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Financial Impacts and antecedents of CSR: a PLS Path Modelling Approach

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Abstract

This paper explores the mutual links between corporate social responsibility (CSR), corporate governance (CG), and corporate financial performance (CFP). We aim to investigate the extent to which a firm's internal CG structures may influence its CSR practices and the resulting impact on its financial performances. To take into account the mutual interactions between these variables, we propose a global model, based on the partial least squares path modelling (PLS-PM), using a sample of 486 large U.S. and Europeans firms for the period 2002–2011. Our results highlight a positive impact of corporate governance and financial variables on CSR. The main determinant of CSR is the governance under financial constraints (firm leverage mainly and size). Firms' leverage allows them to obtain more financial resources and positively affects their CSR practices. The adoption of CSR principles is found to increase primarily the firm's accounting performance and secondarily its market performance. However, in our model, we have a double effect; we underline the direct link between CG and financial performance and identify an indirect link between these two variables mediated by CSR. This second relationship, not explored in the literature, reinforces the impact of good CG on financial performance.

1. Introduction

Corporate governance (CG), corporate financial performance (CFP), and corporate social responsibility (CSR) have been important research issues for decades, and have been the subject of several studies in the literature. The relationship between CG and CSR has been studied in conjunction with the relationship between CSR and CFP. In fact in these studies, CG is analysed as a pre-requirement or a component of CSR (Jamali et al., 2008; Roshima et al., 2009). The considerable number of studies that examine the interrelations among CSR and CFP report conflicting evidence (Becchetti and Ciciretti, 2009; Mahoney and Roberts, 2007; McGuire et al., 1988).

This lack of consistency in the results may be explained by two factors. First, the relationships between CG, CSR, and financial performance are partially explored in pairs, sometimes including the fact that these factors may operate in reverse and create a synergetic circle, but they are not examined as a whole (Waddock and Graves, 1997). However, these relationships are more complex, and a global model is required to better understand them (Flammer, 2015). Second, the multiplicity of data and methodologies used can explain the different empirical results observed. Specifically, a problem of endogeneity exists between CSR and CFP variables, and the strength of the link between financial and CSR performances depends on the way in which the two performances are measured, as well as numerous moderating variables (Orlitzky, 2013; Gramlich and Finster, 2013).

The objective of this paper is to understand the mutual links between CG, financial variables, CSR, and CFP based on a comprehensive empirical model that takes into account interactions between these different factors as the theory suggests. Thus, we aim to investigate the extent to which a firm's internal CG structures and financial variables may influence its CSR practices and the impact of these practices on the market and accounting performances of the firm.

Our paper makes two major contributions to the extant literature by examining the links among CSR, CG, and CFP. First, based on the extensive literature focusing on the efficiency effects of CSR, we study, simultaneously, how the internal CG structures of a company can influence its CSR practices and how CG and CSR will affect the accounting profitability and market performance of the firm. Our results show strong empirical evidence that CG positively affects CSR practices for large European and American companies. This implies that well-governed firms are more likely to adopt CSR strategies. Specifically, our work differs from previous empirical studies by focusing on a more basic issue; we test whether CSR practices are motivated by objectives other than firm value maximisation.

Second, most studies have only examined the effects of CG on CFP, or CSR on CFP, but not their mutual interactions. They report conflicting evidence (Margolis et al., 2009; Becchetti and Ciciretti, 2009; Mahoney and Roberts, 2007; McGuire et al., 1988; Preston and O'Bannon, 1997). While this is mainly attributed to inadequate methodological approaches and problems of endogeneity (Jo and Harjoto, 2011; McWilliams and Siegel, 2000), recent studies that have tried to better control these problems still show similar mixed results (Cai et al., 2012; Scholtens, 2008). To deal with the methodological limitations of previous studies, in this paper, we employ the partial least squares (PLS)-path approach, which has proven suitable for structural equation models. This specification does not make any assumption about the distribution of variables. It provides a flexible approach to deal with a large dataset showing high correlation among variables.

