by-product of success in satisfying responsibly the legitimate needs and expectations of the corporation's primary stakeholder groups. (Clarkson, 1995, p. 106).

This quote by Robert Wood Johnson in 1950 describes a stakeholder view of the company long before it gained attention in 1984 after the publication of Freeman's book Strategic management: A stakeholder approach. This stakeholder view of the company consists of the idea that there are multiple stakeholders involved in the functioning of a company and that success is the result of creating value for all stakeholders (Clarkson, 1995). Wood (1950) clearly describes this by naming three non-financial stakeholders whose interest are related to the company's non-financial performance and one financial stakeholder whose interests are related to the company's financial performance, and stating that profit, or financial success, is the result of satisfying the needs and expectations of the company's stakeholders. Due to this relation between stakeholders and a company's financial performance, stakeholder theory is often applied in studies to support a positive relationship between non-financial performance and financial performance. Stakeholder theory supports this positive relationship because non-financial performance can be considered as a way to manage the expectations of stakeholders (Clarkson, 1995). Therefore, this quote shows the long-standing belief in a positive relationship between non-financial performance and financial performance.

Research on the relationship between non-financial performance and financial performance has a long history in academic studies. A reason for this is that the company is a way for multiple stakeholders to achieve their goals and enhance their well-being. A positive relationship between non-financial performance and financial performance indicates that multiple stakeholders, despite having incongruent goals, can have their goals fulfilled at the same time. Therefore, the relationship between non-financial performance and financial performance is of interest to different parties. First, companies are interested in this relationship because their ability to survive and be successful depends on their ability to fulfil the expectations of all their stakeholders (Clarkson, 1995). A better understanding of this relationship enhances the company's ability to fulfil stakeholder expectations and thus

increases their chances of survival and success. Second, this relationship is of interest to a company's stakeholders. As was mentioned before, a better understanding of this relationship enhances the company's ability to fulfil the expectations of its stakeholders. Therefore, both financial and non-financial stakeholders are more likely to have their expectations fulfilled. Third, academics have studied the relationship between non-financial performance and financial performance extensively in the past. These studies have generated valuable insights, but perhaps more importantly they have uncovered the complexity of the relationship. Therefore, studies on this relationship can generate new insights that can enhance the understanding that academics have of the relationship between non-financial performance and financial performance.

Ongoing research on the relationship between non-financial performance and financial performance has brought progress to the body of literature on this relationship. What started with studies finding contradictory results, has now moved on to a general consensus on the existence of a positive relationship between non-financial performance and financial performance (Brooks & Oikonomou, 2018). Despite reaching a consensus on the existence of a positive relationship, academic interest in this relationship has not decreased. The relationship remained to be studied and this resulted in new insights. A first insight was that different types of non-financial performance affect financial performance in a different way (Orlitzky, Schmidt, & Rynes, 2003; Margolis, Elfenbein, & Walsh, 2009; Aggarwal, 2013; Brooks & Oikonomou, 2018). A second insight was that the relationship between non-financial performance and financial performance might be indirect and that it is mediated by other variables (Surroca, Tribo, & Waddock, 2010). One of the variables that has been examined as a possible mediator in this relationship is a company's reputation (Orlitzky, Schmidt, & Rynes, 2003; Agarwal, Osiyevskyy, & Feldman, 2015; Wang & Berens, 2015; Pires & Trez, 2018). The mediating role of reputation can be explained by the role that stakeholders have in a company. On the one hand, non-financial performance has an effect on the perceptions that stakeholders have about the company, which affects the company's reputation among these stakeholders. On the other hand, reputation affects the behaviour of stakeholders towards the company which has an effect on the company's financial performance (Fombrun & Shanley, 1990; Brammer & Pavelin, 2006; Surroca, Tribo, & Waddock, 2010; Wang & Berens, 2015). This behaviour can be either supportive, which increases financial performance, or hostile, which decreases financial performance (Fombrun & Shanley, 1990; Surroca, Tribo, & Waddock, 2010). The way in which stakeholders affect the company's financial performance

is thus dependent on how the company fulfils the expectations of its stakeholders through non-financial performance.

Despite what has been found with regard to the mediating role of reputation in the relationship between non-financial performance and financial performance, this has resulted in little useful insights for two reasons. First, studies on the relationship between non-financial performance and financial performance have found that different types of non-financial performance can have different effects on financial performance. Therefore, a first shortcoming is that studies on the mediating role of reputation have mainly studied the role of reputation with regard to the relationship between an overall non-financial performance score and financial performance. Second, most studies on the mediating role of reputation have focused on a reputation among financial stakeholders. However, since a company has to deal with non-financial stakeholders as well, a second serious shortcoming is that a reputation among them has been largely neglected in the literature.

In order to increase the relevance of this study, it continues on the path that has been taken by previous studies. This study will do so by examining if a company's reputation among the public mediates the relationships between four measures of non-financial performance and financial performance. The non-financial performance measures that are used in this study are ESG performance, environmental performance, social performance, and governance performance. Where ESG performance is an overall non-financial performance measure and the other three are the non-financial performance measures that together form a company's overall non-financial performance.

In a time when companies are increasingly facing challenges posed by their environment, it is becoming more important for companies to know how to deal with these challenges and possibly benefit from them. Therefore, it is essential to provide companies with more relevant knowledge in order to enable them to deal with these issues in an appropriate way. This study will do so by examining if reputation acts as a mediator in the relationship between four types of non-financial performance and financial performance. In order to contribute on this issue, the following research question is formulated:

Is the relationship between non-financial performance and financial performance mediated by a company's reputation?

By answering the research question, this study will have several contributions. With regard to practice, this study can enhance the understanding that companies have of the effects of non-financial performance in two ways. First, by showing if non-financial performance has an effect on their reputation among the public. Second, by showing if reputation affects their financial

performance. Therefore, companies might increase their chances of survival and success in the future. The results of this study can benefit the public as well. By examining the role of reputation in the relationship between non-financial performance and financial performance, this study might indicate that companies should address the needs of the public. Therefore, there is a chance that companies are more persuaded to pay attention to their needs. Finally, this study has a contribution for academics. By using a reputation measure that is based on the perceptions of the public, this study examines the relationship between different types of non-financial performance and financial performance from a different angle.

The remainder is of study is organized in the following way. In chapter two, the literature on this relationship will be discussed and hypotheses are formed. Chapter three will discuss the methods of this study. Chapter four will discuss the results. Chapter five will conclude this study.

2. Literature Review and Hypotheses Development

The relationship between non-financial performance and financial performance has been of interest to practitioners and academics for a long time. A positive relationship between them is often assumed. However, previous studies on the relationship between non-financial performance and financial performance have been criticized for a number of reasons. First, early studies lack a theoretical foundation that supports the assumed positive relationship (Ullmann, 1985). Second, there are concerns regarding the use of an overall non-financial performance score that is often used in studied (Aggarwal, 2013; Brooks & Oikonomou, 2018; Iamandi, et al., 2019). Third, an increasing number of studies argue that the relationship is indirect and is mediated by a company's reputation (Orlitzky, Schmidt, & Rynes, 2003; Margolis, Elfenbein, & Walsh, 2009; Surroca, Tribo, & Waddock, 2010; Agarwal, Osiyevskyy, & Feldman, 2015; Wang & Berens, 2015; Pires & Trez, 2018).

The literature review will address these concerns in the following order. First, a theoretical foundation will be provided by adopting stakeholder theory. Second, non-financial performance and the results of previous studies on the relationship between non-financial performance and financial performance will be discusses shortly. Next, concerns regarding the use of an overall non-financial performance score are addressed and an alternative will be provided. Finally, reputation will be discussed as a potential mediator in this relationship.

2.1 Stakeholder Theory

Early research on the relationship between non-financial performance and financial performance has often been criticized due to a lack of a theoretical foundation supporting the assumed positive relationship (Ullmann, 1985). The absence of a theoretical foundation stems from the dominant ideas about the company at the time that this relationship was being studied for the first time. At that time, it was a generally accepted idea that companies only had an obligation towards their shareholders (Friedman, 1970; Freeman & Reed, 1983). Therefore, the company should be managed in a way that satisfied the interests of these shareholders. The interests of shareholders were often of a financial nature in the form of as much profit as possible (Friedman, 1970). Actions that did not contribute to satisfying the interests of shareholders were therefore seen as undesirable and were considered to be unjustified. Because non-financial performance was not believed to increase financial performance it was considered to go against to interests of shareholders. According to this view of the company the improvement of non-financial performance comes at the expense of financial performance and a negative relationship is thus expected. However, with the emergence of stakeholder theory the call for a theoretical foundation has been answered (Waddock & Graves, 1997; Ruf, et al., 2001; Orlitzky, Schmidt, & Rynes, 2003; Brooks & Oikonomou, 2018).

Stakeholder theory provides a theoretical foundation for the assumed positive relationship between non-financial performance and financial performance by adopting an alternative view of the company. In this alternative view, the company is no longer used by shareholders only to achieve their goals, numerous other stakeholders try to achieve their goals through the company as well. In stakeholder theory the company is therefore seen as an organizational entity through which numerous and diverse participants accomplish multiple and not always congruent goals (Donaldson & Preston, 1995). These participants are referred to as stakeholders, who are defined as: ''*Any group or individual who can affect or is affected by the achievement of the organization's objectives*'' (Freeman, 1984, p.46). Groups that are generally considered as stakeholders are shareholders, employees, customers, suppliers, lenders, and society (Freeman & Reed, 1983; Freeman, 1984; Clarkson, 1995). This definition of stakeholders implies that they have two characteristics. First, stakeholders are affected by the operations of the company. Second, stakeholders can affect the company in achieving its goals. The theoretical foundation that is provided by stakeholder theory is thus based on the role of stakeholders in the company.

The first characteristic of stakeholders is that they are affected by the company. This is the case since each stakeholder group has its own ideas about what the financial and non-financial performance of the company should look like (Dill, 1975). Therefore, each stakeholder group differs in their expectations of financial performance and non-financial performance and the goals that they try to accomplish through the company. These goals can be of a financial nature or a non-financial nature. Stakeholders with non-financial goals have expectations about the non-financial performance of the company. These non-financial stakeholders are thus affected in the accomplishment of their goals by the non-financial performance of the company

The second characteristic of stakeholders is that they can affect the company in the achievement of its goals. This assumes that stakeholder groups with non-financial goals can affect the financial performance of the company. This seems to be the case since the accomplishment of the goals of stakeholders can affect their behaviour towards the company (Waddock & Graves, 1997). How their behaviour is affected depends on how well the company does in satisfying the expectations of its stakeholders. Fulfilling the expectations of stakeholders can result in various forms of supportive behaviour (Jones, 1995; Agarwal, Osiyevksyy, & Feldman, 2015; Wang & Berens, 2015). If the company manages to fulfil the expectations of its stakeholder group, this supportive behaviour can take the form of increased productivity, increased sales, or being able to charge a higher price for products and services (Fombrun & Shanley, 1990; Waddock & Graves, 1997; Berman, et al., 1999; Margolis, Elfenbein, & Walsh, 2009; Wang & Berens, 2015). All these forms of supportive behaviour have a positive effect on the financial performance of the company. On the other hand, failing to fulfil the expectations of stakeholder groups can result in hostile behaviour, which has a negative effect on financial performance (Berman, et al., 1999). Therefore, it is argued that all stakeholders, despite not all of them having a financial interest in the company, can affect the financial performance of the company (Freeman, 1984). Managing the expectations of stakeholders is thus considered to be an important issue, because this can have both positive and negative consequences for the financial performance of the company.

