Do Non-Socially Responsible Companies Achieve Legitimacy Through Socially Responsible Actions? The Mediating Effect of Innovation

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Abstract

This study investigates the effects on organization's financial performances of, firstly, the extent to which the organizations are involved in controversial business activities, and secondly, their level of social performance. These companies can be considered non-socially responsible given the harmful nature of the activities they are involved in. Managers of these companies may still have incentives to pursue socially responsible actions if they believe that engaging on those actions will help them to achieve legitimacy and improve investors' perception about them. We develop a comprehensive methodology to investigate these corporate social performance related effects in a complex but specific setting. To this end, we analyze a sample of 202 US firms for the period 2003-2008 using a novel method in this area: partial least squares. Our results indicate that, contrary to the general findings in prior literature, companies involved in controversial business activities which engage in corporate social performance (CSP) do not directly reduce the negative perception that stakeholders have about them. Instead, we found evidence of a positive mediation effect of CSP on financial market-based performance through innovation.

Keywords: Corporate Social Performance; Financial Performance; Controversial Activities; Innovation Intensity; Partial Least Squares

1. Introduction

This article investigates whether and how CSP affects financial performance of firms involved in controversial business activities. The relationship of CSP with accounting and market corporate performance is analyzed simultaneously which provides a broader and more comprehensive perception of the CSP-related effects. We also consider the effect of innovation which is modeled as a direct as well as a moderating and mediating factor.

CSP has been defined as "a broad array of strategies and operating practices that a company develops in its effort to deal with and create relationships with its numerous stakeholders and the natural environment" (Surroca et al., 2010: 464). Corporate social responsibility (CSR) relates to the discretionary responsibilities of the business (Carroll, 1979). CSP, as a measure of social responsibilities integrated within the processes, principles or programs, can be operationalized in different ways. One approach is to interpret activities and outcomes of CSR and environmental management as predictors of CSP (Orlitzky and Benjamin, 2001, Waddock and Graves, 1997). In this sense, aggregating different aspects related to CSR lead to a model representing activities that benefit society directly or indirectly and that should be captured by CSP.

Theory suggests that CSP improves the relationship of the company with stakeholders influencing corporate financial performance positively (Freeman, 1984, Ruf et al., 2001). Empirical research has attempted to establish and explain the relationship between CSP and corporate performance with different degrees of success. Although most studies support a positive association between social and financial performance (Margolis and Walsh, 2003, Orlitzky et al., 2003), up to now there is no clear and conclusive explanation for this association. The lack of conclusive results has been justified by the complexity of this matter and the absence of a direct causal

relationship (Margolis and Walsh, 2003). Recent studies work in this line trying to shed light on the issue by incorporating potential omitted variables such as innovation (Hull and Rothenberg, 2008, Pavelin and Porter, 2007, Surroca et al., 2010, McWilliams and Siegel, 2000), investigating causality effects (Surroca et al., 2010, Waddock and Graves, 1997) or incorporating moderating (Hull and Rothenberg, 2008) and mediating effect explanations (Surroca et al., 2010).

As mentioned above, one of the issues being emphasized in recent studies is the role of innovation in this association. The argument implies the existence of a close link between CSP and innovation because the process followed by companies to improve its social performance needs of new technologies (adapt production processes, product design) (Pavelin and Porter, 2007). A further argument states that CSP is innovation by itself because the company develops valuable and non-substitutable resources, which are also intangibles, through the effort made to differentiate and outperform its rivals (Barney, 1986, McWilliams and Siegel, 2000). This argument is particularly apparent for food products. Corporate investment in CSR leads to product differentiation at the product and firm levels. Companies may be interested in producing goods or services which signal corporate social concerns to the consumer. A clear illustration is the case of natural food companies which place labels on their products to signal production methods that promote CSR. These labels refer to CSR attributes and create a new product category ("socially responsible products") in the perception of consumers (McWilliams and Siegel, 2000). The "organic" label indicates the use of organic methods, which implies a process of innovation and the creation of a product innovation (McWilliams and Siegel, 2000). In general, there is an implicit assumption that companies that support CSR are more reliable and their products are of higher quality.

A particular concern in relation to CSP is that related to companies involved in controversial industries. Controversial industries are those dealing with "products, services or concepts that for reasons of delicacy, decency, morality or to fear to elicit reactions of distaste, disgust, offense or outrage when mentioned or even when openly presented" (Wilson and West, 1981). These sectors are characterized by social taboos, moral debate and political pressures (alcohol, tobacco, gambling, military contracting or nuclear power). For these companies, it is potentially difficult to establish and maintain good social performance. There are only a few studies investigating different issues related to controversial companies (Palazzo and Richter, 2005, Cai et al., 2012, Byrne, 2010, Yoon et al., 2006). The debate includes arguments in favor and against companies in controversial industry sectors developing social responsibility activities to improve their reputation and positively affect performance (Palazzo and Richter, 2005). Prior work finds that engagement in social responsible activities affects firm value positively (Cai et al., 2012). However, one could argue that positive findings in this specific sector are in line with corporate impression management in a desperate attempt to achieve legitimacy (Elsbach and Sutton, 1992, Cai et al., 2012). The lack of research in the area and the difficulties in establishing a rationale for the involvement of controversial companies in CSR activities makes this sector particularly interesting. Two appealing research questions arise: Are companies related to controversial activities able to increase their financial performance through corporate social performance? and if so, Do innovatory activities play a role in this association?

Despite the awareness of the existing simplistic linear assumptions when analyzing the corporate social-financial performance link and the interest in developing a more complete framework to capture the complexity of this association, prior studies have not fully accomplished this task. We intend to extend and improve the

understanding of this link by focusing on a more specific context, companies involved in controversial activities, and implementing a novel methodology using Partial Least Square analysis (PLS).

Our work contributes to the literature in a number of ways. First, the study provides evidence of the effect of CSP on firm profitability and market value simultaneously. By splitting the effect into market and accounting corporate performance we pursue a more detailed understanding of this association. Further, we control for the impact of involvement in controversial issues as well as the combined effect of performing both CSP and controversial activities on firm financial performance. Second, our method allows the analysis of the role of innovation in three ways: as a direct, a mediating and a moderating factor. Third, the analysis is carried out using PLS which has not been used by prior work investigating this issue and which has a number of advantages compared to the traditional multiple regression analysis. PLS permits the analysis of a more complex theoretical framework compared to the traditional multivariate regression analysis.

Our results show that firms with some degree of involvement in controversial activities do not benefit from the positive effect of CSP on financial market-based performance as firms not involved in these activities do. The results indicate no direct effect of CSP on firm market-based performance for companies involved in controversial activities. Our empirical evidence shows that innovation plays a mediating role in the relationship between corporate and firm market-based performance. Moreover, this mediating effect seems to be effective and positive for the market value of the firm. Thus, our results do not provide support for the recent findings of Cai et al. (2012) suggesting a direct impact of CSP on financial market-based performance once we control for innovation as a mediator variable.

Overall our study confirms the intuition that the effort made by companies involved in activities considered controversial to achieve legitimacy through social responsible activities is not enough to overcome the unethical perception that stakeholders have of them.

2. Related Literature

For the last four decades, researchers from different fields, including strategic management, marketing, accounting, finance, and business ethics, have made a remarkable effort to understand the link between CSP and financial performance (Orlitzky, 2008, Preston and O'Bannon, 1997). A quick overview of the empirical literature shows that most of these studies find a positive impact of CSP on financial performance (Beurden and Gössling, 2008).

A number of theories have been proposed and tested in relation to CSR. Some these theories relate to the moral and ethical dimensions of CSR and how managers have incentives to do "the right thing". Theories supporting this approach are the stakeholder theory (Donaldson and Preston, 1995, Freeman, 1984), stewardship theory (Donaldson and Davis, 1991) and institutional theory (Jennings and Zandbergen, 1995). Other theories support the idea of CSR representing management self-serving and strategic behavior. These are, for example, agency theory (Friedman, 1970), the theory of the firm (McWilliams and Siegel, 2001, Waldman et al., 2006, Baron, 2001), strategic leadership theory (Waldman et al., 2006) or the resource-based view of the firm (McWilliams et al., 2002).

According to the literature, one of the main goals of pursuing social responsible activities seems to be achieving legitimacy. Legitimacy is achieved when stakeholders, and society in general, support the company´s goals and activities. Gaining and maintaining legitimacy is difficult for most companies. But this task is even more

challenging when the company operates in controversial industries or is related to controversial activities (Elsbach and Sutton, 1992).

Institutional theory provides a view of how companies cope with conflicting, inconsistent demands. Institutional theorists propose that companies operating in non-socially acceptable industries can adopt visible activities that follow social norms while decoupling from less acceptable core activities or goals (Meyer and Rowan, 1977). Following this approach, organizations can enhance their legitimacy even when their core practices and goals conflict with those of stakeholders. This behavior could be considered a form of impression management. Indeed, prior literature states that impression management tactics are helpful to provide positive interpretations for controversial actions (Schlenker, 1980). Therefore, given the benefits of attaining legitimacy, it is clear that managers have incentives to carry out actions that may lead to achieving this goal. A different issue is whether market participants buy into this corporate strategy.

In this context, credibility is an essential factor that plays a key role for companies pursuing legitimacy (Leary and Kowalski, 1990). Credibility refers to the congruence between the source's verbal claims and the corresponding acts and events. This is especially important in regard to firms operating in environmentally-sensitive industries or developing controversial business. In fact, the industry level may have a significant effect on the ex-ante believability of any corporate social activity (Aerts and Cormier, 2009).