The rest of the paper is organised as follows. Section 2 discusses the theoretical framework and presents the related literature. Section 3 presents our methodology and describes the data used. Section 4 discusses the empirical results. Section 5 concludes.

2. Theoretical framework

This section presents a literature review related to the relationships between CG, CSR, and CFP. The relationship between CSR and CG has been widely discussed in recent research in reference to problems with conflicts between various stakeholder interests (Aguilera and Cuervo-Cazurra, 2009; Ntim et al., 2012; Starks, 2009). A large part of the literature defends the idea that the adoption of CSR policies leads to the implementation of new standards regulations and better CG mechanisms within a company (Albareda et al., 2008; Walsh and Lowry, 2005). Previous studies' results are still inconclusive; at the very least, they still warrant further research.

The adoption of CSR principles could not be perceived as the simple result of a marginal decision in the firm; instead, the adoption of these principles is part of the firm's culture and concerns all its hierarchical components. The decision to adopt these principles is taken at the top of the firm. Stakeholders need to ensure that managers apply the CSR principles in accordance with decisions taken to enhance the development of appropriate internal CG mechanisms for this purpose.

These CG mechanisms promoting CSR emerged following famous accounting scandals as Enron, HealthSouth, Tyco, and Worldcom (Agrawal and Chadha, 2005). The objective was to offset the attack on investors' interests. Companies are required to ensure more transparency in the financial statements disclosures and their governance system. Disclosure of information on the management team responsible for the implementation of CSR activities has become increasingly common.

In the same context, the standard approach to governance was based on the basic objective of firm value maximisation. That is, the objective of good governance is to align the interests of stakeholders and managers at a low cost to the firm (Turnbull, 2015). Waddock and Graves (1997) defend the idea that CG sets up an equilibrium between economic and social objectives, as well as between individual and community goals. Based on a large sample of firms from the S&P 500, Tsoutsoura (2004) finds that when board members own a large portion of stocks, firms are more sensitive to CSR practices.

In light of this review, we hypothesise the existence of a significant relationship between CG and CSR. This argument was shared by Kendall (1999), who supports the idea that good governance preserves stakeholder interests related to CSR policy. Ntim and Soobaroyen (2013) confirm the previous results of Aguilera et al. (2007) and find evidence that in well-governed firms (i.e. firms depicting high levels of accountability, responsibility, and transparency), managers are more likely to undertake positive CSR practices. Referring to all these arguments, we formulate this hypothesis.

Hypothesis 1. Well-governed firms are more likely to adopt CSR practices.

Many studies have examined the relationship between the specific characteristics of firms and their CSR practices in order to identify their financial and non-financial determinants. For the financial determinants, the research is mainly based on slack resource theory, which suggests that better financial performance results in more available resources that may be allocated to CSR activities (Waddock and Graves, 1997). We argue that this relationship will be mediated by the firm's size, intangibles, and leverage as well.

Using different methodological approaches, Adams et al. (1998), Neu et al. (1998), Guillén et al. (2002), Brammer and Pavelin (2004), and Haniffa and Cooke (2005) find that the extent of corporate social disclosure is positively related to the size of the company. Thus, larger companies are expected to have high systematic risk and put greater emphasis on the long term than smaller companies. Therefore, companies disclose corporate social reporting to reduce risk and reassure investors.

Intangible assets play also a role. For Surroca et al. (2010), intangible assets moderate the relationship between corporate social performance and CFP, and vice versa. Intangibles such as reputation, trust, and capacity to innovate, which are widely recognised as fundamental to strong financial performance, are at the same time integral to the CSR agenda (Brondoni, 2010). Thus, an intimate link exists between intangibles and CSR, and we can suppose that investments in intangibles are increasing with the level of CSR practices.