The effects that managing stakeholders' diverse expectations of non-financial performance can have on financial performance illustrates the important role stakeholders have in the company. Clarkson (1995) described this in the following way: ''*The corporation's survival and continuing success depends upon the ability of its managers to create sufficient wealth, value, or satisfaction for those who belong to each stakeholder group, so that each group continues as a part of the corporation's stakeholder system*'' (Clarkson, 1995, p.107).

This quote shows that in order to be successful, or even exist, a company has to pay attention to the expectations that stakeholders have about the non-financial performance of the company. Since managing and fulfilling the expectations of stakeholder groups will result in an improved financial performance, and failing to do so will result in a decreased financial performance, stakeholder theory provides a theoretical foundation for the assumed positive relationship between non-financial performance and financial performance.

More recent studies on the relationship between non-financial performance and financial performance have mentioned the idea that the relationship is indirect. This means that non-financial performance has no direct effect on financial performance, but that other variables might mediate this relationship. A number of studies have argued that one of the variables that might mediate the relationship between non-financial performance and financial performance are a company's intangible assets (Orlitzky, Schmidt, & Rynes, 2003; Surroca, Tribo, & Waddock, 2010). The idea that a company's intangibles assets might mediate this relationship comes from a resource based view of the company, which states that the resources a company holds can generate a sustained competitive advantage as long as they are valuable, rare, inimitable, and no substitute is available (Barney, 1991). Intangible assets are considered the most likely resources to create this competitive advantage since they are the most difficult to imitate and substitute (Pires & Trez, 2018). Previous studies have examined a number of intangible assets such as technology, human capital, and reputation (Surroca, Tribo, & Waddock, 2010). Of all these intangible assets, reputation is often considered to be the most important (Walker, 2010; Pires & Trez, 2018). Previous studies support the existence of positive relationships between non-financial performance and reputation and between reputation and financial performance. Due to the connections between non-financial performance, reputation, and financial performance, stakeholder theory provides a theoretical foundation for the assumed positive relationship between non-financial performance and financial performance and a mediating role of reputation.

2.2 The Relationship between Non-Financial Performance and Financial Performance

Before the relationship between non-financial performance and financial performance can be discussed in greater detail, the concept of non-financial performance needs to be clarified. Clarkson (1995) stated that non-financial performance can be analysed best by using a framework based on the management of a company's relationships with its stakeholders. This

idea of non-financial performance being related to managing relationship with stakeholders was used in later studies. These studies define non-financial performance in two ways. First, as a multi-dimensional construct which examines the performance of a company across multiple objectives and responsibilities. Second, as a tool to manage the expectations of a company's stakeholders. This view of non-financial performance as a construct to manage stakeholder expectations across multiple performances can be considered to be in line with the stakeholder view of the company.

Over the last decades, non-financial performance has received increasing amounts of interest from multiple stakeholder groups. These stakeholder groups are becoming increasingly convinced by the idea that non-financial performance can affect financial performance (Aggarwal, 2013; Jitmaneeroj, 2016). Therefore, non-financial performance has been considered as an important factor in a company's financial performance. This has resulted in a large number of studies being conducted on the relationship between non-financial performance and financial performance (Margolis, Elfenbein, & Walsh, 2009; Beck, Frost, & Jones, 2018; Brooks & Oikonomou, 2018). When this relationship was first studied, the results of these studies were somewhat contradictory, some finding a positive relationship, while others found a negative relationship or no relationship at all (Orlitzky, Schmidt, & Rynes, 2003). When researchers used these results to conduct a number of meta-analyses, they found a small positive relationship between non-financial performance and financial performance (Orlitzky, Schmidt, & Rynes, 2003; Margolis, Elfenbein, & Walsh; 2009). This positive relationship has been confirmed by a number of other studies. In a study on the relationship between change in non-financial performance and financial performance, Ruf, et al. (2001) found a positive association in both the short-term as well as in the long-term, meaning that an improvement of non-financial performance results in an improvement of financial performance. Multiple studies have found that an improvement of non-financial performance can have a positive effect on financial performance in the form of a reduction in costs or an increase in benefits (Ruf, et al., 2001; Margolis, Elfenbein, & Walsh, 2009). This resulted in a widely spread belief that non-financial performance is likely to have a positive influence on financial performance (Aggarwal, 2013). Therefore, a certain consensus about the existence of a positive relationship between non-financial performance and financial performance has been reached (Brooks & Oikonomou, 2018).

Despite the general acceptance of a positive relationship between non-financial performance and financial performance, the relationship remains to be studied. One of the reasons is that criticism arose regarding the way in which non-financial performance had been

measured in previous studies. In general, this relationship had been studied with the use of an overall score for non-financial performance. This overall score is the equal-weighted average of multiple pillars that together form a company's non-financial performance (Jitmaneeroj, 2016). What is problematic is that it neglects the fact that each pillar of non-financial performance can have a different effect on financial performance (Margolis, Elfenbein, & Walsh, 2009; Brooks & Oikonomou, 2018; Iamandi, et al., 2019). Therefore, it has been questioned whether these different non-financial performance scores should be combined into a single measure (Brooks & Oikonomou, 2018). Scepticism towards this approach is justified by the fact that companies usually have both positive and negative scores for different types of non-financial performance at the same time (Brooks, Oikonomou, & Pavelin, 2014; Brooks & Oikonomou, 2018). When these different scores are combined into a single measure, there is the possibility that the effects of the different types of non-financial performance offset each other (Aggarwal, 2013). A study conducted by Aggarwal (2013) on the impact of non-financial performance on financial performance in India is an example of this. The study concluded that there was no significant association between an overall non-financial performance score and financial performance, but that there were significant and varying relationship between the different pillars of non-financial performance and financial performance. The use of an overall score is particularly risky since the negative financial effect of a weak non-financial performance score is stronger than the positive financial effect of a strong non-financial performance score (Brooks & Oikonomou, 2018). An unappealing consequence of the use of an overall score is that the true effects of different types of non-financial performance remain unnoticed, because the effect of a company's overall non-financial performance on financial performance is studied.

Studies that use an overall non-financial performance score generate little to no useful knowledge for practitioners because they show what effect a company's overall ability to manage their stakeholders' expectations has on its financial performance. What is more relevant, is to study the effects that different types of non-financial performance have on financial performance. The need to study the effects of different types of non-financial performance separately is emphasized by Brooks and Oikonomou (2018), who stated that not combining positive and negative scores in a single measure often results in interesting conclusions. Studying the different types of non-financial performance separately can provide more relevant knowledge by revealing their true effects on financial performance. A meta-analysis by Orlitzky, Schmidt, and Rynes (2003) exemplified this by finding that non-financial performance in the form of social performance and, to a lesser extent, environmental

performance, are most likely to have positive effects on financial performance. Studying the relationship between different types of non-financial performance and financial performance can thus provide more relevant knowledge about the actual financial effects of non-financial performance.

Years of research on the relationship between non-financial performance and financial have resulted in the acceptance of a positive relationship. However, previous studies have indicated that it is important to study the effects of different non-financial performance measures because they might have different effects on financial performance. Therefore, the first hypothesis is as follows:

H1: There is a positive relationship between non-financial performance and financial performance.

2.3 Reputation

Over the last decades, studies on the relationship between non-financial performance and financial performance have started to examine the role of variables that might mediate this relationship. One of the variables that has been examined is reputation. Reputation is mostly defined as: ''*A perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals*'' (Fombrun, 1996, p. 72). This definition shows that reputations are based on the perceptions of a company's stakeholders with regard to their past actions and future prospects. How these stakeholders perceive the company is based on the company's success in meeting their expectations (Surroca, Tribo, & Waddock, 2010). This idea of reputations being dependent on fulfilling the expectations of stakeholders shows a clear resemblance with the concept of non-financial performance, which has been described as a tool to manage the expectations of stakeholders. This link between reputation and non-financial performance is supported by various studies. First, Surroca, Tribo, and Waddock (2010) mentioned that non-financial performance may influence the judgments of stakeholders which are the foundation of reputation. Furthermore, a number of studies have argued that reputation is one of the main outcomes of non-financial performance (Hillman & Keim, 2001; Agarwal, Osiyevskyy, & Feldman, 2015).

Besides a connection between a company's non-financial performance and its reputation, it is believed that there is a connection between a company's reputation and its financial performance as well. This is the case since it is believed that reputations can influence

the relationships between a company and its stakeholders (Agarwal, Osiyevskyy, & Feldman, 2015). According to stakeholder theory, non-financial performance can affect financial performance through fulfilling the expectations of stakeholders. This indicates a possible connection between reputation and financial performance. In addition to an indication of a company's past, a reputation reflects what can be expected from the company in future (Wang & Berens, 2015). A reputation can thus inform a company's stakeholders about the company's behaviour in the future and might even guarantee it (De la Fuente Sabate & de Quevedo Puente, 2003). Since reputations can indicate whether or not the expectations of the company's stakeholders will be fulfilled in the future, it is reasonable to assume that this can have a similar effect on financial performance. Therefore, it is likely that a company's reputation can affect its financial performance.

This relationship between a company's reputation and its financial performance has been found by a number of studies. Fombrun and Shanley (1990) stated that companies with a good reputation have a competitive advantage, while companies with a poor reputation are disadvantaged. This competitive advantage is a result of various forms of supportive behaviour like the ability to charge premium prices, attract better applicants, enhance their access to capital markets, and attract investors (Fombrun & Shanley, 1990). Furthermore, Surroca, Tribo, and Waddock (2010) found that a good reputation ensures the continuing participation of its stakeholders which is essential to the company's survival and continuing profitability. Finally, Wang and Berens (2015) found evidence supporting the idea that a good reputation can lead to supportive behaviour towards the company. Studies have thus consistently found that non-financial performance can affect a company's reputation, which in turn affect financial performance through the possibility to achieve a competitive advantage. Therefore, reputation is often considered to be a mediator in the relationship between non-financial performance and financial performance (Orlitzky, Schmidt, & Rynes, 2003; Agarwal, Osiyevskyy, & Feldman, 2015; Wang & Berens, 2015).

As soon as reputations started to be studied, it has been questioned if a company has one reputation or multiple reputations (Fomburn & Shanley, 1990). This was questioned since different stakeholders have different expectations about the company (Brammer & Pavelin, 2006). Therefore, it was argued that reputations are issue specific and a company can have multiple reputations (Walker, 2010; Wang & Berens, 2015). It is often assumed that a reputation consists of the perceptions of different stakeholders, therefore a reputation reflects the company's overall success in fulfilling the expectations of its multiple stakeholders (Fombrun & Shanley, 1990). However, the way in which reputation is measured in most studies

is not consistent with this idea. This is the case since the most used reputation measure, the Fortune index, is often criticized for having a financial bias (Fombrun, Gardberg, & Sever, 2000; De la Fuente Sabate & de Quevedo Puente, 2003). The financial bias of the Fortune index is the result of a respondent pool that over-represents senior managers, directors, and financial analysts (Fombrun, Gardberg, & Sever, 2000). Thus, the Fortune index does not incorporate the perceptions of other non-financial stakeholders.

In response to the criticism regarding the findings of earlier studies, more recent studies have used alternative measures for reputation that are more focused on the perceptions of non-financial stakeholders. In one of these studies, Wang and Berens (2015) studied how Carroll's four types of non-financial performance (economic, legal, ethical, and philanthropic) affect financial performance and if these relationships are mediated by different reputations, one reputation being based on the perceptions of financial stakeholders and the other on the perceptions of multiple stakeholders. They found that the four types of non-financial performance had different effects on financial performance and that they are mediated by both reputations (Wang & Berens, 2015). Therefore, there is evidence that the relationship between non-financial performance and financial performance is not only mediated by a reputation among financial stakeholders, but by a reputation among non-financial stakeholders as well.