This setting leads to consider that even though companies operating in controversial industries or involved in controversial activities are considered non-socially responsible (Palazzo and Richter, 2005), corporate social activities, if credible, may play an important role in mitigating the potential consequences of future damaging

events (Peloza, 2006). For example, some of the firms that few years ago were involved in unethical behavior related to accounting, securities, and consumer fraud (Clement, 2006), are now listed as best corporate citizens.[1]

Exploring this issue, Cai et al. (2012) have recently found a direct and positive influence of CSP on the financial performance for a sample of US controversial firms. These authors argue that the direct and positive relation found is consistent with the value-enhancement hypothesis, on the assumption that moral managers utilize CSP "as a means to improve transparency, strategies, philanthropy, and to eventually enhance firm value" (Cai et al., 2012: 467). Cai et al. (2012) discard the so-called "window-dressing hypothesis", this relates to the possibility that managers in controversial business may behave as immoral ones. Under the window-dressing hypothesis, investors may realize management self-serving intentions and, rather than value CSP efforts, penalize controversial business in the stock market.

However, the results of Cai et al. (2012) may be affected by the omission of important variables which could lead to misrepresentation (Hull and Rothenberg, 2008, Surroca et al., 2010). The three meta-analyses of Orlitzky and Benjamin (2001), Ortlizky et al. (2003), and Margolis and Walsh (2003) claim that, despite the positive relationship between CSP and financial performance shown by the empirical research, there is a large amount of unexplained variance across studies. Specifically, these discrepancies among studies suggest the potential presence of confounding variables (McWilliams and Siegel, 2000, Orlitzky, 2008, McWilliams et al., 2006).

Accordingly, recent research has found evidence supporting that the positive impact of CSP on financial performance is subject to either the mediating or the

[1] See for example the cases of Nike, IBM, J.P. Morgan, Intel, Merck, Microsoft, and Xerox at http://thecro.com/files/100Best2011_List_revised.pdf.

moderating effects of a firm's intangible resources. For example, by developing close relationships with primary stakeholders, a firm can develop these intangible resources, which help it to acquire a competitive advantage over its rivals (Barney, 1986). On the one hand, it has been argued that CSP and financial performance are most likely positively correlated because CSP helps improve other intangible resources such as innovation, since many aspects of CSP lead to either a product innovation, a process innovation, or both (McWilliams and Siegel, 2000, Pavelin and Porter, 2007). In line with this thesis, Surroca et al. (2010) do not find a direct relationship between CSP and financial performance. Instead, their results show an indirect relationship that relies on the mediating effect of a firm's intangible resources. On the other hand, it has also been suggested that innovation intensity may moderate the CSP-financial performance link (McWilliams and Siegel, 2000). In this sense, Hull and Rothenberg (2008) find evidence that CSP contributes to enhance financial performance by allowing the firm to differentiate, and that this effect is moderated by innovation. Therefore, previous empirical research findings, such as those of Cai et al. (2012), may be spurious as they fail to account for the mediating/moderating effects of innovation intensity (Hull and Rothenberg, 2008, Surroca et al., 2010).

Furthermore, the results of the CSP-financial performance literature are also ambiguous regarding the impact of CSP on different measures of financial performance (Peloza, 2009). Discrepancies among studies are mainly due to the use of different measures of corporate financial performance that seem to diverge rather than converge (Orlitzky, 2008). Thus, while some previous empirical research has employed accounting-based measures (for example, profitability, liquidity, and leverage ratios), other studies have used market-based measures (for example, market capitalization, Tobin's *q*, spreads, non-systematic risk) or both as surrogates of a firms' financial

performance. For instance, Hull and Rothenberg (2008) measure financial performance as return on assets (an accounting-based measure) and Surroca et al. (2010) capture financial performance through the Tobin's q (a market-based measure). In this article we propose an analysis of the impact that CSP may simultaneous have on both accounting and market-based measures.

The above discussion leads us to explore the following research questions:

> RQ1: For firms involved in controversial issues, is there a direct impact of CSP on financial performance (using accounting and market-based measures simultaneously)?
>
> RQ2: For firms involved in controversial issues, is the impact of CSP on financial performance (using accounting and market-based measures simultaneously) canalized by innovation intensity?

3. Structural Equation Modeling

3.1. Sample and Data

The empirical analysis is carried out for a set of US firms for the period 2005-2008. We extract a sample of non-financial and non-regulated firms from the Compustat Global Vantage annual files[2]. In particular, we focus not only on companies operating in controversial industries but also on companies with some degree of involvement in controversial activities. Companies with no involvement in controversial operations are excluded from the sample. The corporate social responsibility is extracted from KLD. We develop an index using the CSP attributes ratings from the Kinder, Lydenberg, and Domini (KLD) Research and Analytics, Inc. database. This database contains detailed annual ratings on the environmental and social activities and performance of over 3,000 publicly traded US companies for a period of 10 years. The data is collected and

[2] Compustat Global Vantage is a database of accounting information about Global publicly listed companies. It covers the Income Statement, Cash Flow Statement and Balance Sheet as well as many other supplemental items.

aggregated by independent analysts and therefore it is more objective and less subject to self-evaluation bias (Wagner, 2010). By aggregating a wide range of aspects relating to CSR and environmental management, KLD covers activities that benefit society directly or indirectly. KLD data is the most comprehensive and widely used data on CSR research in a varied number of areas (for example, accounting, economics, finance, management, and marketing). However, we are aware of its limitations. One limitation of the KLD data is its unbalanced panel structure and certain construct-validity issues[3] (Chatterji et al., 2009). The data is subject to a sample selection bias because it is based on a snapshot over a number of companies' social ratings by KLD analysts in binary responses for each strength or concern (rating 1 indicates the presence and 0 absence of strength).

The final dataset comprising a combination of Compustat and KLD data (McWilliams and Siegel, 2000, Waddock and Graves, 1997) for 595 firm-year observations with information on all variables is used to run all of our tests (727 firm-year observations when we run our tests without taking into account innovation intensity). We exclude observations with missing data from any of the variables included in the model. The appendix presents an overview of the sample by sector. Tables 1 and 2 summarize descriptive statistics for indicators and their correlations.

(Insert Table 1 and 2 about here)

3.2. Measurement of Constructs included in the models

Table 3 shows the indicators we employed to measure our latent variables. In this paper, seven latent variables (constructs) of our models, such as Market Value,

[3] This database has been widely used in studies related to CSR (Hull and Rothenberg, 2008, McWilliams and Siegel, 2000, Padgett and Galan, 2010, Waddock and Graves, 1997, Wagner, 2010). KLD data has been validated in prior research (Sharfman, 1996, Hull and Rothenberg, 2008) however, some construct-validity issues remain.

Profitability, Innovation, Liquidity, Leverage, Financial Distress, and Size, were captured using two formative indicators (measures). Further, two of our latent variables, i.e., CSP and Controversial, were captured using a single indicator.

The association of CSP with corporate financial performance has been tested in prior literature (Hull and Rothenberg, 2008, Surroca et al., 2010). In our models, both Market Value and Profitability are latent variables capturing financial performance. Market Value is a proxy for growth opportunities. To measure the Market Value construct we employed two ratios: Tobin's Q (Chung and Jo, 1996) and market value of equity to book value. Profitability is defined as a firm's ability to generate profits and it is calculated as the ratio of earnings before interest and taxes scaled by total assets and the ratio of total income over total assets. In this paper, we include profitability as an independent variable as well as a dependent one. On the one hand, the reason to consider it as an independent variable relies on the vast accounting empirical evidence linking accounting profitability and market value (see for example, Barth et al., 1998, Ohlson, 1995). On the other hand, many others studies have examined the relationship between CSP and accounting-based profitability (Nelling and Webb, 2009, Hull and Covin, 2009, McWilliams and Siegel, 2000).

Our main independent latent variable is CSP which represents a firm's social commitment. KLD covers approximately 80 indicators in seven major Qualitative Issue Areas including Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights and Product[4]. Following previous studies (Cai et al., 2012), we use KLD´s inclusive social rating criteria. In this regard, a lagged CSP score is built by aggregating total strengths minus total concerns for each of the KLD's seven social

[4] The qualitative indicators include both positive and negative ratings (strengths and concerns). The number of strengths and concerns vary for different areas. For example, "Community" has eight strengths and five concerns while "corporate governance" has five strengths and six concerns.

rating categories (community, corporate governance, diversity, employee relations, environment, human rights and product).[5] Another important independent latent variable in our models is Controversial which represents a firm's degree of involvement in controversial industries. This construct is captured in a similar way to the CSP, by aggregating the five controversial issue ratings categories of the KLD (alcohol, gambling, military contracting, nuclear power, and tobacco).[6]

Prior literature finds that innovation is associated with CSP (Hull and Rothenberg, 2008, McWilliams and Siegel, 2000, Surroca et al., 2010, Berrone et al., 2007). The role of Innovation seems to be complex (e.g. moderating or moderating rather than linear association). Innovation is included in our models 3 and 4 either as a mediating (Surroca et al., 2010) or as a moderating (Hull and Rothenberg, 2008) latent variable. Similar to prior literature (Wagner, 2010), we capture Innovation using two ratios: natural logarithm of lagged research and development expenditures scaled by total assets (Berrone et al., 2007), and the natural logarithm of lagged research and development expenditures scaled by number of employees (Surroca et al., 2010).