Among studies interested in the impact of financial structure on the adoption of CSR rules, Purushothaman et al. (2000) find that high-leverage firms have closer relationships with their creditors and use other means to disclose social responsibility information. Brammer and Millington (2005) argue that a high level of leverage negatively affects the reputation of the company. Therefore, the firm should perform CSR practices to improve its image on the stock market. But Zweibel (1996) shows that excessive company debt increases interest expenses, which discourages investment in CSR. Thus, compliance with shareholder profitability goals is often in conflict with the costs of setting up of CSR practices in the company. For this reason, the ability to invest in CSR practices of a firm will depend on its economic performance. So, financial resources allocated to CSR activities simply come from current operations, which can be measured by the operating income. The main advantage of this financial indicator is that it does not take financial structure and taxes into account (Ernst & Young's Corporate Responsibility Report, 2012). Based on the previous discussion, we present four testable hypotheses on the determinants of CSR practices as follows.

Hypothesis 2a. Firm size positively influences CSR practices.
Hypothesis 2b. Investments in intangibles are increasing with the level of CSR practices.
Hypothesis 2c. Firm leverage positively affects CSR practices
Hypothesis 2d. A firm's operating income positively influences CSR practices.

While the determinants of a company's social responsibility have been the subject of numerous studies, the main problem addressed has been testing the impact of CSR practices on company performance. Several researchers have found a negative relationship between CSR and CFP (i.e. McGuire et al., 1988; Preston and O'Bannon, 1997). These authors argue that companies engaged in CSR strategies face additional costs which negatively affect their performance. Other empirical research has found that CSR does not affect CFP (Aragón-Correa and Rubio-López, 2007; Chand and Fraser, 2006; Mahoney and Roberts, 2007; McWilliams and Siegel, 2000). Based on different firm samples, these studies do not support any particular relationship between CSR and financial performance of the firm. A third group of researchers has found a positive relationship between CSR activities and financial performance (accounting measures and stock market performance). They argue that the costs of CSR are minimal and the benefits are potentially great. Orlitzky (2013) find a positive relationship between CSR and CFP. They argue that CSR enhances the reputation of firms. In addition, they suggest that CSR raises managerial skills and improves the organisational efficiency of the firm. Margolis et al. (2009) provide a meta-analysis of 251 studies from the period 1972–2007 that investigate the linkage between CSR and CFP. They show that the majority of studies show evidence of a significant positive relationship between the adoption of CSR principles and firm accounting performance. Focusing in the same issue, Tsoutoura (2004) finds a significant and positive impact of CSR on firms' return on equity (ROE) and ROA. She supports the view that socially responsible corporate performance can be associated with a series of bottom-line benefits. These results corroborate the findings of previous studies conducted in different markets, such as Russo and Fouts (1997), Nakao et al. (2007), Scholtens (2008), Brammer and Millington (2008), Okamoto (2009), and Yang et al. (2010). The slack resource theory suggests that this relationship is reversible and can create a synergetic circle. One main determinant of CSR politics is the availability of financial

resources, and firms that are able to invest in CSR will perform better (Waddock and Graves, 1997). However, different studies have established that firms' capacity to invest in CSR depends more on size, leverage, and other investments in intangibles than on their financial performance (Surroca et al., 2010). Thus, these resources, financial and other, are necessary to improve social performance. This problem is explored in our previous hypotheses. Given the conflicting empirical results related to the relationship between CSR and accounting CFP, we propose in this paper to consider this issue in a flexible framework. We consider accounting CFP a latent variable simultaneously measured by two variables: ROE and ROA. Then, we measure to what extent the engagement of the firm in CSR activities affects the accounting performance of the firm. Therefore, our third hypothesis is:

Hypothesis 3. CSR practices should positively affect the firm's financial performance (accounting measure).

On the other side, several studies have found evidence of a significant relationship between CSR and stock market performance. In this context, Navarro (1988) and Webb (1996) suggest that CSR practices increase the transaction volume of shares as well as the share price to a certain threshold. Moreover, Dowell et al. (2000), in a study of the impact of CSR disclosure on firm performance, show that a high level of CSR reporting positively affects the firm's market performance as measured by Tobin's Q. Based on these advancements, the following hypothesis can be formulated:

Hypothesis 4. CSR practices positively affect the firm's stock market performance.