A large number of studies have found that reputation acts as a mediator in the relationship between non-financial performance and financial performance. However, most of these studies have focused on a reputation among financial stakeholders. There are a few recent studied which have found evidence that a reputation among non-financial stakeholders acts as a mediator in this relationship as well. Therefore, the second hypothesis is as follows:

H2: Non-financial performance affects financial performance through reputation.

3. Method

3.1 Sample

To test whether reputation acts as a mediator in the relationship between non-financial performance and financial performance, a panel data set of 79 U.S. companies from an 11 year period (2008-2018) is used. The decision to use U.S. companies in this study is based on the availability of reputation scores. Because only a limited number of reputation measures is publicly available, this study has to rely on these measures. The reputation measures that are publicly available are often in the form of a ranking and only list a limited number of companies. The reputation measure that is used in this study, the Harris Poll RQ, lists the most

visible companies in the United States. As a result, most of the companies that are included in this ranking are U.S. companies. In order to be able to compare the companies, only the U.S. companies are included in the sample.

The collection of reputation scores resulted in a total of 656 reputation scores from 98 U.S. companies. The next step was to add the dependent, independent, and control variables to the data set. This resulted in a total of 1078 observations, 11 for each company. To prepare the dataset for the analysis, observations were dropped if one of the variables had a missing for a particular year. This caused a total of 599 observations being deleted which resulted in a remaining sample of 479 observations from 79 companies. The procedure that was followed and the corresponding results of each step are presented in table 1. A list of the companies that are used in this sample is provided in Appendix A.

Table 1: Data sample

Action	Number of observations deleted	Remaining observations
Start		1078
Drop FP missing	119	959
Drop REP missing	418	541
Drop ENV missing	14	527
Drop l.FP missing	2	525
Drop ENV==0	16	509
Drop LEV==0	10	499
Drop ROE missing	18	481
Drop l.ROE	2	479
Total	599	479

This table presents the steps that are taken in the procedure to come to the final data sample. The first column describes the step that is taken. The second column states the number of observations that is deleted as a result of the particular action. The third column states the number of observations that remained in the data sample after a particular action. A description of each variable and the measurement can be found in table 3, that is provided later in this chapter.

Table 2 presents two breakdowns of the sample. Panel A presents the breakdown of the sample by industries and panel B presents the breakdown by years. There are a number of issues that stand out in panel A. First, there are four industries that contribute very little to the sample

(Basic Materials, Energy, Healthcare, and Telecommunication Services). Second the Consumer Cyclicals industry represents more than 34% of the total sample and is therefore by far the industry with the highest number of observations and companies. As a result, the results of this study will, for a large part, be based on the Consumer Cyclicals industry.

The most interesting issue that arises from panel B is the fact that the last three years (2016, 2017, 2018) have a larger number of observations than the first seven years. This difference is a result of an increase in the number of companies that are listed in the Harris Poll from 60 to 100.

Table 2: Data sample breakdowns

Panel A: Industry breakdown

Industry	Observations	Companies	Percentage	Cumulative percentage
Basic Materials	7	1	1.46	1.46
Consumer Cyclicals	165	26	34.45	35.91
Consumer Non-Cyclicals	72	13	15.03	50.94
Energy	28	4	5.85	56.78
Financials	67	11	13.99	70.77
Healthcare	17	4	3.55	74.32
Industrials	44	8	9.19	83.51
Technology	53	9	11.06	94.57
Telecommunication Services	26	3	5.43	100.00
Total	479	79	100.00	100.00

Panel A presents a breakdown of the data sample by the different industries that are included in the sample. The first column states the industry. The second column states the number of observations from each industry. The third column states the number of companies from each industry. The fourth column states the percentage that each industry contributes to the sample.

Panel B: Year breakdown

Year	Observations	Percentage	Cumulative percentage
2009	39	8.14	8.14
2010	40	8.35	16.49
2011	40	8.35	24.84
2012	44	9.19	34.03
2013	46	9.60	43.63
2014	43	8.98	52.61
2015	47	9.81	62.42
2016	60	12.53	74.95
2017	61	12.73	87.68
2018	59	12.32	100.00
Total	479	100.00	100.00

Panel B presents a breakdown of the data sample by the different years that are included in the sample. The first column states the year. The second column states the number of observations for each year. The third column states the percentage that each year contributes to the sample.

3.2 Operationalization

3.2.1 Dependent variable: Financial Performance

The dependent variable in this study is financial performance. A company's financial performance can be measured in two ways, in market-based measures or in accounting-based measures (Orlitzky, Schmidt, & Rynes, 2003; Aggarwal, 2013; Wang & Berens, 2015; Beck, Frost, & Jones, 2018). In this study an accounting-based measure is used in the form of return on assets (ROA) for three reasons. First, accounting-based measures and most specifically return on assets (ROA) and return on equity (ROE) are the most used measures of financial performance in studies examining the relationship between non-financial performance and financial performance (Beck, Frost, & Jones, 2018). Second, market-based measures reflect the notion that shareholders are a primary stakeholder group whose satisfaction determines the fate of the company (Orlitzke, Schmidt, & Rynes, 2003). Because this study argues from a stakeholder approach, a market-based measure is considered to be inappropriate. Third, previous studies have often argued that non-financial performance and reputation affect financial performance through various forms of supportive behaviour. A number of these forms of supportive behaviour such as increased sales and the ability to charge a higher price are expected to affect a company's net income and thus return on assets. Data on return on assets (ROA) are retrieved from Thomson Reuters.

3.2.2 Mediating variable: Reputation

Previous studies have measured reputation in various ways. Most studies have used the Fortune index as a measure of reputation. It is therefore the most well-known measure of reputation. Recently, the use of the Fortune index as a measure of reputation is being criticized for a number of reasons (Fombrun, Gardberg, & Sever, 2000; De la Fuente Sabate & de Quevedo Puente, 2003). First, the Fortune index is mainly based on the perceptions of directors and financial analysts (Fombrun, Gardberg, & Sever, 2000; De la Fuente Sabate & de Quevedo Puente, 2003). Therefore, it is sometimes referred to as a financial reputation. Second, the Fortune index is criticized for being biased towards companies with a good reputation (Formbrun, Gardberg, & Sever, 2000).

In order to address the concerns regarding the reputation scores from Fortune index alternative measures of reputation have been developed. The most notable reputation measure that has been developed is the Reputation Quotient (RQ). The Reputation Quotient is based on scores along eight categories (Familiarity, Operational capability, Strategic positioning,

Industry leadership, Distinctiveness, Credibility, Influential, and Caring) and different stakeholder groups (Fombrun, Gardberg, & Sever, 2000). As a result of several tests on the validity of the Reputation Quotient, it is considered to be a valid, reliable, and robust instrument for measuring reputation (Fombrun, Gardberg, & Sever, 2000).

This study uses an alternative reputation measure because Reputation Quotient scores are not available. Therefore, a similar reputation measure, the Harris Poll RQ, is used. The Harris Poll RQ is established with the use of a two-phase process (The Harris Poll, 2018). In the first phase, the nomination phase, a survey is conducted to determine the most notable companies in the United States for both good as well as bad reasons. In the second phase, the ratings phase, a survey among the public is conducted to determine a reputation score for the most notable companies using a methodology that is similar to that of the Reputation Quotient. The result of the second phase is a reputation score on a scale of 0 to 100, where 0 is the lowest and 100 is the highest. The Harris Poll provides a guide to their reputation scores by grouping them in clusters and assigning a reputation to the clusters. Appendix B provides this guide to the reputation scores. Because the reputation scores from the Harris Poll are based on a similar methodology as the Reputation Quotient, this reputation score is considered to be reliable. However, it is important to note that the reputation scores from the Harris Poll are not based on the perceptions multiple stakeholders groups. They are based solely on the perceptions of the public. The decision to use the Harris Poll RQ is based on two reasons. First, the reputation scores are based on the perceptions of a non-financial stakeholder group. Second, the Harris Poll ranking is not biased towards companies with a good reputation because it lists the most notable companies for both good as well as bad reasons. This yields an advantage because a sample which includes companies with both good and bad reputations can offer more insight into reputation than a sample that only examines good reputations (Walker, 2010). Data on reputation is collected from online publications of the Harris Poll RQ.

Previous studies have mentioned that reputation and financial performance might affect each other in both ways. In order to examine the effect that reputation has on financial performance, reputation is often included as a lagged variable (De la Fuente Sabate & de Quevedo Puente, 2003). Therefore, this study uses the one-year lagged reputation of a company.

3.2.3 Independent variable: Non-financial performance

The independent variable in this study is non-financial performance. Previous studies have measured non-financial performance mostly with the use of an overall non-financial performance score. In order to address the concerns regarding the use of an overall non-financial performance score that are described in section 2.2, four measures of non-financial performance are used. The first non-financial performance measure ESG is an overall score that is calculated as the equal-weighted average of the three non-financial performance measures ENV, SOC, and GOV. The other three non-financial performance measures are the non-financial performance categories environmental, social, and governance that together form a company's non-financial performance. All four non-financial performance measures are analysed in the same way in order to determine if their relationship with financial performance is mediated by reputation.

Previous studies have mentioned that it is important to keep endogeneity in mind when the relationship between non-financial performance and financial performance is studied (Orlitzky, Schmidt, & Rynes, 2003; Margolis, Elfenbein, & Walsh, 2009; Brooks & Oikonomou, 2018). Thus, in order to investigate the effect that non-financial performance has on financial performance and whether this relationship is mediated by reputation, the one-year lagged non-financial performance is used.

3.2.4 Control variables

The variables size, leverage, previous year financial performance, industry, and year are included in as control variables. Each of these variable will be discussed below.

The first control variable is size. Previous studies have found that size can affect the financial performance of a company (Margolis, Elfenbein, & Walsh, 2009; Aggarwal, 2013; Wang & Berens, 2015). The size of a company is often measured with the use of total assets, total sales, or total number of employees (Waddock & Graves, 1997). Since this study uses return on assets to measure financial performance, the measure of size is aligned to that. Therefore, this study measures size as the natural logarithm of total assets. Previous studies have found that size is positively related to financial performance (Aggarwal, 2013). It is argued that larger companies have a better financial performance since they have more resources available to invest in profitable opportunities. Therefore, it is expected that size is positively related to financial performance. Data on size is obtained from Thomson Reuters.

The second control variable is leverage. Previous studies have found that leverage can affect both non-financial performance as well as financial performance (Waddock & Graves,

1997). This study measures leverage as the total debt to total assets ratio, which is in line with Wang & Berens (2015). Leverage is expected to be negatively related to financial performance. Data on leverage is obtained from Thomson Reuters.

The third control variable is previous year financial performance. Previous research has found that a company's previous year financial performance is significantly related to a company's financial performance (Ruf, et al., 2001). It is argued that a past positive financial performance generates new capital that can be used to further increase financial performance in the future. The same reasoning applies to a past negative financial performance, this indicates that capital is lost and less capital can be used to increase financial performance. Therefore, it is expected that the previous year financial performance is positively related to financial performance. The previous year financial performance of a company is measured as the return on assets from the previous year. Data on previous year financial performance is obtained from Thomson Reuters.

The fourth control variable is industry. Numerous studies have found that both financial performance as well as non-financial performance vary between industries (Waddock & Graves, 1997; Margolis, Elfenbein, & Walsh, 2007). The argumentation for differences between industries is that each industry is different and has different pressures or requires different competencies (Griffin & Mahon, 1997). Thus, it is expected that there are differences between industries. Industries are measured with SIC codes which are retrieved from Thomson Reuters. Industry is included in the analysis as a dummy variable where a value of 1 indicates that a company is part of that industry and a value of 0 indicates otherwise.

