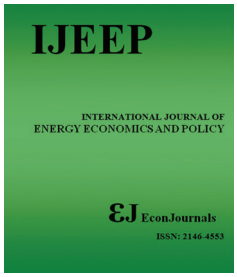

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Social and Environmental Contributions, Board Size and Cash Holding: The Case of Energy Firms

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ABSTRACT

The level of cash holding has important impact on firm operations, which maintains the desire to study the determinants of cash holding to the benefits of the firm. This study seeks to examine the individual effect of corporate social responsibility (CSR), i.e., activities to protect environmental, social, customer and labor well-being, and board size on cash holding, as well as their interaction on this factor for a sample of listed energy firms in Vietnam. Our results show that CSR and board size both negatively affect cash holdings, implying that these two factors act as effective mechanisms to curtail excessive cash holding, which may harm firm performance as suggested under agency theory. An interesting finding from our research is that if both CSR and board size are negatively related to cash holdings, the interaction of these two factors is positively related to cash holdings. An implication from this finding is that firms with proper governance characteristics could pay less attention to agency cost and information asymmetry, and in fact show more concern about precautionary motives when it comes to cash holding decisions.

Keywords: Corporate Social Responsibility, Board Size, Cash Holding, Interaction
JEL Classifications: M14, M40

1. INTRODUCTION

Having a large cash reserves enables firms to adequately fund lucrative investments, especially when external funds are more expensive than internal funds. Other motives for holding cash include precautionary and transactional (Opler et al., 1999; Miller and Orr, 1966) as well as tax motives (Foley et al., 2007). Nonetheless, reserving cash is not a costless action; in fact, cash-rich firms may be subject to higher cost of agency problems. When having much cash at their disposal, managers could overinvest in negative net present value (NPV) projects, or simply consume higher levels of discretionary perquisites, destroying shareholder value. Furthermore, even in the absence of agency-related incentives, holding cash has an intrinsic cost, namely opportunity cost, for not investing the cash in profitable projects.

There are abundant papers discussing the determinants of corporate cash holdings, ranging from size, growth opportunity, governance mechanism, etc. Nonetheless, the link between corporate social responsibility (CSR) and cash holdings has only received limited attention, even though this term has increasingly been of interest to both internal and external stakeholders of a firm (Crifo and Forget, 2015). Sustainable development used to be a term associated with governments and environmental activists, but firms have now become a more responsible player towards sustainable development (Galaz et al., 2018).

CSR is actions that firm do to contribute to the well-being of the society, ranging from the intimate labor force and customers of the firms, the environment and the citizens in the surrounding areas. CSR-centric firms with higher social capital can resolve conflicts to maintain better relationships with stakeholders, thus providing

some sort of insurance or hedging against negative firm-specific events. This finally results in firms' lower demand to maintain cash at a high level for precautionary and transactional purposes. Nonetheless, the relationship between CSR and cash holdings is not straightforward, in a sense that even CSR-active firms have lower systematic risk are still more likely to hold more cash because these firms could employ more shorter debt maturity and thus a higher refinancing risk (Cheung, 2016).

Another factor that has been shown to affect corporate cash holding decisions is governance characteristics. Governance has been analyzed under many aspects, including internal and external ones. Among internal governance mechanism, board characteristics have frequently been dissected. In this paper we revisit the factor of board size in the context of Vietnamese listed firms. Board size remains indecisive factor, since many studies have suggested that a large board size engenders more cumbersome interactions and free-rider problems which result in low efficiency in curbing large cash holding accumulation, while some others argue that the complexity of corporate operations necessitates more board members whose knowledge and expertise are prerequisite for governing the firms.

Even though the impact of board size has been the subject of interest in the previous literature studying corporate cash holding decisions, little has been researched in the context of emerging economies. Furthermore, with the rise of CSR, or sustainable development, as a new trend in less developed countries, it is highly relevant to examine the interaction between governance mechanism (board size) and CSR activities on cash holdings for energy firms that should hold much responsibility of this type. This is also the link that the present study seeks to examine. The rest of the paper proceeds with section 2 presenting the literature review, section 3 detailing out the methodology. Section 4 will present the result of the estimation and section 5 will conclude the paper with some important implications and implications.

2. LITERATURE REVIEW

2.1. Determinants of Cash Holdings

Literature provides three main hypotheses related to corporate cash holdings. First, trade-off model hypothesizes that firms weigh up the pros and cons of holding cash, leading to an optimal level of cash holdings. The costs associated with holding cash include the opportunity cost (since cash earns significantly lower return than other investment types) and agency cost (managerial cost could lead to higher investment in negative NPV projects). Consistently, Lang et al. (1991) find that firms that have high cash holdings but low growth opportunities tend to be involved in value-destroying acquisitions. With regard to the benefits, cash shortfalls when firms have valuable investment opportunities may translate to huge cost. As firms anticipate their investment needs, there should be a positive relationship between cash holdings and capital expenditures.