3. Methodology and data
3.1. Methodology
To test the impact of financial and CG variables on both CSR and CFP, we use a consistent PLS-path approach that allows us to estimate complex causal relationship between latent variables. We use this approach to estimate the coefficients of a structural equation system. The structural equation model combines factorial analysis with path analysis. Factorial analysis is a measurement model (outer model) which specifies the relationships between a latent variable and its observed indicators, also called manifest variables, while path analysis is a structural model (inner model) that measures the relationships between latent variables. Monecke and Leisch (2012) assert that PLS-path modelling is a soft-modelling technique with minimum demands regarding measurement scales, sample sizes, and residual distributions. Indeed, Chin and Newsted (1999) argue that PLS-path modelling is adapted for modelling complex causal relationships between latent variables with several indicators when sample size is small. Further, Bagozzi and Yi (1994) suggest that PLS-path modelling is applied when distributions are highly skewed, because there are no distributional requirements (Fornell and Bookstein, 1982). Another main advantage of this method, compared to OLS regression, is that it solves the problem of multicollinearity with the construction of major components. In our research, the outer model is specified with the reflective mode to the extent that manifest variables are chosen so that they reflect the five dimensions (financial variables, CG, CSR, accounting measure of performance, stock market performance) to which they refer. This is the same for groups of variables from the classification. We describe our causal model in figure 1.

3.2. Data sources
We obtain our data from a variety of sources. We collect data for the 486 largest listed companies in the United States and the European Union (in terms of market capitalisation) over the period 2002-2011. We restrict our data to firms whose financial, governance, and CSR data are available. From the American market, we select the largest 265 companies listed

on the S&P 500, while 221 European firms are selected from Euronext. In order to avoid the sector effect, we select only industrial companies. Financial companies are excluded because of their specific financial statements. The CSR scores are provided by Covalence. The governance and financial variables are respectively collected from *Asset4* and the *OSIRIS* databases. In order to test the interconnections between CG, CSR, and CFP, we construct the specific model shown in figure 1. In particular, we consider that the latent variables CSR, accounting measure of financial performance, and stock market performance are the only endogenous latent variables in the model. Each latent variable will be explained by a set of measurable variables. In the measurement model, manifest variables are connected to the corresponding latent variables according to a reflective scheme (figure 1). Table 1 defines the latent variables and their manifest variables.

The financial variables are selected following the approaches of Gainet (2010) and Cormier et al. (2005). Four types of financial variables are considered: the size of the firm (*Total assets*), the investments in intangibles (*R&D costs*), the financial leverage (measured by *Debt_Equity* and *Liabilities_Assets*), and economic performance (*Operating income*). According to McWilliams and Siegel (2001), operating income explains the economic performance of firms. Moreover, for Surroca et al. (2010), intangible assets moderate the relationship between corporate social performance and CFP, and vice versa. Following Boulerne et al. (2011), this variable has been estimated using R&D costs. Nevertheless, many studies (Nissim and Penman, 2003; Sahut and Othmani, 2010) establish that leverage of the firm is also an important variable explaining firm profitability.

Regarding CG variables, we follow the work of Drobetz et al. (2004) by selecting five categories of governance proxies: (1) CG commitment, (2) shareholders' rights, (3) transparency, (4) management and supervisory board matters, and (5) auditing. We also claim that the CG framework should ensure strategic guidance of the company, disclosure transparency, and board accountability to the company. The literature suggests that the proxies we consider in this paper improve the internal governance mechanisms of the company. In particular, Diamond and Verrechia (1982) and Holmstrom and Triole (1993) suggest that the monitoring capacity of the board of directors is an important control mechanism which is supposed to align the interests of managers and shareholders. Hermalin and Weisbach (2007) show that that reforms that seek to increase transparency can improve the CG of the company. Moreover, Drobetz et al. (2004) show that auditing activities enhance firm governance.