The fifth control variable year is included since this study uses panel data. No significant differences are expected between years. Years are included in the analysis as a dummy variable where a value of 1 indicates that an observation is from that particular year and a value of 0 indicates that an observation is not from that year.

Table 3: Variable definition and measurement

Variable	Measurement
Financial Performance (FP)	Financial performance is measured by return on assets, which is calculated by dividing net income by total assets times 100.
Reputation (REP)	Reputation is measured as the one-year lagged reputation score as reported by the Harris Poll RQ. Score is on a possible range of 0 – 100.

Non-Financial Performance (NFP)	Non-financial performance is measured as the one-year lagged non-financial performance score as reported by Thomson Reuters on four measures of non-financial performance: Environmental Social Governance (ESG), Environmental (ENV), Social (SOC), Governance (GOV). Score is on a possible range of 0 – 100.
Size	Size is measured by the natural logarithm of total assets.
Leverage (LEV)	Leverage is measured by the total debt to total assets ratio (DA), which is calculated by dividing total debt by total assets times 100.
Previous Year Financial Performance (l.FP)	Previous year financial performance is measured by the return on assets (ROA) of the previous year.
Industry	Industry is measured as a dummy, where a score of 1 indicates that the company operates in that particular industry and a score of 0 indicates otherwise.
Year	Year is measured as a dummy, where a score of 1 indicates that the observation comes from that particular year and a score of 0 indicates otherwise.

This table presents a description of the variables that are uses in this study. The first column states the name of the variable. The second column describes how the variable is measured.

3.3 Research Model

This study examines the mediating role of reputation in the relationship between non-financial performance and financial performance. The research model that is used to examine the mediating role of reputation in this relationship is showed in figure 1. Figure 1 shows three variables (non-financial performance, reputation, and financial performance) and three pathways (A, B, and C). The three variables are the variables that are of interest in this study. The three pathways depict the relations that will be examined in this study to determine whether reputation acts as a mediator in the relationship between non-financial performance and financial performance. Path A depicts the relation between non-financial performance and reputation. Path B depicts the relation between reputation and financial performance. Path C depicts the relation between non-financial performance and financial performance. The procedure that is required to test a mediating effect is described by Kenny and Baron (1986).

This procedure consists of three steps that each contain a regression which estimates one of the paths that are shown in figure 1.
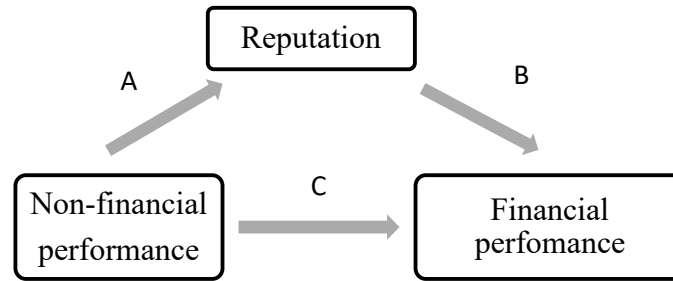

Figure 1: Research Model

The first step in testing a mediating effect is to determine whether there is a relationship between non-financial performance and financial performance. This is done by regressing financial performance on non-financial performance and the control variables. This regression depicts path C in figure 1 and is used to test the first hypothesis. In order to find support for the first hypothesis, non-financial performance should have a significant positive effect on financial performance. The following regression equation is used for this step:

$$FP = \beta_0 + \beta_1 NFP + \beta_2 SIZE + \beta_3 LEV + \beta_4 l.FP + \beta_5 Industry + \beta_6 Year + \varepsilon$$

Where NFP stands for non-financial performance which represents one of the four non-financial measures (ESG, ENV, SOC, GOV).

The second step in testing a mediating effect is to determine whether there is a relationship between non-financial performance and reputation. This is done by regressing reputation on non-financial performance. This regression depicts path A in figure 1 and is part of the testing of the second hypothesis. In order to find support for the second hypothesis, non-financial performance should have a significant positive effect on reputation. The following regression equation is used for this step:

$$REP = \beta_0 + \beta_1 NFP + \varepsilon$$

The third step in testing a mediating effect is to determine whether reputation affects financial performance and if reputation takes over a part of the effect that non-financial performance has on financial performance. This is done by regressing financial performance on reputation, non-financial performance, and the control variables. This regression depicts path C in figure 1 and is a part of the testing of the second hypothesis. In order find support for the second hypothesis, reputation should have a significant positive effect on financial performance and the effect of non-financial performance should decrease, while still being

positive, when compared to the first regression. The following regression equation is used for this step:

$$FP = \beta_0 + \beta_1 Reputation + \beta_2 NFP + \beta_3 Size + \beta_4 Leverage + \beta_5 l.FP + \beta_6 Industry$$
$$+ \beta_7 Year + \varepsilon$$

In order to conclude that reputation mediates the relationship between non-financial performance and financial performance, the conditions that are described in each step should hold. A tabulated overview of these conditions is provided in Appendix D.

3.4 Fixed Effects Model

Since panel data is used to study whether reputation mediates the relationship between non-financial performance and financial performance, different models can be used. A Hausman test is used to decide whether a fixed effects model or a random effects model is the most appropriate. In the Hausman test, the null hypothesis assumes that a random effects model is the most appropriate. The Hausman test is performed on the third regression for each non-financial performance measure. The Hausman test resulted in a probability value of 0.000 for all four measures of non-financial performance, which means that the null hypothesis is rejected and a fixed effects model is the most appropriate. The use of a fixed effects model has an important consequence, the control variable industry cannot be analysed because it is a time-invariant variable. Therefore, differences between industries that are consistently found by studies will not be present.

4. Results

4.1 Descriptive Statistics

Table 5 presents the descriptive statistics of the variables that are used in this study. The dependent variable FP has a mean of 7.255 and a median of 7.20, meaning that the average FP in this sample is 7.255%. The observations range from -17.29 to 40.14, indicating that there are companies in this sample that have a poor FP as well as companies that have a high FP.

The mediator variable REP has a mean of 71.682 and a median of 74.08. This means that the average REP of companies in this sample is around 72, which indicates a good reputation. The observations on REP range from 43.78 to 86.27, which indicates that the sample includes companies with all types of reputations, varying from critical to excellent.

The non-financial performance variables have very similar descriptive statistics. The variable ENV has a mean of 67.446 and a median of 71.50. The observations range from 2.11

to 95.85, which indicates that the environmental performance of companies in this sample varies from companies with an extremely low environmental performance to companies with an extremely high environmental performance. The variable SOC has a mean of 71.603 and a median of 73.76. The observations range from 15.27 to 97.46. This shows that there are companies in this sample with an extremely high social performance, while there are no companies with an extremely low social performance. The variable GOV has a mean of 63.519 and a median of 66.96. The observations range from 2.79 to 98.5, this shows that the sample includes companies with both an extremely low governance performance as well as an extremely high governance performance. The variable ESG is an equal-weighted average of the variables ENV, SOC, and GOC, therefore the descriptive statistics are similar to those of other non-financial performance variables and are somewhere in the middle.

For all non-financial performance variables (ESG, ENV, SOC, GOV), the mean is lower than the median which indicates that a larger portion of the observations is higher than the mean. However, the high observations vary less compared to the mean than the low observations. A comparison of the three non-financial performance measures (ENV, SOC, GOV) shows that GOV has the lowest mean and median, while SOC has the highest mean and median. This is an indication that on average companies perform the best on social issues while performance the worst on governance issues. This might indicate that companies pay the most attention to social issues while governance issues receive less attention.

The control variable LEV has a mean of 27.335 and a median of 25.796. The observations range from 0.422 to 83.664, which indicates that the debt-to-asset ratio varies a lot between companies in this sample. The control variable l.FP is the one-year lagged version of the dependent variable FP. Therefore, the descriptive statistics are almost identical to those of FP.

In order to control for potential multicollinearity between variables Pearson correlation coefficients are calculated, these are presented in table 6. A correlation coefficient of 1 indicates a perfect between variables and a correlation of 0.7 and higher indicates potential multicollinearity. Table 6 shows that all variables are significantly correlated with the dependent variable FP. This indicates that there is some sort of relation between these variables and that they do affect FP. With regard to the correlations with FP, the control variable l.FP is the only one with a correlation that indicates potential multicollinearity. This high correlation can be explained since l.FP is the one-year lagged version of FP. Previous studies have found that past financial performance is a predictor of future financial performance, therefore the variable l.FP remains in the sample.

Table 5: Descriptive statistics

Variable	Observations	Mean	Median	Min.	Max.	St. Dev.
FP	479	7.255	7.20	-17.29	40.14	6.014
REP	479	71.682	74.08	43.78	86.27	8.300
ESG	479	67.523	69.543	8.45	95.337	14.671
ENV	479	67.446	71.50	2.11	95.85	20.216
SOC	479	71.603	73.76	15.27	97.46	15.986
GOV	479	63.519	66.96	2.76	98.5	20.210
SIZE	479	18.271	18.204	15.122	21.687	1.484
LEV	479	27.335	25.796	0.422	83.664	15.009
l.FP	479	7.312	7.05	-17.29	40.14	6.097

This table presents the descriptive statistics of the variables that are used in this study. The first column states the variable for which the descriptive statistics are presented. The second column states the number of observations for each variable. The third column presents the mean for each variable. The fourth column presents the median of each variable. The fifth column presents the lowest observations for each variable. The sixth column presents the highest observation for each variable. The seventh column states the standard deviation for each variable. A description of each variable is provided in table 4.

The mediator variable REP is significantly correlated with the independent variables ESG, ENV, SOC, and GOV, this indicates that these variables are related to REP. This is expected since REP is a mediator in this study and therefore it is expected that these independent variables affect this variable. Furthermore, REP is significantly correlated to SIZE and l.FP.

High correlations are found between ESG and the independent variables ENV, SOC, and GOV. These high correlations indicate potential multicollinearity. However, because this study examines the effect of four non-financial performance measure, these variables are never included in the same regression. Therefore, potential multicollinearity between these variables is not an issue.

High correlations besides the ones that are discussed are not found. In order to determine if potential multicollinearity between variables is an issue, variance inflation factors (VIF's) are calculated, these are presented in Appendix C. A VIF of 5 or higher indicates potential multicollinearity. Because the highest VIF score in the sample is 1.47, it is unlikely that multicollinearity is an issue.

Table 6: Pearson correlation coefficients

	FP	REP	ESG	ENV	SOC	GOV	SIZE	LEV	l.FP
FP	1.000								
REP	*0.4199*	1.000							
ESG	*0.1714*	*0.1628*	1.000						
ENV	*0.1489*	*0.1310*	*0.8142*	1.000					
SOC	*0.1838*	*0.1239*	*0.8124*	*0.6175*	1.000				
GOV	*0.0790*	*0.1255*	*0.7207*	*0.2844*	*0.3604*	1.000			
SIZE	*-0.3326*	*-0.4551*	*0.1314*	0.0568	*0.0984*	*0.1515*	1.000		
LEV	*-0.0984*	-0.0371	-0.0148	0.0003	*0.1245*	*-0.1309*	-0.0119	1.000	
l.FP	*0.7048*	*0.4182*	*0.1822*	*0.1534*	*0.1906*	0.0925	*-0.2947*	*-0.1101*	1.000

This table presents the pairwise Pearson correlations. Significance levels are indicated as following :

Cursive = significant $\rho \leq 0.1$ **Bold** = significant $\rho \leq 0.05$ <u>Underlined</u> = significant $\rho \leq 0.01$

4.2 Test of hypotheses

In order to test if reputation acts as a mediator in the relationship between non-financial performance and financial performance, three regressions are conducted for each non-financial performance measure. This section starts with discussing the first regression for each non-financial performance measure, which is used to test the first hypothesis. This is followed by the second and third regression for each non-financial performance measure, which are used to test the second hypothesis.