Finally, we include a number of factors that have been suggested to affect both CSP and firm performance (Liquidity, Leverage, Financial Distress, and Size) which have been included in prior literature as control variables (Hull and Rothenberg, 2008, McWilliams and Siegel, 2000, Padgett and Galan, 2010, Ullmann, 1985). Liquidity is the quick ratio and the ratio of operating cash flow over current liabilities. Companies with high liquidity are more likely to invest in new projects which may have a positive

[5] One potential surrogate could be a lagged CSP score, calculated by converting into a z-score each of the KLD's seven social rating categories and then aggregating total strengths minus total concerns into a single measure (Liston-Heyes and Ceton, 2009). We also employed this measure as a robustness check and results did not change.

[6] The controversial scores are based on exclusionary screening information related to five main areas. These indicators have only negative ratings. The number of concerns by area varies (for example, "firearms" has four concerns while "nuclear power" has eight concerns.

social and financial outcome (Surroca et al., 2010). The need of external financing is expected to affect CSP. Leverage is the ratio of EBIDTA to debt and the ratio of equity to debt. The higher the leverage the greater the degree to which management would give priority to creditors instead of to other stakeholders (Roberts, 1992). To measure Financial Distress we use both Zmijewski and Altman z-scores. Finally, Size is captured through the natural logarithm of total assets and the natural logarithm of number of employees (Padgett and Galan, 2010, Waddock and Graves, 1997).

(Insert Table 3 about here)

3.3 Model Equations

We present four models to address the impact of CSP on financial performance, both accounting and market based, of firms involved in controversial activities. Model 1 consists of two structural equations to explore the simultaneous impact of CSP on both a firm's profitability and market value. This is illustrated in Figure 1.

(Insert Figure 1 here)

CSP_{t-1}, in equation 1, represents the impact of a firm's social performance in year t-1 on a firm's market value (Market $Value_t$) in year t. Profitability ($Profit_t$), liquidity (Liq_t), leverage (Lev_t), financial distress ($Distress_t$) and firm size ($Size_t$) are included as control variables. Equation 2 shows the potential impact of CSP on a firm's profitability. Further, equation 2 includes size as a control variable. The effect of CSP on Market Value comprises both a direct effect, as well as an indirect one mediated by its effect on Profitability.

Model 2 extends Model 1 by adding the role played by controversial issues[7] and its interaction with CSP. Figure 2 shows the details of these associations.

(Insert Figure 2 here)

$Controv_{t-1}$ and CSP_{t-1}*$Controv_{t-1}$ show, in equation 3, the potential impact of a firm's involvement in controversial issues in year t-1 and its interaction with social performance on a firm's market value in year t. Equation 4 also extends equation 2 by controlling the role played by $Controv_{t-1}$ and CSP_{t-1}*$Controv_{t-1}$. ε represents the residual error.

Model 3 extends Model 2 by including innovation intensity as a potential mediating variable in the CSP-financial performance link (Surroca et al., 2010). Accordingly, Model 3 consists of three structural equations as shown in Figure 3.

(Insert Figure 3 here)

Equations 5 and 6 incorporate firm's innovation intensity in year t -1 as a control variable on a firm's market value and profitability, respectively. Equation 7 shows innovation intensity as a mediating variable of the potential impact of CSP on market value and profitability in equation 5 and 6, respectively.

Innovation intensity is represented in Model 4 as a potential moderating variable of the impact of CSP on financial performance (Hull and Rothenberg, 2008). In this regard, Model 4 consists of two structural equations (see Figure 4).

(Insert Figure 4 here)

[7] The variable *Controv* is computed by aggregating the five controversial issue ratings categories of the KLD database. Therefore, this measure captures the level of involvement in controversial activities of the companies included in the study.

Equations 8 and 9 are similar to equations 3 and 4 of Model 2 but adding innovation intensity in year t -1 as a control variable and its interaction with CSP. The illustration of the associations investigated is shown in Figure 4.

Finally, we test a combined model illustrating innovation not only as a potential mediating but also as a potential moderating variable of the impact of CSP on financial performance. This model consists of three structural equations (see Figure 5). Equations 10 and 11 are same than equations 8 and 9 in model 4. Equation 12 adds the role played by innovation as a mediator of the impact of CSP on financial performance.

(Insert Figure 5 here)

4. Partial Least Square Analysis

4.1. Measurement Validation

We carry the analysis using Partial Least Squares (PLS). PLS is a variance-based SEM technique. In contrast to covariance-based SEM, PLS focuses on maximizing the variance of the dependent variables explained by the independent ones instead of reproducing the empirical covariance matrix (Chin, (1998). According to Chin (1998), PLS is a powerful method of analysis because of the minimal demands on measurement scales, sample size, and residual distributions. Although PLS can be used for theory confirmation, it can also be used to suggest where relationships might or might not exist and to suggest propositions for further testing. This technique is particularly appropriate, in comparison with OLS regression, in presence of complex relationships among the latent variables (Fornell and Bookstein, 1982; Fornell et al., 1990). For application and prediction, the PLS approach is superior to regression and covariance structural models because all observed measure variance is treated as useful variance

and it is explained[8]. Further, since regression coefficients are estimated iteratively in PLS, sample size is normally not a problem like it is when using programs such as EQS, AMOS, and LISREL (Fornell and Bookstein, 1982). Furthermore, Chin (1998) asserts that an underlying assumption for covariance-based SEM analysis is that the indicators used to capture latent constructs are reflective in nature. PLS allows researchers to model complex theoretical constructs using both formative and reflective indicators when exploring latent variables and their relationships with other ones simultaneously. PLS is considered an appropriate technique for our analysis because it captures latent variables, such as CSP, accounting and market-based financial performance, using both single and multiple formative indicators (Rodgers and Guiral, 2011). One shortcoming of the methodology is that in PLS the optimization is made at local rather than at global level. However, as sample size increases PLS becomes less biased. Thus, inferences made with PLS are robust when sample sizes are large.

In PLS, paths between latent constructs can be interpreted as standardized beta weights in a regression analysis. PLS does not make distributional assumptions, and therefore, traditional parametric procedures of significance testing are not appropriate. Thus, we use bootstrapping resampling procedures to estimate factor loadings and path coefficients in the model (Chin, 1998).

To estimate our four models we used SmartPLS 2.00. We examined the loading of the indicators on the corresponding construct to assess measure's reliability. All measures for all models had a loading level above 0.70. In addition, measurement residuals are small. All loadings have the expected signs and are statically significant at

[8] Inkpen and Birkenshaw (1994: 208) argue that a clear motivation for using PLS Path Modelling is that "all relationships are modelled simultaneously, eliminating concerns about multicollinearity''. The hypothesis of PLS being robust against various statistical specification problems, such as multicollinearity, is an important argument for using PLS (Inkpen and Birkenshaw, 1994, Westlund et al., 2008).

the 0.01 level (one-tailed). Further, all constructs present a reliability composite (Fornell and Larcker, 1981) above 0.70, which is the benchmark level suggested by Nunnally (1978).

We also analyze the convergent and discriminant validity. According to Chin (1998), convergent and discriminant validity is inferred when (1) the PLS indicators load much higher on their hypothesized factor than on other factors (own-loadings are higher than cross-loadings), and (2) the square root of each construct's Average Variance Extracted (AVE) is larger than its correlations with other constructs (the average variance shared between the construct, and its indicators are larger than the variance shared between the construct and other constructs). Our tests indicate satisfactory convergent and discriminant validity for all constructs. Further, the overall communality coefficient in our models exceed Falk's (1987) recommendation that this coefficient should be greater than 0.30.

4.2. PLS Results

The PLS path coefficients are shown in Table 4. In Model 1 we investigate the role played by CSP on financial performance before controlling for the impact of firm's involvement in controversial issues and innovation intensity (see Figure 1). Results of Model 1 show that CSP has a significant positive direct impact on market-based financial performance (see column 1, Table 4 and Figure 1). While our results do not show that higher CSP leads to higher firm's profitability ($\beta_7 = 0.380$, t = 1.044 and $p >$ 0.10, R^2 = 0.042), the $CSP_{t-1} \rightarrow$ Market $Value_t$ pathway indicates that a better CSP increases firm's financial growth opportunities ($\beta_1 = 0.126$, t = 3.219 and $p < 0.01$, R^2 = 0.505). This is consistent with prior literature investigating a direct effect of CSP on firm market-based performance (Cai et al., 2012). All control variables except liquidity

are statically significant. Higher leverage, financial distress and firm size lead to a negative direct impact on market value ($\beta_4 = -0.396$, t = 4.029 and $p < 0.01$; $\beta_5 = -0.672$, t = 4.475 and $p < 0.01$; $\beta_6 = -0.156$, t = 2.463 and $p < 0.01$). Finally, firm size shows a positive impact on profitability ($\beta_8 = 0.200$, t = 3.700 and $p < 0.01$).[9] Therefore, results of Model 1 provide supporting evidence of a positive direct effect of CSP on market-based financial performance (see column 1, Table 4).

(Insert Table 4 about here)

In Model 2 (see Figure 2) we extend Model 1 by adding firm's involvement in controversial activities as an independent variable. Results show that after including controversial issues and its interaction with CSP, only the market-based financial performance measure, remains marginally impacted by CSP ($\beta_1 = 0.178$, t = 1.858 and $p < 0.10$, R^2 = 0.506) (see column 2, Table 4). This result is somehow different to evidence found by Cai et al. (2012). While Cai et al. (2012) find a clear direct positive effect of CSP on company value for controversial companies, our results indicate that such an impact is only marginal. A reason for the difference in the results may be that their definition of controversial companies is broader than that considered in this study. They speculate that market participants may consider the CSR engagement of sinful companies as value irrelevant activities (Cai et al., 2012). Thus, our results seem to suggest that firm's association with controversial activities might mitigate the potential positive effect of CSP on financial performance as shown by the results from the estimation of Model 1.