To compare our approach to previous studies (Dowell et al., 2000; Karagiorgos, 2010), we use Tobin's Q and the Morris ratio as proxies for firm market performance. Following Tsoutoura (2004), accounting performance is measured by ROE and ROA.

4. Empirical Results

In this study, we perform PLS-path modelling analysis involving only reflective indicators and the centroid scheme for inner estimation. Each reflective block represents only one latent construct; therefore, it needs to be unidimensional. In fact, to verify the composite reliability of blocks, a preliminary exploratory analysis is required. There are two different measures to test block unidimensionality in the PLS-path modelling framework: Dillon-Goldstein's rho and Cronbach's alpha. A block is considered homogeneous if these indicators are greater than 0.7 (Chin, 1998). Table 2 presents the results of our composite reliability test. The results suggest that all five blocks of manifest variables can be considered unidimensional because all coefficients of the Dillon-Goldstein test are greater than 0.7 (even if this is not the case for the Cronbach's alpha of the two blocks 'financial variables' and 'stock market performance'). In fact, Dillon-Goldstein's rho is considered a better indicator than Cronbach's alpha because it

is based on results from the model (loadings) rather than on correlations observed between manifest variables in the dataset (Chin and Newsted, 1999).

After verification of the composite reliability, we test the relationships between each manifest variable and its own latent variable. Table 3 summarises the weight of the relationship between each manifest variable and its own latent variable, together with the average communality index, which measures the ability of each latent variable to explain its own manifest variables. For the five latent variables, this index is higher than 0.5. Therefore, we can deduce that, globally, all the latent variables are powerful for explaining their own manifest variables. This confirms the pertinence of the selected manifest variables from the literature (proxies such as total assets for financial variables).

The normalised weights assess the impact of the corresponding manifest variable in computing the latent variable score as an index, as well as the standardised loadings. Regarding the manifest variables for the latent variable '*financial variables*', we conclude that the four hypotheses that make up H2 are confirmed. *Debt_Equity* and *Liabilities_Assets* are the most important drivers in computing this latent variable. This result confirms those of Goss and Roberts (2007), who find that firms with the worst social responsibility scores pay higher loan spreads. Further, Izzo and Magnanelli (2012) argue that socially responsible behaviour and CSR investments imply a reduction of risk (effective and/or perceived by the market), and hence an improvement in the financial performance of the firm, which leads banks to apply better conditions in loan contracts with the firm.

In comparison, size plays a lesser role. In fact, CSR is largely associated with large companies because they attract more media attention and are particularly concerned with protecting and enhancing their reputations with the broader public as well as key stakeholders (Udayasankar, 2008). They are also often better resourced and more able to invest in CSR. However, this study underlines that the role of size is overestimated in the literature, and even if size is correlated with the level of debt, this last factor is a better determinant of CSR practices. R&D costs and operating income, which indicate the degree of familiarity with intangible investments (CSR expenses can be viewed as intangible investments) and financial resources to invest, have relative less importance. These results are consistent with the literature (Surroca et al., 2010) and establish that the combination of these financial factors explains CSR expenses and practices.

For the latent variable *CG, CG commitment* appears to be the most important determinant. The four other determinants play equal secondary roles. This result contradicts some results in the literature, which state that some governance elements, such as an auditing body, have no effect on financial performance (Pae and Choi, 2011).

Finally, the latent variable *Accounting measure of financial performance (FP)* is mainly driven by the manifest variable *ROE*, and the *Marris ratio* determines the *Stock market performance*. This result is also consistent with the literature, which establishes the relevance of these factors in explaining financial performance (Tsoutsoura, 2004).

However, Efron and Tibshirani (1993) suggest that the distribution of PLS estimates is unknown and conventional significance tests are impossible to perform. However, a significance test may be accomplished using bootstrap methods. From the bootstrap estimation, we can conclude that our PLS estimates are significant because the differences between standardised loadings and 'bootstrap coefficients' are small and not significant.