4.2.1 The effect of non-financial performance on financial performance

The first hypothesis predicted a positive relationship between non-financial performance and financial performance. To test if there is a positive relationship between non-financial performance and financial performance, a first regression is conducted for each non-financial performance measure (regressions A – D). The results of these regression are presented in table 7. Table 7 shows that the different types of non-financial performance have different effects on financial performance. Regression A shows that ESG-performance has a very small positive effect on financial performance of 0.001. Regressions B and C show a stronger positive effect of environmental and social performance on financial performance of respectively 0.021 and 0.023. Regression D shows a negative effect of governance performance on financial performance of -0.015. Where the positive effects that are shown in regressions A – C are

expected, the negative effect of governance performance in regression D is not expected. However, in none of the regressions the effect of non-financial performance on financial performance is statistically significant. Therefore, there is no support for the first hypothesis which predicted a positive relationship between non-financial performance and financial performance.

Table 7: Regression results (1st regressions)				
Regression	A	B	C	D
Dependent	FP	FP	FP	FP
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.001	0.021	0.023	-0.015
	(0.05)	(0.97)	(0.92)	(-1.09)
SIZE	0.761	0.814	0.625	0.809
	(0.75)	(0.80)	(0.61)	(0.80)
LEV	-0.047*	-0.047*	-0.049*	-0.049*
	(-1.66)	(-1.65)	(-1.73)	(-1.72)
l.FP	0.181***	0.182***	0.181***	0.182***
	(3.91)	(3.92)	(3.90)	(3.93)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	-6.836	-9.007	-5.825	-6.641
	(-0.38)	(-0.49)	(-0.32)	(-0.37)
R^2 Within	0.0551	0.0574	0.0571	0.0580
R^2 Between	0.1346	0.1317	0.2258	0.0930
R^2 Overall	0.1018	0.0971	0.1597	0.0840
Observations	479	479	479	479

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

4.2.2 The mediating role of reputation

The second hypothesis predicted that non-financial performance affects financial performance through reputation. To determine if this is the case, a second and third regressions are conducted for each non-financial performance measure. The second regression (regressions E – H) estimates the effect of non-financial performance on reputation. The results of regressions E – H are presented in table 8. All four regressions show a positive effect of non-financial performance on reputation. The effects of ESG-performance and social performance that are shown in regressions E and G have the strongest effect, 0.082 and 0.088 respectively. Both environmental performance and governance performance have weaker effects of 0.039 and 0.021 respectively. In all four regressions, the effect of non-financial performance on reputation is statistically significant. These significant positive effects show that all four types of non-

financial performance affect a company's reputation. Therefore, reputation might act as a mediator in the relationship between non-financial performance and financial performance.

Table 8: Regression results (2nd regressions)

Regression	E	F	G	H
Dependent	REP	REP	REP	REP
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.082***	0.039**	0.088***	0.021**
	(4.21)	(2.47)	(5.16)	(2.00)
Constant	66.169***	69.084***	65.357***	70.335***
	(50.32)	(65.08)	(53.01)	(102.46)
R^2 Within	0.0426	0.0150	0.0625	0.0099
R^2 Between	0.0062	0.0048	0.0004	0.0098
R^2 Overall	0.0265	0.0172	0.0154	0.0158
Observations	479	479	479	479

This table presents the results of the second regression for each non-financial performance measure that was described in section 3.2.3. Columns E, F, G, and H present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

In order to determine if non-financial performance affects financial performance through reputation, a third regression is conducted for each non-financial performance measure. The results of this regression (regressions I – L) are presented in table 9. As was described in section 3.3, there are two effects of interest. The first being the effect of reputation, the latter being the effect of non-financial performance. All four regressions show a negative effect of reputation on financial performance. These negative effects are unexpected and are not statistically significant in any of the regressions. With regard to the effects of non-financial performance, regression I shows a small positive effect of ESG-performance on financial performance of 0.004. Regressions J and K show a stronger positive effect of both environmental and social performance on financial performance of 0.022 and 0.028 respectively. Finally, regression L shows a negative effect of governance performance on financial performance of -0.015.

The control variable size has a positive effect on financial performance in regression I – L which is not statistically significant. The control variable leverage has a negative effect on financial performance in regressions I – L which is statistically significant. This negative effect indicates that higher leveraged companies have a lower financial performance. The control variable previous year financial performance has a positive effect on financial performance in regressions I – L which is statistically significant. This positive effect indicates a positive relationship between the company's past and future financial performance, meaning that a

positive (negative) financial performance in the past will result in a positive (negative) financial performance in the future.

Table 9: Regression results (3rd regressions)

Regression	I	J	K	L
Dependent	FP	FP	FP	FP
NFP-variable	ESG	ENV	SOC	GOV
REP	-0.054	-0.056	-0.069	-0.047
	(-0.76)	(-0.80)	(-0.97)	(-0.68)
NFP	0.004	0.022	0.028	-0.015
	(0.15)	(1.01)	(1.11)	(-1.04)
SIZE	0.770	0.832	0.614	0.821
	(0.76)	(0.82)	(0.60)	(0.81)
LEV	-0.051*	-0.051*	-0.055*	-0.053*
	(-1.78)	(-1.77)	(-1.89)	(-1.81)
1.FP	0.183***	0.183***	0.182***	0.183***
	(3.93)	(3.94)	(3.93)	(3.95)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	-3.263	-5.333	-0.952	-3.449
	(-0.17)	(-0.28)	(-0.05)	(-0.18)
R^2 Within	0.0565	0.0589	0.0594	0.0591
R^2 Between	0.0580	0.0587	0.1038	0.0354
R^2 Overall	0.0379	0.0361	0.0633	0.0312
Observations	479	479	479	479

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

To determine if non-financial performance affects financial performance through reputation the effects of reputation and non-financial performance are of interest. As was described in section 3.3, the effect of reputation should be significant and positive. Regressions I – L show a negative effect of reputation on financial performance that is not statistically significant. Therefore, this condition is not fulfilled. Furthermore, it was described that the effect of non-financial performance should decrease in the third regression compared to its effect in the first regression. A comparison of the coefficients of the non-financial performance measures shows that the effects of ESG, ENV, and SOC have increased in size and that the effect of GOV has remained the same.

These results indicate that hypothesis two, which stated that non-financial performance affects financial performance through reputation is not supported for the following reasons. First, reputation does not have a significant positive effect on financial performance. In fact, reputation has an insignificant negative effect on financial performance. Second, the effects of

the non-financial performances measures have not decreased in size. The effects of ESG, ENV, and SOC have increased in size and the effect of GOV has remained the same.

4.3 Robustness Checks

To test the robustness of the results, three additional analyses are conducted. In the first analysis, the companies from the Consumer Cyclicals industry are excluded from the sample. The Consumer Cyclicals industry is excluded to ensure that the results are not driven by companies from this particular industry because it represents 34.45% of the total sample. The results of the regressions can be found in Appendix E. The tables in Appendix E show a number of changes with regard to the effects of variables and the levels of significance for the non-financial performance measures ESG, ENV, and GOV. First, the effect of the non-financial performance measure ESG on financial performance changed to negative in the first and third regression. However, the effect is not statistically significant. Second, the level of significance increased for the positive effect of the non-financial performance measure ENV on reputation in the second regression. Third, the negative effect of the non-financial performance measure GOV on financial performance is statistically significant in the first and third regression. Furthermore, the effect of the non-financial performance measure GOV on reputation in the second regression is no longer statistically significant. The results of the analysis are thus affected by the Consumer Cyclicals industry with regard to the non-financial performance measures ESG, ENV, and GOV. Therefore, the results are not robust.

In the second analysis the dependent variable ROA is replaced by ROE. This variable is often used by studies as an alternative measure of financial performance. Because the variable ROE has a number of large outliers, this variable is winsorized at 5% and 95%. The results of the regressions can be found in Appendix F. The tables in Appendix F show changes in the effects of the non-financial performance measures ESG, ENV, and SOC. In both the first and the third regression the effects of the non-financial performance measures ESG, ENV, and SOC have changed from positive to negative. However, none of these effects are statistically significant. The outcomes of the study remain the same because there is no support for both hypotheses. The results are not considered to be robust because using an alternative accounting-based measure changes the effects of the non-financial performance measures ESG, ENV, and SOC from positive to negative.

In the third analysis Tobin's Q is used as a market-based measure of financial performance. Market-based measures for financial performance are often used in studies

because they cannot be influenced by managers and therefore better reflect the impact of non-financial performance on a company's success in value creation (Wang & Berens, 2015). The results of this analysis can be found in Appendix G. The tables in Appendix G show a large amount of changes with regard to the effects of the non-financial performance measures ESG, SOC, and GOV and their levels of significance. The effects of these non-financial performance measures are now positive and statistically significant in the first and third regression. Therefore, providing support for the first hypothesis which predicted a positive relationship between non-financial performance and financial performance. Furthermore, there are changes with regard to the effects and levels of significance of the control variables in the first and third regression for all four non-financial performance measures. The control variable size has a negative effect that is statistically significant. The effect of the control variable leverage changed from positive to negative and is statistically significant. The effect of the control variable previous year financial performance remained positive and statistically significant in all cases. However, the t-values of this variable increased from approximately 4 to approximately 16 in all cases. This analysis shows that the results of the study change when a market-based measure of financial performance is used. The results of the study are thus affected by the decision to use an accounting-based measure of financial performance. Therefore, the results are considered to be not robust.

5. Conclusion

The main goal of this study was to determine if reputation mediates the relationship between non-financial performance and financial performance. This study examined the mediating role of reputation with regard to the relationship between four measures of non-financial performance (ESG, ENV, SOC, GOV) and financial performance. These relationships were tested with a panel data set of 79 U.S. companies from an 11 year period, 2008-2018.

The analyses that were conducted to test the mediating effect of reputation resulted in a limited number of significant effects. The only effects that were significant came from the second set of regressions, which examined the effect of non-financial performance on reputation. Regressions E – H showed a positive effect for all four measures of non-financial performance on reputation. Therefore, this study provided evidence for a positive relationship between non-financial performance and the company's reputation. However, the results of this study provided no support for the first hypothesis which predicted a positive relationship between non-financial performance and financial performance as well as for the second hypothesis which predicted that non-financial performance affects financial performance

through reputation. Therefore, it can be concluded that reputation does not mediate the relationship between non-financial performance and financial performance.

One of the most surprising findings of this study is that it did not find support for a positive relationship between non-financial performance and financial performance. This may be explained by the way in which financial performance is measured. This study used return on assets as an accounting-based measure of financial performance. However, other studies have argued that accounting-based measures are not appropriate since they may not reflect the impact of non-financial performance on a company's success in value creation because they can be influenced by managers (Wang & Berens, 2015). Therefore, market-based measures of financial performance should be used. Furthermore, it appears that there is no theoretical relation between a company's non-financial performance and its accounting-based measures of financial performance (Orlitzky, Schmidt, & Rynes, 2003). The third robustness check, in which Tobin's Q was used as a market-based measure of financial performance, showed that the insignificant relationships between the non-financial performance measures and financial performance can be explained by the fact that an accounting-based measure of financial performance was used. In this robustness check three of the four non-financial performance measures had a positive effect on financial performance that was statistically significant. The only non-financial performance measure that had no significant positive effect on financial performance was environmental performance.