[9] A similar value and significance of the leverage, financial distress and firm size pathways remains for Models 2, 3, 4 and 5. Further, since the impact of firm size on market value is positively mediated by profitability, we rerun our models excluding the mediating variable (profitability) to test for the total effect. Results show that firm size is not statistically significant in any of our models.

In model 3 we examine whether innovation intensity could contribute to canalize the impact of CSP on financial performance. Therefore, we test for the potential presence of a mediation effect (see Figure 3). Results (see column 3, Table 4) indicate that CSP does not have a direct and significant positive impact on financial performance (both accounting and market-based) and that firm's involvement in controversial issues leads to a negative effect on market value ($\beta_2 = -0.051$, t = 1.986 and $p < 0.05$). CSP has a significant positive effect on innovation intensity ($\beta_{15} = 0.154$, t = 3.558 and $p < 0.01$, R^2 = 0.024). Further, innovation intensity has a positive effect on market financial performance ($\beta_9 = 0.227$, t = 2.548 and $p < 0.01$, R^2 = 0.545). By using the unstandardized coefficients provided by SmartPLS and the standards errors, we use the Sobel test to determine the statistical significance of the indirect effect. The indirect path from CSP_{t-1} to Market $Value_t$ through $Innovation_t$ (z-value = 2.062, $p < 0.01$) indicating the existence of a mediation effect. The total effect on Market Value including both the direct impact from CSP and its mediating effect through innovation intensity is .187 (i.e., $\beta_1 + \beta_{15}*\beta_9$). Therefore, these results provide strong evidence supporting innovation as a mediator of the impact of CSP on market-based financial performance (Surroca et al., 2010).

In table 2, column 4, we report the results from our estimation of Model 4 (see Figure 4), which introduces innovation intensity as a moderator variable. The results show that financial performance is not significantly impacted by CSP, neither in terms of profitability nor in terms of market value. Further, the moderating effect of innovation intensity was not found in any of the CSP*Innovation interactions on financial performance. Therefore, these findings do not provide support for the possibility that the impact of CSP on financial performance were moderated by innovation intensity as argued by Hull and Rothenberg (2008).

Finally, in model 5 we examine the potential combined effect of considering innovation both as a mediating and as a moderating variable. Table 4, last column, shows similar results to those of model 3, with the exception that the negative impact of controversial activities on market value is not any longer significant. The significant indirect path from CSP_{t-1} to Market $Value_t$ through $Innovation_t$ ($\beta_{17} = 0.156$, t = 3.062 and $p < 0.01$, R^2 = 0.024; $\beta_9 = 0.233$, t = 3.132 and $p < 0.01$, R^2 = 0.545) also suggests the presence of a mediating effect. The Sobel test indicates a statistical significance of the indirect effect (z-value = 2.107, $p < 0.01$). The total effect on Market Value including both the direct impact from CSP and its mediating effect through innovation intensity is .208 (i.e., $\beta_1 + \beta_{15}*\beta_9$).

Overall, our findings suggest that for firms involved in controversial activities there is no direct impact of CSP on either accounting or market-based measures. Instead, we find evidence that CSP contributes to enhance market-based financial performance through the mediating effect of innovation intensity.

4.3. Additional Analysis

Previous studies have examined the potential endogeneity issue between financial performance and CSP. The slack resource theory suggests that better corporate financial performance results in more available resources which the company may allocate to social activities (Preston and O'Bannon, 1997). In line with this argument, Surroca et al. (2010) have recently found that the association between CPS and corporate market-based performance is also mediated by the firm's intangibles resources.

To validate the robustness of our results, we perform a sensitivity analysis to test the slack resource theory and the potential mediating effect of innovation intensity for

our sample of firms involved in controversial activities. We are interested in exploring the simultaneous impact that profitability and market value may have on CSP. The results, not tabulated, show that innovation mediates the effect of financial market-based performance on CSP_t. Neither profitability ($Profitability_{t-1}$) nor firm value ($Market\ Value_{t-1}$) has a significant direct impact on CSP_t. The unstandardized coefficients provided by SmartPLS and the standards errors are used to run the Sobel test. Only the indirect path from $Market\ Value_{t-1}$ to CSP_t throuh $Innovation_t$ shows some evidence of the existence of a mediation effect. Interestingly, the results from the Sobel test provides support for a mediation effect from lagged market value to concurrent CSP through innovation. Therefore, our results are in line with Surroca et al. (2010)'s findings that innovation intensity positively mediates the relationship between previous market-based financial performance and contemporaneous CSP.[10]

Finally, as a robustness analysis, we have checked the potential role played by year and industry effects in our results. To this end, we run a set of OLS regressions for all our models using latent variables scores as generated by PLS including dummy variables for years and industry effects. Our results, not tabulated, are qualitatively the same as those reported in Table 3, 4 and 5.

5. Conclusion, Limitations and Future Research.

The aim of this study was to investigate the impact of CSP on financial performance for companies involved in controversial business activities. For these companies social responsible activities and the increase of CSP may be especially important to achieve legitimacy and gain the support of the market participants. We also intended to shed light on whether innovation plays a role in this complex framework.

[10] Our results are once again contrary to those of Cai et al. (2012). Without controlling for innovation as a mediating effect, Cai et al. (2012) report a direct positive effect of company value on CSP.

We carry out analyses using a sample of 727 US companies for the period 2005-2008 involved in controversial issues as reported by KLD.

Three developments should be highlighted as the main contributions of this study: first, the simultaneous analysis of the effect of CSP on accounting and market-based firm performance; second, the use of a methodology that allows testing the effect of innovation as a direct, a moderating, a mediating, and a combined moderating-mediating effect; and third, the use of PLS as an appropriate tool to capture the complex environment around CSP and related effects.

We start the analysis by looking at the single impact of CSP on firm performance and found a positive and strong effect of market-based performance as in most of prior work. However, when controlling for the effect of the company activity in controversial issues we only found a marginally positive effect of CSP on market value.

Companies involved in controversial business are, by nature, considered non-socially responsible (Palazzo and Richter, 2005). Yet, prior work finds that corporate social responsibility engagement of firms involved in controversial business positively affects firm value (Cai et al., 2012). These results, although supported by theory, are contrary to rational expectations and opposite to what we find in the current study. Cai et al. (2012) argue that this could be related not to the intention of using social activities to reduce their negative impact on the environment and users but because they are overconfident and sometimes make value-destroying investments.

Recent work finds no direct relationship between CSP and corporate financial performance (Hull and Rothenberg, 2008, Surroca et al., 2010). We find similar results when controlling for innovation. We discriminate between accounting and market-based measures of firm performance and in both cases no significant direct association was found. Thus we conclude, based on our results, that the effort made by companies

involved in controversial business to improve their social performance may not have a corresponding benefit of improvement in financial performance. Indeed, our results seem to support the window-dressing hypothesis, since firm's involvement in controversial issues may lead to a negative effect on market value and CSP remains insignificant (Yoon et al., 2006).

We are also interested in investigating the role played by innovation for our sample of non-socially responsible companies. As in prior literature, our results show that CSP increases innovation (Surroca et al., 2010, Pavelin and Porter, 2007, Freeman, 1984). However, there is no indication of a moderating effect of innovation in the relationship between CSP and financial performance for companies involved in controversial activities. Similar to Surroca et al. (2010), we provide strong evidence of a mediating effect of innovation in the relationship between CSP and market-based financial performance. This indicates that investment in innovation improves CSP which then has a positive effect on the financial market-based performance of the company.

Overall this evidence is consistent with market participants failing to believe that the engagement in social responsible activities of companies with some level of involvement in controversial business activities is a genuine and moral approach without intention of misleading stakeholders to gain legitimacy.

Implication for research and practice

Our study should be of interest for both academics and managers. From the academic perspective, this study fills a gap in the literature. There is a lack of research investigating the effect of CSP on financial performance for specific settings as the case of companies involved in controversial activities which may have higher incentives to use CSP for legitimacy purposes.

The study also has a clear managerial value. Given the results, managers of companies involved in controversial activities, where the intention for involvement in social responsible activities maybe unclear, should focus on the efficient management of intangible resources (Surroca et al., 2010). This might provide them with a powerful competitive advantage difficult to imitate by competitors and which will lead to an increase in their financial performance and, in particular, will positively affect market reaction (Barney, 1991).

Moreover, the specific characteristics of the companies analyzed in the current study (involved in controversial activities) make their involvement in CSR less credible. Managers may be able to identify the negative impact of apparent "forced social responsibility actions" and try to find and focus on more suitable means of CSP which would be seen as voluntary rather than involuntary and are likely to lead to a more positive market reaction (Miles et al., 2002, Miles et al., 2004).

Limitations and future research

Our study is subject to some limitations. We did not control for the potential mediating effect of other intangible resources, such as culture, human capital, and reputation (Surroca et al., 2010). Another potential mediating/moderating effect on the CSP-financial performance may be advertising intensity (Hull and Rothenberg, 2008, Luo and Bhattacharya, 2006, Luo and Bhattacharya, 2009). The importance of communication with stakeholders, company image to stakeholders or work in social projects inserted in communities may also play a moderating effect on performance. We did not include the aforementioned variables due to sample size constrains.

One important issue is the difficulties to measure complex aspects of organizational life such as innovation. Although most of prior research uses the same approach followed in the current study (using the ratio of R&D to assets or to

employees) we acknowledge the limitations of these types of measures and encourage future researches to investigate the effects of different types of innovation. One possibility would be looking at external innovation as suggested by prior literature (Hull and Covin, 2009) or whether the company is taking a completely new line of innovation in comparison to incremental approach to innovation (Dewar and Dutton, 1986).