In the next step, we show the results of the structural model estimates. Figure 2 reports the coefficient estimates of model.

Table 4 presents correlation statistics and regression coefficients linking each endogenous latent variable to its exogenous variables. The table shows that CSR depends primarily on *CG,* expressing the higher path coefficient of 0.174 and the higher R^2 contribution (77%),

while the *financial variables* appears to have lower impact on CSR (0.126) and lower contribution to the model's R^2.

Regarding the effect of manifest variables on the accounting financial performance measures, we find that financial variables have a strongly significant positive impact on firm accounting performance (path coefficient 0.137 and R^2 contribution higher than 48%). CG and CSR variables have significant but lower impacts on accounting CFP. These variables appear significant at the 5% level.

For stock market performance, the results also establish that CG appears to be the most important relevant variable. It exerts a significant positive effect on firm market performance (path coefficient = 0.097). This result corroborates the findings of Lin et al. (2012), who show a positive relationship between CG and stock market performance.

The effects of CSR and financial variables on stock market performance are secondary. These variables appear significant at the 10% level.

In fact, firm accounting performance appears to be more affected by CSR practices than by market performance. This result confirms the recent studies in this domain, which demonstrate the better relevance of accounting measures of performance (Gramlich and Finster, 2013) and that the function linking a stock's performance to its ESG (environmental, social and governance)-score changes is probably non-linear (Pasquini-Descomps and Sahut, 2015). However, compared to these studies, we have the main advantage of analysing the effects of CSR on accounting and stock market performances practices at the same time.

Moreover, our results are consistent with slack resource theory which suggests that the relationships between CSR and financial resources or performance are not unilateral (Waddock and Graves, 1997). Our model establishes that the main determinant of CSR is governance under financial constraints. Firms' leverage allows them to obtain more financial resources and positively affects their CSR practices. This also verifies the hypothesis which states that the expected effect of CSR practices is a decrease in the risk perceived by investors and improvement of the financial performance of the firm, which leads banks to apply better conditions to firms' loan contracts.

We also note that the relationship between CG and financial performance (market or accounting measures) is consistent with several empirical studies that report a consensus concerning the positive association between these two variables (Bird et al., 2007; Bhimani, 2008). However, in our model, we have a double effect; we underline the direct link between CG and financial performance and identify an indirect link between these two variables mediated by CSR. This second relationship, not explored in the literature, reinforces the impact of good CG on financial performance. Thus, we support the finding that engagement in CSR practices improves a company's financial performance. The adoption of CSR practices strengthens the firm's competitiveness in the market and improves the management process of the firm. With time, this leads to improvement in the financial performance of the firm (Husted and Allen, 2007).

For the three equations that respectively explain CSR, the accounting measure of financial performance, and stock market performance, we obtain R^2 of 0.572, 0.266, and 0.183 (Table 5). These R^2 can be considered good results. The coefficients of the goodness-of-fit (GoF) index are satisfactory with an absolute GoF coefficient of 0.425 and similar coefficients for the outer and the inner models (Table 6). In particular, the GoF statistic of the inner model is 92.5%, which implies that our model is well built and validates the significance of the relationship found between proxies of the variables used above.

These results confirm that working with the most recent practicable data with a long observation period (2002–2011 in this dataset) provides a certain significance during statistical tests. In fact, the availability of CSR data might limit researchers' ability to provide consistent results. Revelli and Viviani's (2013) recent meta-analysis established that an

observation period of less than five years tends to show negative coefficients, whereas five to 10 years of data usually provides the most positive results.

They also record that having an observation panel of more than 100 samples will greatly increase significance. Nonetheless, the most common practical issue causing discrepancies in results might be sampling frequency. Orlitzky (2013) believe this to be the main cause of variance among CSR studies.