The conclusion that reputation does not mediate the relationship between non-financial performance and financial performance is contrary to previous findings which have showed that reputation mediates this relationship. This unexpected conclusion can possibly be explained by the reputation measure that was used. Most studies that found that reputation mediates the relationship between non-financial performance and financial performance used a reputation measure that was based on the perceptions of either financial stakeholders or a broad set of stakeholders. In comparison, the reputation measure that was used in this study was based on the perceptions of the public. All three robustness checks showed that reputation had no significant effect on financial performance. Therefore, it might be the case that financial performance is not affected by a company's reputation among the public.

As a result of the few significant effects in this study, the implications of this study are limited. With regard to practice, the results of the study show a positive relationship between all non-financial performance measures and reputation that is statistically significant. This indicates that companies can build a good reputation among the public by increasing their non-

financial performance. However, the study showed that reputation does not affect financial performance. Therefore, relevance of the results with regard to practice is questionable.

The implications for the public are limited as well. Despite the fact that the results show that different types of non-financial performance have a positive effect on a company's reputation among the public, there is no evidence that this reputation has an effect on the company's financial performance. Therefore, it is unlikely that companies will address the needs of the public because there is no financial reward.

With regard to academics, there are a number of implications. The results of the study showed that a reputation among the public does not mediate the relationship between different types of non-financial performance and financial performance. Therefore, this study showed that companies have multiple reputations and that they affect the relationship between non-financial performance and financial performance in different ways. This enhances the understanding that academics have of the relationship between non-financial performance and financial performance and the role of reputation.

There are a number of limitations with regard to the study. A major limitation of this study is the financial performance measure that is used. As a result of the use of an accounting-based measure, this study did not found any significant relationships between the non-financial performance measures and financial performance. Therefore, it became impossible to determine if reputation mediates this relationship. Future research can address this limitation by using a market-based measure of financial performance.

A second limitation is related to the generalizability of the results. This study looked at the most visible U.S. companies, which are mostly large publicly traded companies. Therefore, the results cannot be generalized to smaller companies or companies from other countries. This limitation is a result of the reputation measures that is used. In order to increase the generalizability of the results, future research can use an alternative reputation measure that provides scores for more companies.

A final limitation is the fact that differences between industries are not taken into account. Previous studies have mentioned that the relationship between non-financial performance and financial performance is affected by the industry in which a company operates. The first robustness check confirms this by showing that the results of the study are affected by industries. Future research can address this by studying this relationship in specific industries.

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Appendix A
List of Companies

Company	Industry	Number of years in sample
3M Company	Industrials	5
AIG	Financials	8
AT&T Inc.	Telecommunication Services	10
Allstate Corporation	Financials	7
Alphabet	Technology	9
Amazon.com	Consumer Cyclicals	7
Apple Computer	Technology	6
BP	Energy	8
Bank of America Corporation	Financials	8
Berkshire Hathaway Inc.	Financials	2
Best Buy Co.	Consumer Cyclicals	10
CVS Health	Healthcare	3
Capital One Financial Corporation	Financials	2
ChevronTexaco Corporation	Energy	4
Citigroup	Financials	8
Comcast Corporation	Consumer Cyclicals	10
Costco	Consumer Cyclicals	10
Dell, Inc.	Technology	1
Delta Airlines	Industrials	3
Discover Financial Services	Financials	1
Dish Network	Consumer Cyclicals	4
Dollar General	Consumer Cyclicals	1
eBay	Technology	3
ExxonMobil Corporation	Energy	10
Facebook	Technology	2
FedEx Corporation	Industrials	5
Ford Motor Company	Consumer Cyclicals	7
General Electric Company	Industrials	10
General Mills	Consumer Non-Cyclicals	8
General Motors Corporation	Consumer Cyclicals	8
Goldman Sachs	Financials	9
Halliburton Company	Energy	6
Hewlett-Packard	Technology	8
Home Depot	Consumer Cyclicals	9
IBM Corporation	Technology	10
Intel Corporation	Technology	4
J.C. Penney Company	Consumer Cyclicals	8
JPMorgan Chase	Financials	10
Johnson & Johnson	Healthcare	10
Kellogg Company	Consumer Non-Cyclicals	3
Kohl's	Consumer Cyclicals	6
Kraft Foods Inc.	Consumer Non-Cyclicals	2
Lowe's	Consumer Cyclicals	9
Macy's	Consumer Cyclicals	6
McDonals's	Consumer Cyclicals	8

Microsoft Corporation	Technology	10
Mondelez International	Consumer Non-Cyclicals	1
Monsanto	Basic Materials	7
Mylan	Healthcare	1
Nike	Consumer Cyclicals	10
Nordstrom	Consumer Cyclicals	4
Pepsico	Consumer Non-Cyclicals	10
Pfizer	Healthcare	3
Progressive Corporation	Financials	2
Sears Holding Corporation	Consumer Cyclicals	3
Southwest Airlines	Industrials	9
Starbucks Corporation	Consumer Cyclicals	10
T-Mobile	Telecommunication Services	6
Target Corporation	Consumer Cyclicals	10
Tesla Motors	Consumer Cyclicals	1
The Boeing Company	Industrials	3
The Clorox Company	Consumer Non-Cyclicals	1
The Coca-Cola Company	Consumer Non-Cyclicals	10
The Kroger Company	Consumer Non-Cyclicals	3
The Procter & Gamble Company	Consumer Non-Cyclicals	10
The Walt Disney Company	Consumer Cyclicals	10
Time Warner, Inc.	Consumer Cyclicals	9
Tyson Foods	Consumer Non-Cyclicals	1
UPS	Industrials	6
Under Armour	Consumer Cyclicals	1
United Airlines	Industrials	3
Verizon Communications	Telecommunication Services	10
Wal-Mart Stores	Consumer Non-Cyclicals	10
Walgreens	Consumer Non-Cyclicals	4
Wells Fargo & Company	Financials	10
Wendy's	Consumer Cyclicals	1
Whirlpool Corporation	Consumer Cyclicals	2
Whole Foods Market	Consumer Non-Cyclicals	9
Yum! Brands	Consumer Cyclicals	1

Appendix B
Definition Reputation Scores

Meaning Reputation Scores

REP-score	Meaning
REP: ≥ 80	Excellent
REP: 75 – 79	Very good
REP: 70 – 74	Good
REP: 65 – 69	Fair
REP: 55 – 64	Poor
REP: 50 – 54	Very poor
REP: ≤ 50	Critical

This table states the meaning of various reputation scores as reported by the Axios Harris Poll. The first column states the reputation for which a meaning is provided. The second column states the meaning of the reputation from the first column.

Appendix C
VIF-scores

VIF scores							
Variable	VIF	Variable	VIF	Variable	VIF	Variable	VIF
REP	1.47	REP	1.44	REP	1.44	REP	1.47
lTA	1.37	lTA	1.31	lTA	1.34	lTA	1.36
ROA_L1	1.28	ROA_L1	1.27	ROA_L1	1.30	ROA_L1	1.25
ESG	1.12	ENV	1.05	SOC	1.11	GOV	1.10
DA	1.01	DA	1.02	DA	1.04	DA	1.03
Mean VIF	1.25	Mean VIF	1.22	Mean VIF	1.25	Mean VIF	1.24

This table presents the variance inflation factors for the variables in this study. The first set of VIF's represents the regression where ESG is used as measure of non-financial performance. The second set of VIF's represents the regression where ENV is used as measure of non-financial performance. The third set of VIF's represents the regression where SOC is used as measure of non-financial performance. The fourth set of VIF's represents the regression where GOV is used as measure of non-financial performance.

Appendix D
Conclusion Mediation Analysis
Tabulated overview mediation conditions main analysis

Results mediation analysis (ESG)		
Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.963
	Hold in predicted direction	Yes: Effect is positive → 0.001
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.082
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.445
	Hold in predicted direction	No: Effect is negative → -0.054
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.004 > 0.001

This table presents the outcomes of the mediation analysis for the variable ESG. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (ENV)		
Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.331
	Hold in predicted direction	Yes: Effect is positive → 0.021
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.014
	Hold in predicted direction	Yes: Effect is positive → 0.039
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.426
	Hold in predicted direction	No: Effect is negative → -0.056
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.022 > 0.021

This table presents the outcomes of the mediation analysis for the variable ENV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (SOC)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.356
	Hold in predicted direction	Yes: Effect is positive → 0.023
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.088
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.334
	Hold in predicted direction	No: Effect is negative → -0.069
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.028 > 0.023

This table presents the outcomes of the mediation analysis for the variable SOC. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (GOV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.276
	Hold in predicted direction	No: Effect is negative → -0.015
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.046
	Hold in predicted direction	Yes: Effect is positive → 0.021
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.498
	Hold in predicted direction	No: Effect is negative → -0.047
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect remained the same → -0.015 = -0.015

This table presents the outcomes of the mediation analysis for the variable GOV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Appendix E
Regression results Robustness Check and Conclusions Mediation Analysis after excluding Consumer Cyclicals Industry

Regression results (1st regressions)				
Regression	A	B	C	D
Dependent	FP	FP	FP	FP
NFP-variable	ESG	ENV	SOC	GOV
NFP	-0.026	0.030	0.028	-0.042**
	(-0.59)	(1.03)	(0.71)	(-2.00)
SIZE	0.411	0.12	0.010	0.568
	(0.30)	(0.09)	(0.01)	(0.43)
LEV	-0.132***	-0.124***	-0.124***	-0.136***
	(-3.31)	(-3.13)	(-3.11)	(-3.47)
l.FP	0.043	0.039	0.040	0.040
	(0.73)	(0.66)	(0.67)	(0.69)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	4.792	6.393	8.340	3.140
	(0.20)	(0.26)	(0.34)	(0.13)
R^2 Within	0.0942	0.0968	0.0948	0.1074
R^2 Between	0.0147	0.0106	0.0164	0.0373
R^2 Overall	0.0047	0.0413	0.0586	0.0005
Observations	314	314	314	314

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Regression results (2nd regressions)				
Regression	E	F	G	H
Dependent	REP	REP	REP	REP
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.110***	0.058***	0.104***	0.016
	(3.36)	(2.69)	(3.57)	(0.97)
Constant	63.325***	67.005***	63.419***	69.920***
	(27.51)	(44.46)	(29.61)	(60.38)
R^2 Within	0.0416	0.0271	0.0467	0.0036
R^2 Between	0.0049	0.0017	0.0001	0.0199
R^2 Overall	0.0206	0.0101	0.0057	0.0244
Observations	314	314	314	314

This table presents the results of the second regression for each non-financial performance measure that was described in section 3.2.3. Columns E, F, G, and H present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Regression results (3rd regressions)

Regression	I	J	K	L
Dependent	FP	FP	FP	FP
NFP-variable	ESG	ENV	SOC	GOV
REP	-0.080	-0.092	-0.097	-0.075
	(-0.94)	(-1.10)	(-1.14)	(-0.89)
NFP	-0.020	0.032	0.035	-0.041*
	(-0.45)	(1.11)	(0.88)	(-1.94)
SIZE	0.328	0.063	-0.101	0.518
	(0.24)	(0.05)	(-0.07)	(0.39)
LEV	-0.142***	-0.135***	-0.135***	-0.146***
	(-3.44)	(-3.31)	(-3.30)	(-3.58)
l.FP	0.041	0.037	0.037	0.038
	(0.69)	(0.62)	(0.62)	(0.66)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	11.811	14.189	17.028	9.502
	(0.69)	(0.56)	(0.67)	(0.38)
R^2 Within	0.0974	0.1012	0.0995	0.1103
R^2 Between	0.0648	0.0092	0.0067	0.0970
R^2 Overall	0.0052	0.0001	0.020	0.0111
Observations	314	314	314	314

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.