Future research could combine the information contained in databases such as KLD including social rating criteria to measure CSP with measures derived from the corporate communication process. Companies provide information about their social responsibility actions which can be measured using content analysis of the narratives. These measures capture management disclosure practices which could be potentially misleading (Aerts and Cormier, 2009). Using both measures jointly may provide a more accurate idea of the corporate strategy in relation to social responsibility activity and its effects on company performance and market participants' perception.

Appendix: Sample statistics

Sector	No. of firms	%
Bituminous Coal & Lignite Mining	1	0,50
Crude Petroleum & Oil & Gas	3	1,49
Mining & Quarrying of Nonmetallic Minerals (No Fuels)	1	0,50
Food & Beverages	13	6,44
Tobacco Products	5	2,48
Papers & Allied Products	1	0,50
Newspapers & Books & Cards: Publishing & Printing	2	0,99
Chemicals & Allied Products	3	1,49
Tires & Inner Tubes & Plastic Products	4	1,98
Glass & Cement & Concrete, Gypsum & Plaster Products	1	0,50
Primary Metal Products, Steel & Iron	6	2,97
Metal	12	5,94
Construction Machinery & Computer & office Equipment	14	6,93
Electronic & Other Electrical Equipment (No Computer Equipment)	23	11,39
Motor Vehicles & Aircraft & Transportation Equipment	21	10,40
Laboratory Apparatus & Furniture	20	9,90
Manufacturing Industries & Jewelry & Games	4	1,98
Wholesale-Durable Goods	3	1,49
Wholesale Non-durable Goods	5	2,48
Retail Stores	2	0,99
Retail Nonstores	7	3,47
Oil & Mineral traders	1	0,50
Hotels, Rooming Houses, Camps & Other Lodging Places	5	2,48
Services	14	6,93
Services Amusement & Recreation & Sports	20	9,90
Services-Engineering, Accounting, Research, Management	9	4,46
Non-Operating Establishments	2	0,99
Total	**202**	**100,00**

Note: The sample comprises companies form all industry sectors with some degree of involvement in controversial activities.

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Table 1. Descriptive Statistics for Indicators

Variable	Mean	Std Dev	Min	Median	Max
Ln(assets)	7.654	1.632	3.610	7.624	11.589
Ln(employees)	2.125	1.656	-2.120	2.098	5.419
EBIT to assets	0.099	0.083	-0.962	0.097	0.430
Quick ratio	1.707	1.755	0.082	1.240	22.877
OCF to CL	0.510	0.547	-4.134	0.424	3.908
EBIDTA to debt	0.291	0.345	-3.710	0.233	3.076
Tobin´s *Q*	1.926	0.913	0.735	1.677	8.398
Market to equity	3.315	5.821	-31.852	2.704	66.597
Zmijewski	-1.378	1.304	-4.688	-1.383	3.295
Altman	4.119	3.209	-11.612	3.310	29.127
KLD	-0.604	2.431	-10	-1	12
Controv	0.908	0.426	0	1	2
Log(R&D to assets)	0.029	0.042	0	0.018	0.597
Log(R&D to employees)	9.422	13.626	0	4.384	91.910
Income to assets	0.056	0.079	-0.882	0.059	0.449
Debt to equity	2.177	12.598	-42.560	1.239	214.480

This Table presents the descriptive of the indicators which are the basis for the measurement of the variables included in our models.
Ln(assets) = Natural logarithm of total assets; Ln(employees) = Natural logarithm of number of employees; EBIT to assets = Earnings before interest and taxes scaled by total assets; Quick ratio = It is obtained by subtracting inventories from current assets and then dividing by current liabilities; OCF to CL = Operating cash flow to current liabilities ratio; EBIDTA to debt = Earnings before interest, depreciation, tax, and amortization scaled by total debt; Tobin´s Q = Tobin's Q is calculated from the formula: ((Market value of common stock + Book value of preferred stock + Book value of long-term debt - Book value of current liabilities - (Book value of current assets - Book value of inventories))/ Book value of total assets); Market to equity = Market value of equity scaled by Book value; Zmijewski = Zmijewski score is calculated from the formula: -4.336 – 4.513 ROA + 5.679 FINL + 0.004 LIQ, where ROA is the return on assets, FINL is the financial leverage, and LIQ is the liquidity measure.; Altman = Z-score is calculated from the formula: 0.012T1 + 0.014T2 + 0.033T3 + 0.006T4 + 0.999T5, where, T1 is working capital scaled by total assets, T2 is retained earnings scaled by total assets, T3 is Earnings before interest and taxes scaled by total assets, T4 is market value of equity scaled by book value of total liabilities, and T5 is sales scaled by total assets; KLD = A lagged CSP score, by aggregating total strengths minus total concerns for each of the KLD's seven social rating categories (community, corporate governance, diversity, employee relations, environment, human rights and product); Controv = A lagged controversial issue score, by aggregating the five controversial issue ratings categories of the KLD (alcohol, gambling, military contracting, nuclear power, and tobacco); Ln(R&D to assets) = Natural logarithm of lagged research and development expenditures scaled by total assets; Ln(R&D to employees) = Natural logarithm of lagged research and development expenditures scaled by number of employees; Income to assets = Net income scaled by total assets; Debt to equity = Total debt scaled by equity.

Table 2. Pairwise correlations

Variable		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	Ln(assets)	1															
(2)	Ln(employees)	**0.88**	1														
(3)	EBIT to assets	**0.17**	**0.19**	1													
(4)	Quick ratio	**-0.40**	**-0.48**	-0.02	1												
(5)	OCF to CL	**-0.09**	-0.05	**0.61**	**0.29**	1											
(6)	EBIDTA to debt	**-0.11**	-0.06	**0.73**	**0.31**	**0.67**	1										
(7)	Tobin´s *Q*	**-0.12**	**-0.11**	**0.34**	**0.26**	**0.29**	**0.29**	1									
(8)	Market to equity	0.01	-0.03	**0.13**	0.03	**0.07**	0.03	**0.34**	1								
(9)	Zmijewski	**0.36**	**0.31**	**-0.15**	**-0.45**	**-0.23**	**-0.52**	**-0.16**	0.04	1							
(10)	Altman	**-0.29**	**-0.24**	**0.30**	**0.62**	**0.38**	**0.64**	**0.57**	**0.10**	**-0.66**	1						
(11)	KLD	0.00	0.06	0.03	0.02	0.01	0.05	**0.20**	0.01	**-0.09**	**0.14**	1					
(12)	Controv	**0.14**	**0.13**	0.04	**-0.18**	-0.04	-0.02	**-0.12**	-0.00	**0.13**	**-0.16**	0.00	1				
(13)	Ln(R&D to assets)	**-0.20**	**-0.28**	**-0.37**	**0.30**	**-0.22**	**-0.25**	**0.15**	0.03	**-0.13**	0.03	**0.17**	**-0.09**	1			
(14)	Ln(R&D to employees)	**-0.15**	**-0.33**	**-0.20**	**0.40**	-0.00	-0.06	**0.24**	0.05	**-0.17**	**0.17**	**0.16**	**-0.13**	**0.80**	1		
(15)	Income to assets	**0.19**	**0.19**	**0.81**	**0.07**	**0.51**	**0.62**	**0.31**	**0.11**	**-0.35**	**0.35**	0.06	-0.00	**-0.27**	**-0.10**	1	
(16)	Debt to equity	**-0.11**	**-0.10**	-0.09	-0.42	-0.32	-0.05	-0.05	**0.52**	**0.13**	-0.07	-0.06	0.01	-0.03	-0.03	-0.03	1

The correlations in bold are significant at 5% level or less. Indicators are defined in Table 1 and all variables are defined and calculated as in Table 3.

Table 3. Latent Variables and Indicators (Measures)

Latent Variable	Measures	Description
Market Value	Tobin´s Q	Tobin's Q is calculated from the formula: ((Market value of common stock + Book value of preferred stock + Book value of long-term debt - Book value of current liabilities - (Book value of current assets - Book value of inventories))/ Book value of total assets)
	Market to equity	Market value of equity scaled by Book value
Profitability	EBIT to assets	Earnings before interest and taxes scaled by total assets
	Income to assets	Net income scaled by total assets
CSP	KLD	A lagged CSP Score, by aggregating total strengths minus total concerns for each of the KLD's seven social rating categories (community, corporate governance, diversity, employee relations, environment, human rights and product)
Controversial	Controv	A lagged controversial issue score, by aggregating the five controversial issue ratings categories of the KLD (alcohol, gambling, military contracting, nuclear power, and tobacco)
Innovation	Ln(R&D to assets)	Natural logarithm of lagged research and development expenditures scaled by total assets
	Ln(R&D to employees)	Natural logarithm of lagged research and development expenditures scaled by number of employees
Liquidity	Quick ratio	It is obtained by subtracting inventories from current assets and then dividing by current liabilities
	OCF to CL	Operating cash flow to current liabilities ratio
Leverage	EBIDTA to total debt	Earnings before interest, depreciation, tax, and amortization scaled by total debt
	Debt to equity	Total debt scaled by equity
Financial Distress	Zmijewski	Zmijewski score is calculated from the formula: -4.336 – 4.513 ROA + 5.679 FINL + 0.004 LIQ, where ROA is the return on assets, FINL is the financial leverage, and LIQ is the liquidity measure
	Altman	Z-score is calculated from the formula: 0.012T1 + 0.014T2 0.033T3 + 0.006T4 + 0.999T5, where, T1 is working capital scaled by total assets, T2 is retained earnings scaled by total assets, T3 is Earnings before interest and taxes scaled by total assets, T4 is market value of equity scaled by book value of total liabilities, and T5 is sales scaled by total assets
Size	Ln(assets)	Natural logarithm of total assets
	Ln(employees)	Natural logarithm of number of employees