5. Conclusion

The inter-relationship between CSR, the CG and financial performance of companies has been studied separately in the literature and previous studies show conflicting results. The purpose of this paper is to test jointly these relationships using the Partial Least Square-Path Modelling (PLS-PM). In this work, we introduced social responsibility (CSR) as a set of strategies directly affected by the system of governance of the firm and which has a significant effect on the accounting performance and market performance of the firm. This approach avoids the problem of endogeneity, which exists between CSR and financial performance variables (Flammer, 2015).

Our results show a positive impact of CG and financial variables on (CSR). The main determinant of CSR is the governance under financial constraints (firm leverage mainly and size).

The adoption of CSR principles is found to increases the financial performances of the firm. But, the accounting firm performance appeared more affected by CSR practices than market performance. Finally, we establish a double impact, direct and indirect (through CSR), of CG on financial performance, while the literature has been content to study the direct link.

Globally, our finding corroborates previous researches in the literature supporting that CSR leads to a paradigm shift that could form the basis of a responsible governance model. This model aims to create value while respecting the environmental, social and societal factors.

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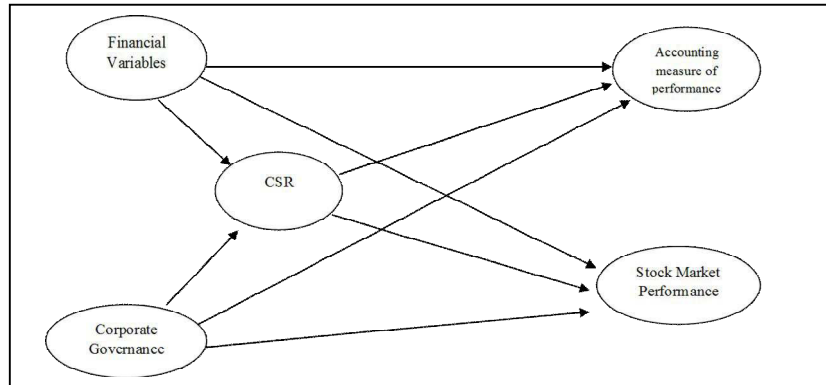
APPENDIX

Figure 1. The PLS-path model

Table 1. Latent (LV) and manifest variable (MV) definitions

Latent variables	Manifest variables	Definitions
CSR	CSR	Score
Financial variables	Total assets	Ln (total assets)
	Operating income	Ln (operating income)
	R&D costs	Ln (R&D costs)
	Debt_Equity	Long-term debt / total equity
	Liabilities_Assets	Total liabilities / total assets
Corporate governance	Corporate Governance commitment	Score (based on 11 proxies)
	Shareholders' rights	Score (based on 11 proxies)
	Board matters	Score (based on 11 proxies)
	Transparency	Score (based on 10 proxies)
	Auditing	Score (based on 10 proxies)
Accounting measure of financial performance (FP)	ROA	Net income / total assets
	ROE	Net income / total equity
Stock market performance	Tobin's Q	(Market capitalisation + total debt) / total assets
	Marris ratio	Market capitalisation / total equity

Table 2. Composite reliability test

Latent variables	Dimensions	Cronbach's alpha	D.G.'s rho (PCA)	Critical value	Eigenvalue
CSR	1	1	1	0.792	1.714
Financial variables	5	0.443	0.717	0.687	1.956
					0.647
					1.002
					0.872
					0.037
Corporate governance	5	0.807	0.903	0.724	2.458
					1.205
					1.187
					1.182
					1.547
Accounting measure of FP	2	0.763	0.862	0.821	1.921
					0.024
Stock market performance	2	0.522	0.741	1.137	1.511
					0.822

Table 3. Normalised outer weights and average communalities

Latent variables	Manifest variables	Normalised outer weights	Average communality
CSR	Score	1	1
Financial variables	Total assets	0.309	0.512
	Operating income	0.289	
	R&D costs	0.211	
	Debt_Equity	0.658	
	Liabilities_Assets	0.625	
Corporate governance	Corporate governance commitment	0.974	0.714
	Shareholders' rights	0.501	
	Board matters	0.608	
	Transparency	0.547	
	Auditing	0.554	
Accounting measure of FP	ROA	0.257	0.558
	ROE	0.784	
Stock market performance	Tobin's Q	0.341	0.787
	Marris ratio	0.653	