*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Results mediation analysis (ESG)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.556
	Hold in predicted direction	No: Effect is negative → -0.026
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.001
	Hold in predicted direction	Yes: Effect is positive → 0.110
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.347
	Hold in predicted direction	No: Effect is negative → -0.080
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.020 < -0.026

This table presents the outcomes of the mediation analysis for the variable ESG. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (ENV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.304
	Hold in predicted direction	Yes: Effect is positive → 0.030
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.008
	Hold in predicted direction	Yes: Effect is positive → 0.058
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.272
	Hold in predicted direction	No: Effect is negative → -0.092
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.032 > 0.030

This table presents the outcomes of the mediation analysis for the variable ENV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (SOC)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.479
	Hold in predicted direction	Yes: Effect is positive → 0.028
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.104
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.255
	Hold in predicted direction	No: Effect is negative → -0.097
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.035 > 0.028

This table presents the outcomes of the mediation analysis for the variable SOC. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (GOV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	Yes: Significant effect → p-value = 0.046
	Hold in predicted direction	No: Effect is negative → -0.042
2.	Independent variable must affect the mediator variable	No: Non-significant effect → p-value = 0.332
	Hold in predicted direction	Yes: Effect is positive → 0.016
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.372
	Hold in predicted direction	No: Effect is negative → -0.075
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.041 < -0.042

This table presents the outcomes of the mediation analysis for the variable GOV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Appendix F
Regression results Robustness Check and Conclusions Mediation Analysis with ROE as dependent variable

Regression results (1st regressions)				
Regression	A	B	C	D
Dependent	ROE	ROE	ROE	ROE
NFP-variable	ESG	ENV	SOC	GOV
NFP	-0.084	-0.022	-0.021	-0.053
	(-1.22)	(-0.39)	(-0.34)	(-1.46)
SIZE	-1.760	-2.005	-1.826	-1.795
	(-0.68)	(-0.78)	(-0.70)	(-0.70)
LEV	0.280***	0.280***	0.282**	0.275***
	(3.84)	(3.84)	(3.86)	(3.78)
l.ROE	0.347***	0.348***	0.349***	0.348***
	(7.31)	(7.31)	(7.35)	(7.36)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	41.475	41.761	38.608	40.057
	(0.90)	(0.89)	(0.83)	(0.87)
R^2 Within	0.2290	0.2264	0.2263	0.2303
R^2 Between	0.4946	0.5517	0.5637	0.5277
R^2 Overall	0.4373	0.4630	0.4666	0.4526
Observations	479	479	479	479

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Table 11: Regression results (2nd regressions)				
Regression	E	F	G	H
Dependent	REP	REP	REP	REP
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.082***	0.039**	0.088***	0.021**
	(4.21)	(2.47)	(5.16)	(2.00)
Constant	66.169***	69.084***	65.357***	70.335***
	(50.32)	(65.08)	(53.01)	(102.46)
R^2 Within	0.0426	0.0150	0.0625	0.0099
R^2 Between	0.0062	0.0048	0.0004	0.0098
R^2 Overall	0.0265	0.0172	0.0154	0.0158
Observations	479	479	479	479

This table presents the results of the second regression for each non-financial performance measure that was described in section 3.2.3. Columns E, F, G, and H present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Table 12: Regression results (3rd regressions)

Regression	I	J	K	L
Dependent	ROE	ROE	ROE	ROE
NFP-variable	ESG	ENV	SOC	GOV
REP	-0.233	-0.256	-0.257	-0.242
	(-1.29)	(-1.43)	(-1.41)	(-1.35)
NFP	-0.072	-0.019	-0.002	-0.049
	(-1.03)	(-0.33)	(-0.03)	(-1.37)
SIZE	-1.711	-1.911	-1.855	-1.724
	(-0.66)	(-0.74)	(-0.71)	(-0.67)
LEV	0.262***	0.261***	0.262**	0.258***
	(3.55)	(3.53)	(3.51)	(3.48)
l.ROE	0.343***	0.343***	0.344***	0.344***
	(7.22)	(7.21)	(7.25)	(7.25)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	56.778	58.580	56.665	56.213
	(1.19)	(1.22)	(1.18)	(1.18)
R^2 Within	0.2324	0.2304	0.2302	0.2339
R^2 Between	0.4613	0.5097	0.5308	0.4836
R^2 Overall	0.3902	0.4104	0.4183	0.3996
Observations	479	479	479	479

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.

*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Results mediation analysis (ESG)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.222
	Hold in predicted direction	No: Effect is negative → -0.084
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.082
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.197
	Hold in predicted direction	No: Effect is negative → -0.233
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.072 < -0.084

This table presents the outcomes of the mediation analysis for the variable ESG. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (ENV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.696
	Hold in predicted direction	No: Effect is negative → -0.022
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.014
	Hold in predicted direction	Yes: Effect is positive → 0.039
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.152
	Hold in predicted direction	No: Effect is negative → -0.256
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.019 < -0.022

This table presents the outcomes of the mediation analysis for the variable ENV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (SOC)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.738
	Hold in predicted direction	No: Effect is negative → -0.021
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.088
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.160
	Hold in predicted direction	No: Effect is negative → -0.257
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.002 < -0.021

This table presents the outcomes of the mediation analysis for the variable SOC. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (GOV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.144
	Hold in predicted direction	No: Effect is negative → -0.053
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.046
	Hold in predicted direction	Yes: Effect is positive → 0.021
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.177
	Hold in predicted direction	No: Effect is negative → -0.242
	Effect of independent variable on dependent must be less than in the 1st equation	Yes: Effect decreased → -0.049 < -0.053

This table presents the outcomes of the mediation analysis for the variable GOV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Appendix G

Robustness Check with Tobin's Q as dependent variable

Regression results and conclusions mediation analysis

Regression results (1st regressions)				
Regression	A	B	C	D
Dependent	Q	Q	Q	Q
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.007***	0.002	0.005**	0.003**
	(2.76)	(1.04)	(2.44)	(2.21)
SIZE	-0.259***	-0.239***	-0.277***	-0.251***
	(-2.89)	(-2.65)	(-3.05)	(-2.80)
LEV	0.005**	0.005**	0.005*	0.005**
	(2.09)	(2.05)	(1.87)	(2.16)
l.Q	0.576***	0.574***	0.575***	0.572***
	(16.10)	(15.89)	(16.03)	(15.96)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	4.998***	4.933***	5.381***	5.104***
	(3.12)	(3.04)	(3.35)	(3.18)
R^2 Within	0.5275	0.5195	0.5255	0.5242
R^2 Between	0.8284	0.8329	0.8078	0.8252
R^2 Overall	0.7807	0.7846	0.7656	0.7813
Observations	478	478	478	478

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Regression results (2nd regressions)				
Regression	E	F	G	H
Dependent	REP	REP	REP	REP
NFP-variable	ESG	ENV	SOC	GOV
NFP	0.082***	0.039**	0.088***	0.021**
	(4.21)	(2.69)	(5.16)	(2.00)
Constant	66.169***	69.084***	65.357***	70.335***
	(50.32)	(65.08)	(53.01)	(102.46)
R^2 Within	0.0426	0.0150	0.0625	0.0099
R^2 Between	0.0062	0.0048	0.0004	0.0098
R^2 Overall	0.0265	0.0172	0.0154	0.0158
Observations	479	479	479	479

This table presents the results of the second regression for each non-financial performance measure that was described in section 3.2.3. Columns E, F, G, and H present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Regression results (3rd regressions)

Regression	I	J	K	L
Dependent	Q	Q	Q	Q
NFP-variable	ESG	ENV	SOC	GOV
REP	-0.003	-0.001	-0.004	-0.002
	(-0.56)	(-0.21)	(-0.68)	(-0.32)
NFP	0.007***	0.002	0.006**	0.003**
	(2.81)	(1.05)	(2.53)	(2.22)
SIZE	-0.259***	-0.268***	-0.278***	-0.251***
	(-2.89)	(-2.64)	(-3.06)	(-2.79)
LEV	0.005*	0.005**	0.004*	0.005**
	(1.94)	(1.97)	(1.68)	(2.06)
l.Q	0.578***	0.575***	0.576***	0.573***
	(16.08)	(15.84)	(16.02)	(15.92)
Industry	Omitted	Omitted	Omitted	Omitted
Year	Yes	Yes	Yes	Yes
Constant	5.230***	5.019***	5.690***	5.238***
	(3.16)	(2.99)	(3.41)	(3.15)
R^2 Within	0.5279	0.5196	0.5261	0.5243
R^2 Between	0.8274	0.8341	0.8092	0.8269
R^2 Overall	0.7829	0.7854	0.7668	0.7826
Observations	478	478	478	478

This table presents the results of the first regression for each non-financial performance measure that was described in section 3.2.3. Columns A, B, C, and D present the results of the regression where the non-financial performance measures are respectively ESG, ENV, SOC, and GOV.
*, **, ***: significant at 0.10, 0.05, and 0.01 level, respectively.

Results mediation analysis (ESG)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	Yes: Significant effect → p-value = 0.006
	Hold in predicted direction	Yes: Effect is positive → 0.007
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.082
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.578
	Hold in predicted direction	No: Effect is negative → -0.003
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect remained the same → 0.007 = 0.007

This table presents the outcomes of the mediation analysis for the variable ESG. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (ENV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	No: Non-significant effect → p-value = 0.300
	Hold in predicted direction	Yes: Effect is positive → 0.002
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.014
	Hold in predicted direction	Yes: Effect is positive → 0.039
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.835
	Hold in predicted direction	No: Effect is negative → -0.001
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect remained the same → 0.002 = 0.002

This table presents the outcomes of the mediation analysis for the variable ENV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (SOC)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	Yes: Significant effect → p-value = 0.015
	Hold in predicted direction	Yes: Effect is positive → 0.005
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.000
	Hold in predicted direction	Yes: Effect is positive → 0.088
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.495
	Hold in predicted direction	No: Effect is negative → -0.004
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect increased → 0.006 > 0.005

This table presents the outcomes of the mediation analysis for the variable SOC. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Results mediation analysis (GOV)

Regression	Condition	Hold
1.	Independent variable must affect the dependent variable	Yes: Significant effect → p-value = 0.028
	Hold in predicted direction	Yes: Effect is positive → 0.003
2.	Independent variable must affect the mediator variable	Yes: Significant effect → p-value = 0.046
	Hold in predicted direction	Yes: Effect is positive → 0.021
3.	Mediator variable must affect the dependent variable	No: Non-significant effect → p-value = 0.750
	Hold in predicted direction	No: Effect is negative → -0.002
	Effect of independent variable on dependent must be less than in the 1st equation	No: Effect remained the same → 0.003 = 0.003

This table presents the outcomes of the mediation analysis for the variable GOV. The first column states the regression equation. The second column states the conditions that should hold in each regression equation. The third column states whether or not the conditions hold.