Table 4. Pathway Coefficients for Models 1, 2, 3, 4 and 5

	Pathways (Regression weights)		Model 1 Only CSP		Model 2 CSP and Controversial Issues		Model 3 CSP, Controversial Issues and Innovation as mediator		Model 4 CSP, Controversial Issues and Innovation as moderator
			n=727		n=727		n=595		n=595
Main Independent Variables	$CSP_{t-1} \rightarrow Profitability_t$	β_7	0.380	β_9	0.110	β_{10}	0.130	β_{11}	0.210
	$CSP_{t-1} \rightarrow Market\ Value_t$	β_1	0.126***	β_1	0.178*	β_1	0.152	β_1	0.176
	$Controversial_{t-1} \rightarrow Profitability_t$			β_{10}	-0.013	β_{11}	-0.013	β_{12}	-0.001
	$Controversial_{t-1} \rightarrow Market\ Value_t$			β_2	-0.051	β_2	-0.051**	β_2	-0.050
Moderating and Mediating Variables	$CSP_{t-1} * Controversial_{t-1} \rightarrow Profitability_t$			β_{11}	-0.078	β_{12}	0.044	β_{13}	0.034
	$CSP_{t-1} * Controversial_{t-1} \rightarrow Market\ Value_t$			β_3	-0.057	β_3	-0.067	β_3	-0.066
	$CSP_{t-1} \rightarrow Innovation_{t-1}$					β_{15}	0.154***		
	$CSP_{t-1} * Innovation_{t-1} \rightarrow Profitability_t$							β_{16}	-0.144
	$CSP_{t-1} * Innovation_{t-1} \rightarrow Market\ Value_t$							β_{10}	-0.035
Control Variables	$Innovation_{t-1} \rightarrow Profitability_t$					β_{14}	-0.378	β_{15}	-0.349
	$Innovation_{t-1} \rightarrow Market\ Value_t$					β_9	0.227***	β_9	0.221***
	$Profitability_t \rightarrow Market\ Value_t$	β_2	0.461***	β_4	0.458***	β_4	0.520***	β_4	0.516***
	$Liquidity_t \rightarrow Market\ Value_t$	β_3	-0.016	β_5	-0.019	β_5	-0.044	β_5	0.033
	$Leverage_t \rightarrow Market\ Value_t$	β_4	-0.396***	β_6	-0.388***	β_6	-0.351***	β_6	-0.359***
	$Financial\ Distress_t \rightarrow Market\ Value_t$	β_5	-0.672***	β_7	-0.665***	β_7	0.666***	β_7	-0.671***
	$Size_t \rightarrow Profitability_t$	β_8	0.200***	β_{12}	0.202***	β_{13}	0.105**	β_{14}	0.121***
	$Size_t \rightarrow Market\ Value_t$	β_6	-0.156***	β_8	-0.150***	β_8	-0.109**	β_8	-0.109**
	Multiple R^2 (explained variance)								
	$Innovation_{t-1}$						0.024		
	$Profitability_t$		0.042		0.043		0.171		0.189
	$Market\ Value_t$		0.505		0.506		0.545		0.542

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

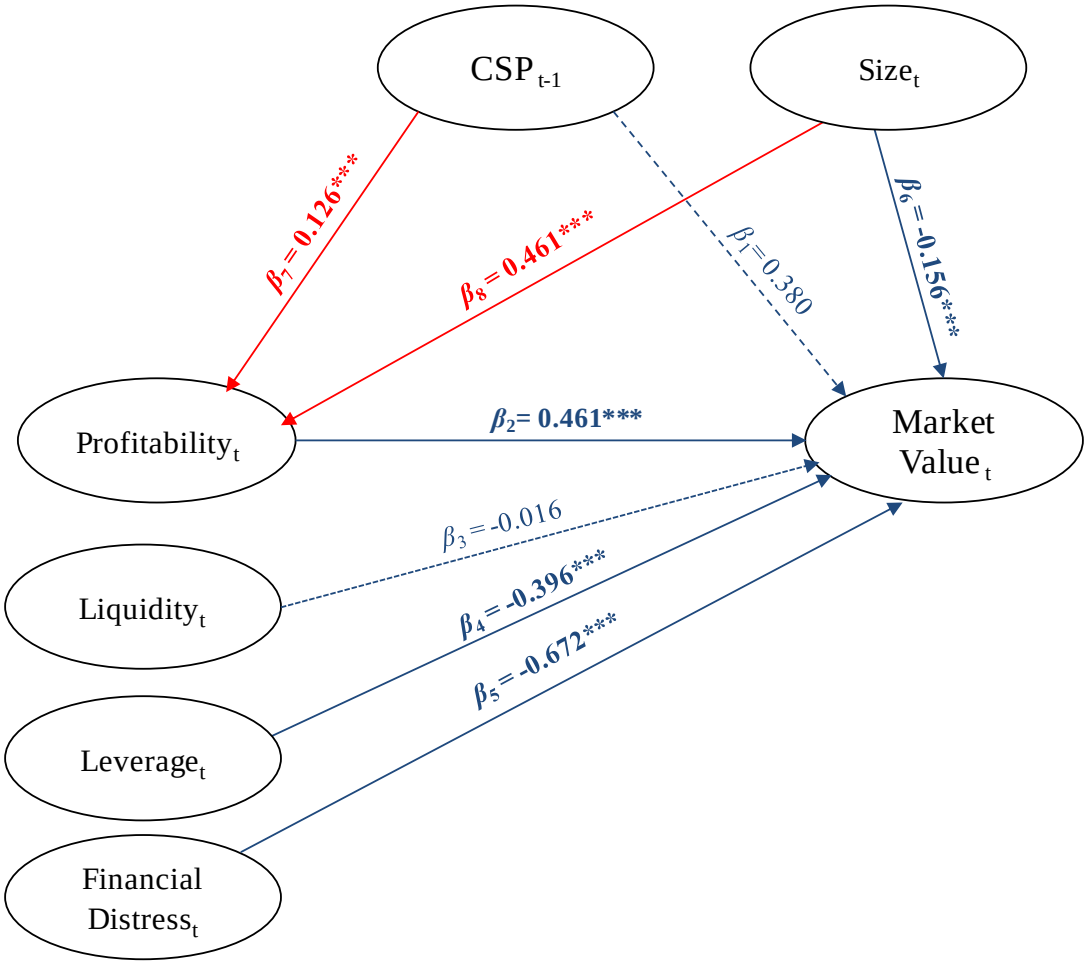
Table 4. Pathway Coefficients for Models 1, 2, 3, 4 and 5 (continued)

	Pathways (Regression weights)		Model 5 CSP, Controversial Issues and Innovation as mediator and moderator n=727
Main Independent Variables	$CSP_{t-1} \rightarrow Profitability_t$	β_{11}	0.208
	$CSP_{t-1} \rightarrow Market\ Value_t$	β_1	0.172
	$Controversial_{t-1} \rightarrow Profitability_t$	β_{12}	-0.003
	$Controversial_{t-1} \rightarrow Market\ Value_t$	β_2	-0.049
Moderating and Mediating Variables	$CSP_{t-1} * Controversial_{t-1} \rightarrow Profitability_t$	β_{13}	-0.034
	$CSP_{t-1} * Controversial_{t-1} \rightarrow Market\ Value_t$	β_3	-0.066
	$CSP_{t-1} \rightarrow Innovation_{t-1}$	β_{17}	0.156***
	$CSP_{t-1} * Innovation_{t-1} \rightarrow Profitability_t$	β_{16}	-0.153
	$CSP_{t-1} * Innovation_{t-1} \rightarrow Market\ Value_t$	β_{10}	-0.034
Control Variables	$Innovation_{t-1} \rightarrow Profitability_t$	β_{15}	-0.341
	$Innovation_{t-1} \rightarrow Market\ Value_t$	β_9	0.233***
	$Profitability_t \rightarrow Market\ Value_t$	β_4	0.519***
	$Liquidity_t \rightarrow Market\ Value_t$	β_5	-0.042
	$Leverage_t \rightarrow Market\ Value_t$	β_6	-0.354***
	$Financial\ Distress_t \rightarrow Market\ Value_t$	β_7	-0.668***
	$Size_t \rightarrow Profitability_t$	β_{14}	0.116***
	$Size_t \rightarrow Market\ Value_t$	β_8	-0.105**
	Multiple R^2 (explained variance)		
	$Innovation_{t-1}$		0.024
	$Profitability_t$		0.184
	$Market\ Value_t$		0.545

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

Figure 1

Model 1 (Only CSP)*



Equation 1 (Blue arrows):

$\text{Market Value}_t = \beta_1 \text{CSP}_{t-1} + \beta_2 \text{Profit}_t + \beta_3 \text{Liq}_t + \beta_4 \text{Lev}_t + \beta_5 \text{Distress}_t + \beta_6 \text{Size}_t + \varepsilon$