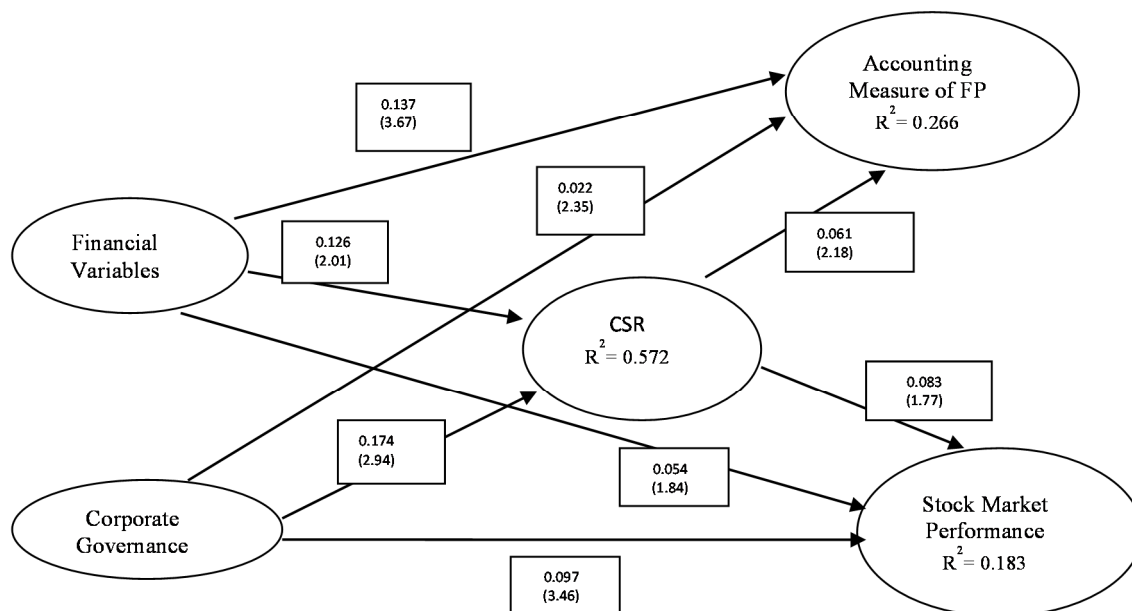**Figure 2: Results of PLS estimation for the theoretical model**

Table 4. Structural (inner) model results

	Correlation	Path coefficient	t-statistic	Contribution to R² (%)
Effects on CSR				
Financial variables	0.17	0.126**	2.01	22.51
Corporate governance	0.28	**0.174*****	2.94	77.49
Effects on accounting measure of FP				
CSR	0.09	0.061**	2.18	31.53
Financial variables	0.35	**0.137*****	3.67	48.02
Corporate governance	0.12	0.022**	2.35	20.45
Effects on stock market performance				
CSR	0.07	0.083*	1.77	12.89
Financial variables	0.12	0.054*	1.84	24.63
Corporate governance	0.39	**0.097*****	3.46	62.48

The notations ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5. Quality estimation of the three partial models

	R²	R² (Bootstrap)	Standard deviation	Lower bound (95%)	Upper bound (95%)
CSR /1	0.572	0.412	0.014	0.544	0.585
Accounting measure of FP /1	0.266	0.905	0.032	0.240	0.298
Stock market performance /1	0.183	0.982	0.025	0.168	0.201

Table 6. Goodness-of-fit index for the entire model

	GoF	GoF (Bootstrap)	Standard deviation	Lower bound (95%)	Upper bound (95%)
Absolute	0.425	0.412	0.028	0.370	0.483
Relative	0.927	0.905	0.023	0.911	0.951
Outer model	0.986	0.982	0.011	0.987	0.994
Inner model	0.925	0.907	0.017	0.914	0.936