Appendix H

Do-File

```
***Transform strings to numerics***
destring Social Environment Governance ROA ROE TA totalDebt TobinsQ, replace force

***Transform other strings to numerics***
encode Company, gen (Com)
encode Industry, gen (Ind)

***Drop unnecessary variables***
drop HQ COMM MV DC CAPEX DY MTBV CUR SG ISIN MarketPrice Totalliabilities
Totalshareholdersequity DE LDebt Company Industry MarketCap TotalLiabilities Equity

***Rename Variables***
rename Social SOC
rename Environment ENV
rename Governance GOV
rename TobinsQ Q

***Drop observations for American Express due to measurement error, wrong ISIN code***
drop if Com==9

***Create new Variable for risk = Long-term Debt to Total Assets ratio***
gen DA = totalDebt / TA * 100

***Sort data***
sort Com Year

***Set Panel Data***
xtset Com Year

***Generate lagged Variables for RQ, SOC, ENV, GOV, ROA, Q***
gen RQ_L1=l1.RQ
gen SOC_L1=l1.SOC
gen ENV_L1=l1.ENV
gen GOV_L1=l1.GOV
gen ROA_L1=l1.ROA
gen ROE_L1=l1.ROE
gen Q_L1=l1.Q

***Drop Missings***
drop if ROA==.
drop if RQ_L1==.
drop if ENV_L1==.
drop if SOC_L1==.
drop if GOV_L1==.
drop if ROA_L1==.
drop if ROE==.
drop if ROE_L1==.
```

Drop Measurement errors --> ENV_L1/DA/DE ==0
drop if ENV_L1==0
drop if DA==0

Create ESG Variable with equal weights
gen ESG_L1 = (ENV_L1 + SOC_L1 + GOV_L1) / 3

Create count variable
by Com:gen count=_N

Create Industry and Year dummies
tabulate Ind, gen (Ind)
tabulate Year, gen (Year)

Add Labels to Variables
label variable RQ "Reputation score"
label variable SOC "Social score"
label variable ENV "Environmental score"
label variable GOV "Governance score"
label variable ROA "Return on Assets"
label variable TA "Total Assets"
label variable DA "Total Debt-to-Total Asset ratio"
label variable Q "Tobin's Q"
label variable RQ_L1 "Reputation score previous Year"
label variable SOC_L1 "Social score previous Year"
label variable ENV_L1 "Environmental score previous Year"
label variable GOV_L1 "Governance score previous Year"
label variable ESG_L1 "ESG score previous Year"
label variable ROA_L1 "Return on Assets Previous Year"
label variable ROE "Return on Equity"
label variable ROE_L1 "Return on Equity Previous Year"
label variable Q_L1 "Tobin's Q Previous Year"
label variable Ind1 "Basic Materials"
label variable Ind2 "Consumer Cyclicals"
label variable Ind3 "Consumer Non-Cyclicals"
label variable Ind4 "Energy"
label variable Ind5 "Financials"
label variable Ind6 "Healthcare"
label variable Ind7 "Industrials"
label variable Ind8 "Technology"
label variable Ind9 "Telecommunications"
label variable Year1 "2009"
label variable Year2 "2010"
label variable Year3 "2011"
label variable Year4 "2012"
label variable Year5 "2013"
label mariable Year6 "2014"
label variable Year7 "2015"
label variable Year8 "2016"

```
label variable Year9 "2017"
label variable Year10 "2018"
label variable count "Number of Company Observations"

***Scanning of Variables (ROA)
sum ROA, detail
gen ROA2=ROA^2
gen lROA=log(ROA)
hist ROA, normal
hist ROA2, normal
hist lROA, normal
drop ROA2 lROA

***Scanning of Variables (RQ_L1)***
sum RQ_L1, detail
gen L1_RQ2=RQ_L1^2
gen lRQ_L1=log(RQ_L1)
hist RQ_L1, normal
hist L1_RQ2, normal
hist lRQ_L1, normal
drop L1_RQ2 lRQ_L1

***Scanning of Variables (ENV_L1)***
sum ENV_L1, detail
gen L1_ENV2=ENV_L1^2
gen lENV_L1=log(ENV_L1)
hist ENV_L1, normal
hist L1_ENV2, normal
hist lENV_L1, normal
drop L1_ENV2 lENV_L1

***Scanning of Variables (SOC_L1)***
sum SOC_L1, detail
gen L1_SOC2=SOC_L1^2
gen lSOC_L1=log(SOC_L1)
hist SOC_L1, normal
hist L1_SOC2, normal
hist lSOC_L1, normal
drop lSOC_L1 L1_SOC2

***Scanning of Variables (GOV_L1)***
sum GOV_L1, detail
gen L1_GOV2=GOV_L1^2
gen lGOV_L1=log(GOV_L1)
hist GOV_L1, normal
hist L1_GOV2, normal
hist lGOV_L1, normal
drop lGOV_L1 L1_GOV2

***Scanning of Variables (ESG_L1)***
```

sum ESG_L1, detail
gen L1_ESG2=ESG_L1^2
gen lESG_L1=log(ESG_L1)
hist ESG_L1, normal
hist L1_ESG2, normal
hist lESG_L1, normal
drop L1_ESG2 lESG_L1

Scanning of Variables (TA)
sum TA, detail
gen TA2=TA^2
gen lTA=log(TA)
hist TA, normal
hist TA2, normal
hist lTA, normal
drop TA2

Scanning of Variables (DA)
sum DA, detail
gen DA2=DA^2
gen lDA=log(DA)
hist DA, normal
hist DA2, normal
hist lDA, normal
drop DA2 lDA

***Scanning of Variables (ROA_L1)
sum ROA_L1, detail
gen L1_ROA2=ROA_L1^2
gen lROA_L1=log(ROA_L1)
hist ROA_L1, normal
hist L1_ROA2, normal
hist lROA_L1, normal
drop L1_ROA2 lROA_L1

***Scanning of Variables (ROE)
sum ROE, detail
gen ROE2=ROE^2
gen lROE=log(ROE)
hist ROE, normal
hist ROE2, normal
hist lROE, normal
drop ROE2 lROE

***Scanning of Variables (ROE_L1)
sum ROE_L1, detail
gen L1_ROE2=ROE_L1^2
gen lROE_L1=log(ROE_L1)
hist ROE_L1, normal
hist L1_ROE2, normal

```
hist lROE_L1, normal
drop L1_ROE2 lROE_L1

***Scanning of Variables (Q)
sum Q, detail
gen Q2=Q^2
gen lQ=log(Q)
hist Q, normal
hist Q2, normal
hist lQ, normal
drop Q2 lQ

***Scanning of Variables (Q_L1)
sum Q_L1, detail
gen L1_Q2=Q_L1^2
gen lQ_L1=log(Q_L1)
hist Q_L1, normal
hist L1_Q2, normal
hist lQ_L1, normal
drop L1_Q2 lQ_L1

***Obtain Correlation Matrix***
corr ROA RQ_L1 ESG_L1 ENV_L1 SOC_L1 GOV_L1 lTA DA ROA_L1
pwcorr ROA RQ_L1 ESG_L1 ENV_L1 SOC_L1 GOV_L1 lTA DA ROA_L1, sig

***Obtain VIF-scores***
reg ROA RQ_L1 ESG_L1 lTA DA ROA_L1
estat vif
reg ROA RQ_L1 ENV_L1 lTA DA ROA_L1
estat vif
reg ROA RQ_L1 SOC_L1 lTA DA ROA_L1
estat vif
reg ROA RQ_L1 GOV_L1 lTA DA ROA_L1
estat vif

***Obtain Descriptive Statistics***
summarize ROA RQ_L1 ESG_L1 ENV_L1 SOC_L1 GOV_L1 lTA DA ROA_L1, detail

***Regression equation to test Mediation (ESG_L1)***
quietly xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8
Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8
Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA ESG_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2
Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ESG_L1, fe
```

xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (ENV_L1)
quietly xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA ENV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ENV_L1, fe
xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (SOC_L1)
quietly xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA SOC_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 SOC_L1, fe
xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (GOV_L1)
quietly xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA GOV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 GOV_L1, fe
xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Robustness-Check ROE as dependent variable
Winsorize ROE at 95% & 5%

```
set more off
clonevar ROE_w = ROE
su ROE_w, d
replace ROE_w = r(p95) if ROE_w >= r(p95) & ROE_w < .
replace ROE_w = r(p5) if ROE_w <= r(p5)


***Winsorize ROE_L1 at 95% & 5%***
set more off
clonevar ROEL1_w = ROE_L1
su ROEL1_w, d
replace ROEL1_w = r(p95) if ROEL1_w >= r(p95) & ROEL1_w < .
replace ROEL1_w = r(p5) if ROEL1_w <= r(p5)


***Scanning of Variables (ROE_w)***
sum ROE_w, detail
gen ROE_w2=ROE_w^2
gen lROE_w=log(ROE_w)
hist ROE_w, normal
hist ROE_w2, normal
hist lROE_w, normal
drop ROE2 lROE


***Scanning of Variables (ROEL1_w)***
sum ROEL1_w, detail
gen L1_ROE2_w=ROEL1_w^2
gen lROE_L1_w=log(ROEL1_w)
hist ROEL1_w, normal
hist L1_ROE2_w, normal
hist lROE_L1_w, normal
drop L1_ROE2 lROE_L1


***Regression equation to test Mediation (ESG_L1)***
quietly xtreg ROE_w RQ_L1 ESG_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROE_w RQ_L1 ESG_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re


xtreg ROE_w ESG_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2
Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ESG_L1, fe
xtreg ROE_w RQ_L1 ESG_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe


***Regression equation to test Mediation (ENV_L1)***
quietly xtreg ROE_w RQ_L1 ENV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
```

quietly xtreg ROE_w RQ_L1 ENV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROE_w ENV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2
Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ENV_L1, fe
xtreg ROE_w RQ_L1 ENV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (SOC_L1)
quietly xtreg ROE_w RQ_L1 SOC_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROE_w RQ_L1 SOC_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROE_w SOC_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2
Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 SOC_L1, fe
xtreg ROE_w RQ_L1 SOC_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (GOV_L1)
quietly xtreg ROE_w RQ_L1 GOV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROE_w RQ_L1 GOV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7
Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROE_w GOV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2
Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 GOV_L1, fe
xtreg ROE_w RQ_L1 GOV_L1 lTA DA ROEL1_w Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Robustness-Check with Tobin's Q as dependent variable
Regression equation to test Mediation (ESG_L1)
quietly xtreg Q RQ_L1 ESG_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg Q RQ_L1 ESG_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9
Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg Q ESG_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ESG_L1, fe
xtreg Q RQ_L1 ESG_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (ENV_L1)
quietly xtreg Q RQ_L1 ENV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg Q RQ_L1 ENV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg Q ENV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ENV_L1, fe
xtreg Q RQ_L1 ENV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (SOC_L1)
quietly xtreg Q RQ_L1 SOC_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg Q RQ_L1 SOC_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg Q SOC_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 SOC_L1, fe
xtreg Q RQ_L1 SOC_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (GOV_L1)
quietly xtreg Q RQ_L1 GOV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg Q RQ_L1 GOV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg Q GOV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 GOV_L1, fe

xtreg Q RQ_L1 GOV_L1 lTA DA Q_L1 Ind2 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Robustness-Check without Consumer Cyclicals Industry
Drop Observations from companies from Consumer Cyclicals Industry
drop if Ind==2

Regression equation to test Mediation (ESG_L1)
quietly xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA ESG_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ESG_L1, fe
xtreg ROA RQ_L1 ESG_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (ENV_L1)
quietly xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA ENV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 ENV_L1, fe
xtreg ROA RQ_L1 ENV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (SOC_L1)
quietly xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA SOC_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 SOC_L1, fe

xtreg ROA RQ_L1 SOC_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe

Regression equation to test Mediation (GOV_L1)
quietly xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
estimate store fe
quietly xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, re
estimate store re
hausman fe re

xtreg ROA GOV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe
xtreg RQ_L1 GOV_L1, fe
xtreg ROA RQ_L1 GOV_L1 lTA DA ROA_L1 Ind3 Ind4 Ind5 Ind6 Ind7 Ind8 Ind9 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year10, fe