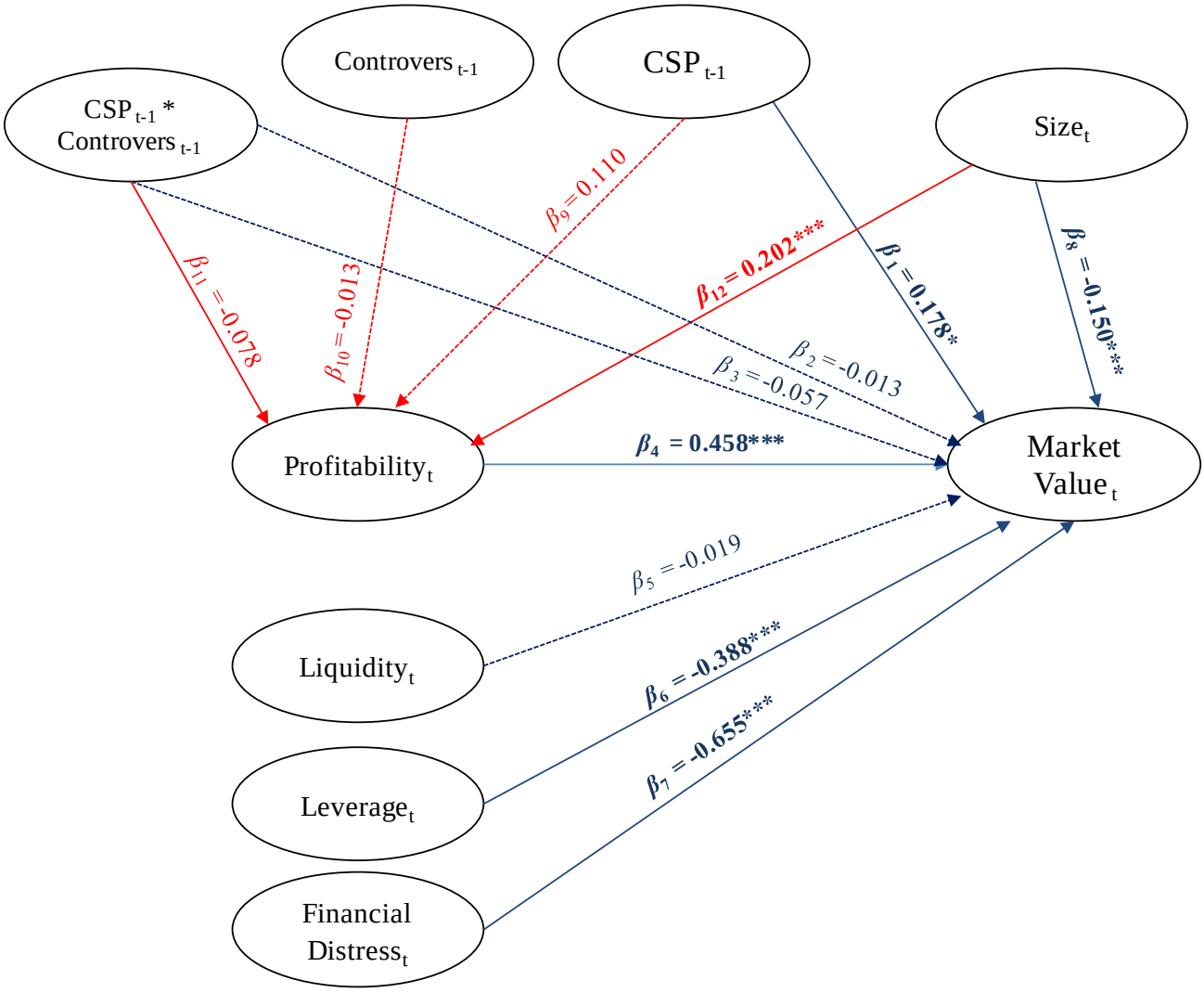
Equation 2 (Red arrows):

$\text{Profit}_t = \beta_7 \text{CSP}_{t-1} + \beta_8 \text{Size}_t + \varepsilon$

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

Figure 2

Model 2 (CSP and Controversial Issues)*



Equation 3 (Blue arrows):

Market Value$_t$ = β_1 CSP$_{t-1}$ + β_2 Controv$_{t-1}$ + β_3 CSP$_{t-1}$*Controv$_{t-1}$ + β_4 Profit$_t$ + β_5 Liq$_t$ + β_6 Lev$_t$ + β_7 Distress$_t$ + β_8 Size$_t$ + ε

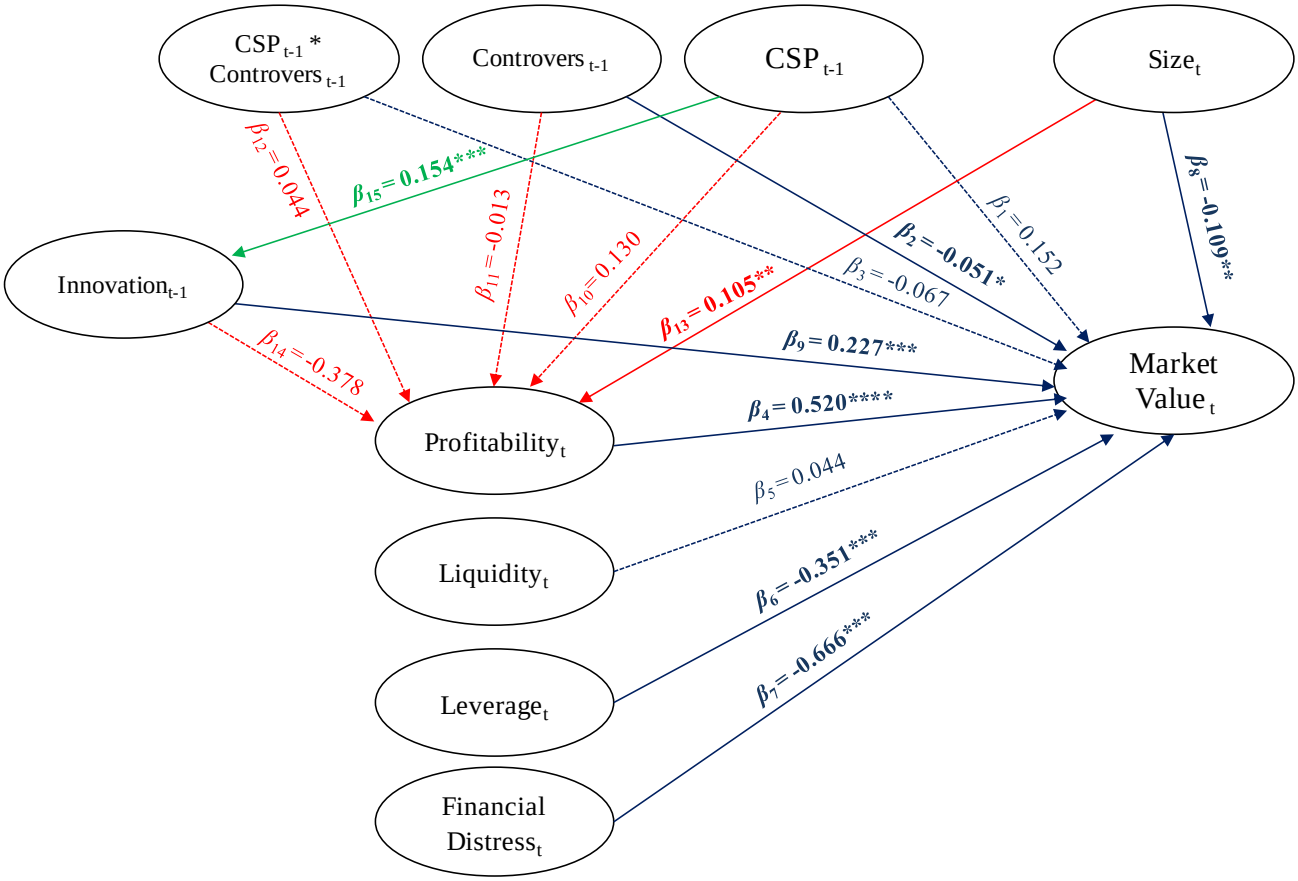
Equation 4 (Red arrows):

Profit$_t$ = β_9 CSP$_{t-1}$ + β_{10} Controv$_{t-1}$ + β_{11} CSP$_{t-1}$*Controv$_{t-1}$ + β_{12} Size$_t$ + ε

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

Figure 3

Model 3 (CSP and Controversial Issues and Innovation as a Mediating Effect)*



Equation 5 (Blue arrows):

Market Value$_t$ = β_1 CSP$_{t-1}$ + β_2 Controv$_{t-1}$ + β_3 CSP$_{t-1}$*Controv$_{t-1}$ + β_4 Profit$_t$ + β_5 Liq$_t$ + β_6 Lev$_t$ + β_7 Distress$_t$ + β_8 Size$_t$ + β_9 Innovation$_{t-1}$ + ε

Equation 6 (Red arrows):

Profit$_t$ = $_{10}$ CSP$_{t-1}$ + β_{11} Controv$_{t-1}$ + β_{12} CSP$_{t-1}$*Controv$_{t-1}$ + β_{13} Size$_t$ + β_{14} Innovation$_{t-1}$ + ε

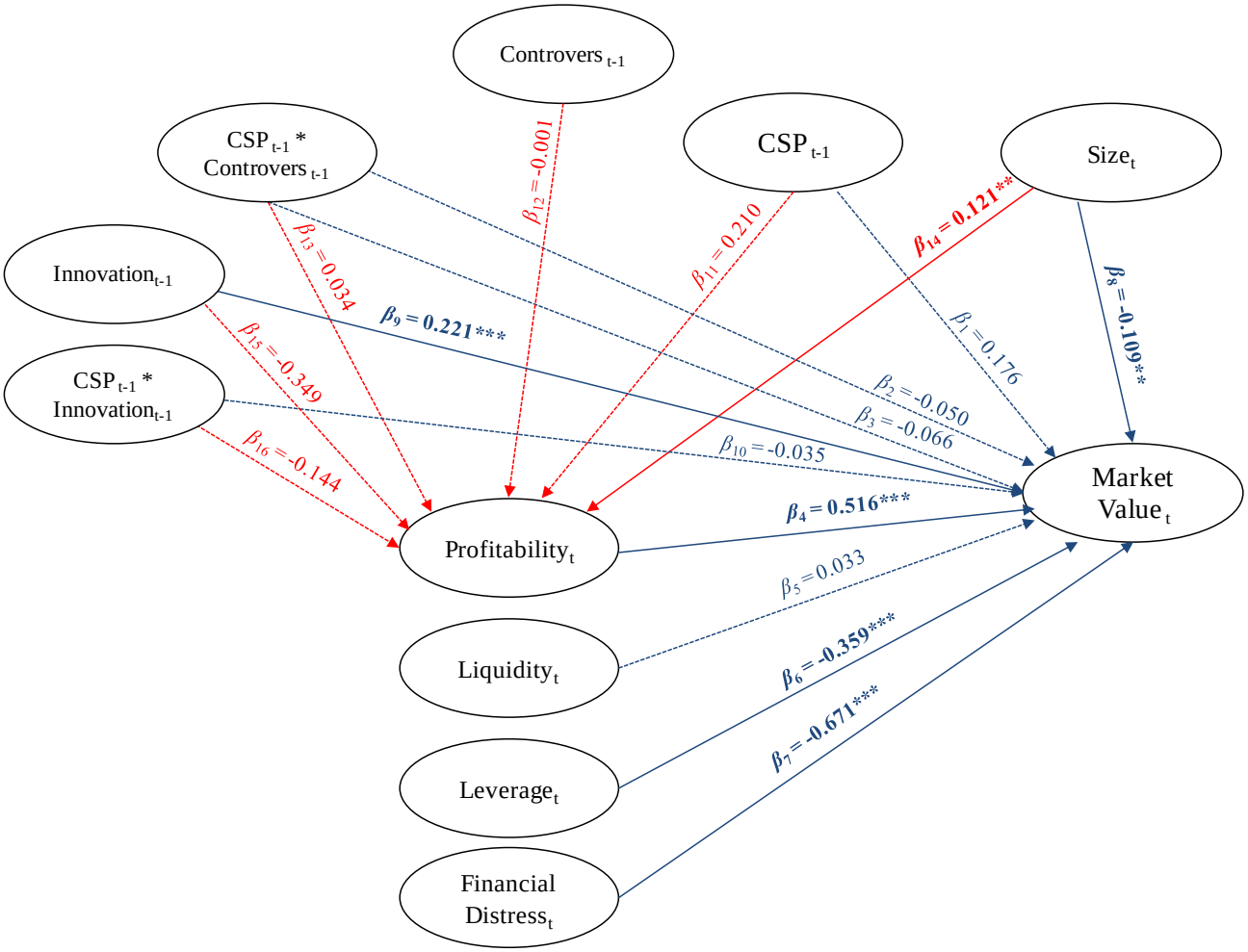
Equation 7 (Green arrows):

Innovation$_{t-1}$ = β_{15} CSP$_{t-1}$ + ε

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3.

Figure 4

Model 4 (CSP and Controversial Issues and Innovation as a Moderating Effect)*



Equation 8 (Blue arrows):

$$\text{Market Value}_t = \beta_1 \text{CSP}_{t-1} + \beta_2 \text{Controv}_{t-1} + \beta_3 \text{CSP}_{t-1}*\text{Controv}_{t-1} + \beta_4 \text{Profit}_t + \beta_5 \text{Liq}_t + \beta_6 \text{Lev}_t + \beta_7 \text{Distress}_t + \beta_8 \text{Size}_t + \beta_9 \text{Innovation}_{t-1} + \beta_{10} \text{CSP}_{t-1}*\text{Innovation}_{t-1} + \varepsilon$$

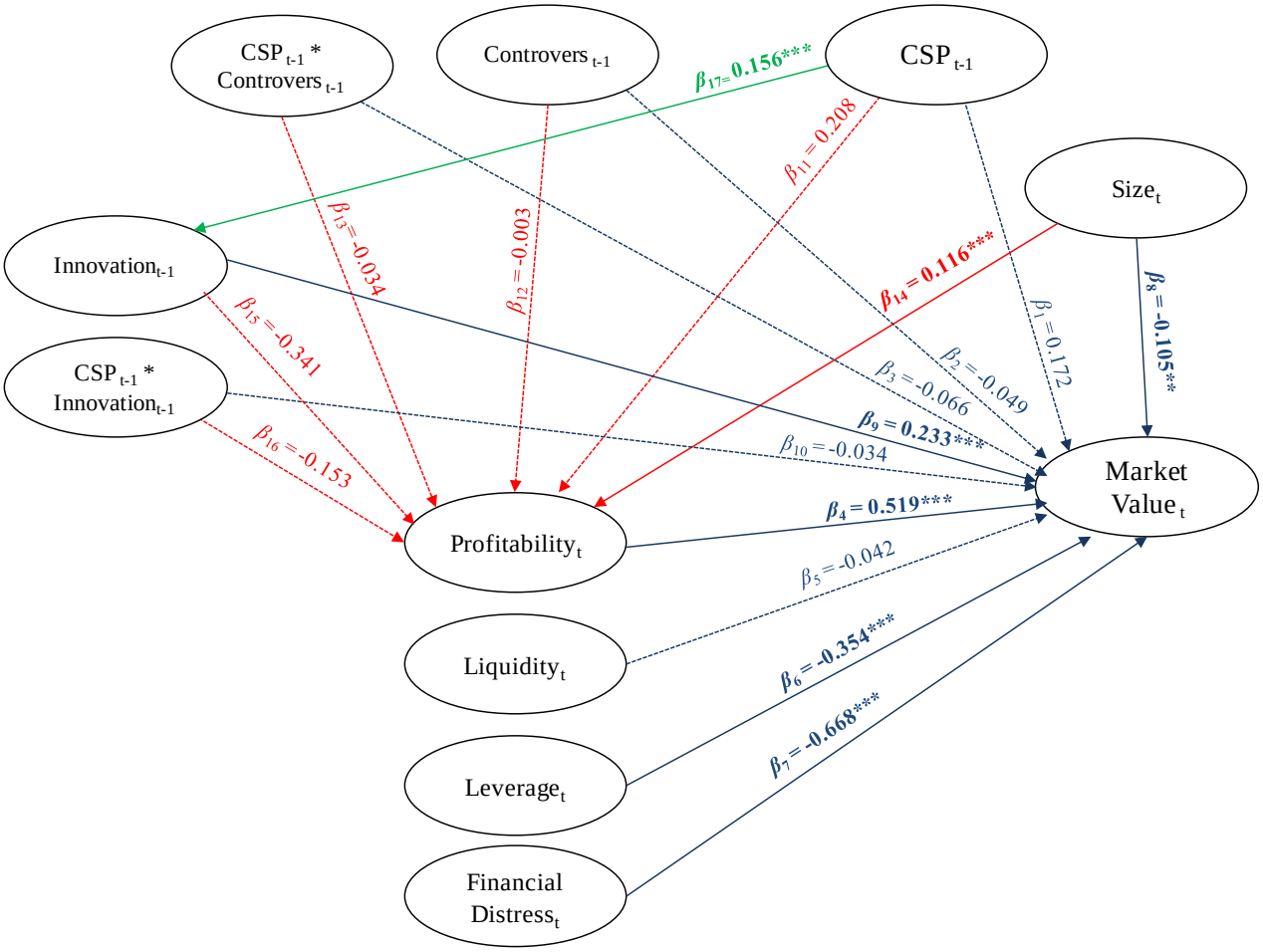
Equation 9 (Red arrows):

$$\text{Profit}_t = \beta_{11} \text{CSP}_{t-1} + \beta_{12} \text{Controv}_{t-1} + \beta_{13} \text{CSP}_{t-1}*\text{Controv}_{t-1} + \beta_{14} \text{Size}_t + \beta_{15} \text{Innovation}_{t-1} + \beta_{16} \text{CSP}_{t-1}*\text{Innovation}_{t-1} + \varepsilon$$

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

Figure 5

Model 5 (CSP and Controversial Issues and Innovation as a combined Moderating and Mediating Effect)*



Equation 10 (Blue arrows):

$$\text{Market Value}_t = \beta_1 \text{CSP}_{t-1} + \beta_2 \text{Controv}_{t-1} + \beta_3 \text{CSP}_{t-1}*\text{Controv}_{t-1} + \beta_4 \text{Profit}_t + \beta_5 \text{Liq}_t + \beta_6 \text{Lev}_t + \beta_7 \text{Distress}_t + \beta_8 \text{Size}_t + \beta_9 \text{Innovation}_{t-1} + \beta_{10} \text{CSP}_{t-1}*\text{Innovation}_{t-1} + \varepsilon$$

Equation 11 (Red arrows):

$$\text{Profit}_t = \beta_{11} \text{CSP}_{t-1} + \beta_{12} \text{Controv}_{t-1} + \beta_{13} \text{CSP}_{t-1}*\text{Controv}_{t-1} + \beta_{14} \text{Size}_t + \beta_{15} \text{Innovation}_{t-1} + \beta_{16} \text{CSP}_{t-1}*\text{Innovation}_{t-1} + \varepsilon$$

Equation 12 (Green arrows):

$$\text{Innovation}_{t-1} = \beta_{17} \text{CSP}_{t-1} + \varepsilon$$

* Significant at p < .10; ** Significant at p < .05; *** Significant at p < .01. Variables are defined in Table 3

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