Apart from this, firms can also consider the impact of information asymmetry when raising funds which tends to lead to underevaluation issue, so they tend to hoard cash, i.e., precautionary motive. In contrast to trade-off theory, there is no optimal cash threshold under pecking order theory, and firms only rank retained earnings first and above riskless debt, risky debt and equity to minimize information asymmetry cost (Myers and Majluf, 1984).

Finally the view from agency cost theory suggests that managerial interests are not always in line with those of shareholders as managers could engage in value-destroying activities, such as negative NPV projects or expensive acquisitions. Even when they are not involved in such activities, idle managers can still lower firm value by hoarding excess cash which generates significantly lower returns for the firm.

2.2. CSR and Cash Holdings

According to signaling theory, firms exert great effort in order to reduce information asymmetry so that they can lower the cost of capital when reaching for external financing (Easley and O'hara, 2004). This is necessary because investors tend to have less intimate knowledge about the firms than insiders (Easley and O'hara, 1992). In this regard, CSR activities by firms can help transfer corporate governance-related information to investors, which can reduce information asymmetry between insiders and the investors about firm risks. Consistently, El Ghoul et al. (2011) and Xu et al. (2015) highlight the value of CSR in conveying information about the firms, thus reducing cost of equity. Yeh et al. (2019) show that Chinese firms with high CSR performance see a reduction in their cost of debt capital. These pieces of evidence point out that CSR can be considered as an effective mechanism to reduce information asymmetry and lower cost of capital accordingly.

Contributions towards society and environment (CSR activities) can also increase firm ability to access to capital markets, lowering financial constraints thanks to two channels: enhancing stakeholder engagement which reduces agency costs and increasing reporting quality which reduces information asymmetry (Cheng et al., 2014). Similarly, Reverte (2012) shows that firms with high levels of CSR activities tend to have lower estimation risks and information asymmetry.

Under the framework of stakeholder theory, it is crucial for a firm to balance the interests of diverse stakeholders, including shareholders, labor force, community as well as customers (Freeman et al., 2010; Mishra and Modi, 2013). Rather than operating independently, it is clear that to achieve an organization's objectives, firms will have to meet the interests of different stakeholders. In satisfying those requirements, CSR helps firms reduce risk exposures thanks to gaining more stakeholders' supports. According to Little and Little (2000) and Godfrey et al. (2009), CSR helps consolidate firms' reputation, which is an important intangible asset that bring about sustainable and potential benefits.

Other papers also emphasize that healthy and bond relationships with stakeholders will result in higher ability to abate risk, reduce market uncertainty, and this would undermine the disruption or loss to firm operations or other negative events (Kytle and Ruggie, 2005).

However, Cheung (2016) shows that CSR can also lead to higher cash holdings even though it mitigates firm systematic risk. This is because lower systematic risk causes firms to be able to employ more short-term debt, which ultimately leads to firms desiring more cash to weather liquidity risk or higher refinancing risk. In addition, another view from agency theory may suggest that CSR activities can be abused by entrenched managers to attain higher managerial discretion and more private benefits.

Therefore, it can be inferred that CSR activities can have either positive or negative impact on cash holdings. However, since the mainstream finding is that CSR tends to reduce risk and alleviate agency costs related to cash holding, it is expected that firms with higher levels of CSR activities are more likely to reduce cash holdings.

Hypothesis H_1: CSR has a negative impact on corporate cash holdings.

2.3. CSR, Board Size and Cash Holdings

It can be expected that the more number of board members, the more knowledge and expertise those personnels can bring to a firm to oversee its operations and mitigate those inefficient decisions of managers. Berger et al. (1997) opine that big board size brings positive addition to the firms by curtailing debt level through more efficient monitoring. Boone et al. (2007) suggest that the compexity of firm operations necessitates more board members to discuss and agree on such intriguing activities. Al-Najjar and Clark (2017) study a sample of 430 non-financial firms in the MENA region and find that board size is negatively related to cash holdings, which implies that firms with high levels of could hold less cash in an effort to reduce agency conflicts. This is consistent with the view that CSR increases agency costs and increase reporting quality as mentioned in (Cheng et al., 2014).

On the other hand, as the number of board directors increases, the coordination effort may have to increase to reach a concensus or cooperation in the boardroom. According to Steiner (1972), if there are many members on the board, firms may lose productivity due to increased obstacles in coordinating multiple board individuals. Also, as firms have larger size of board members, the speed of decision making may suffer and free-riding problems could arise as one member could easily lose effort in observing the firm due to his belief that many other counterparts would do this on his behalf.

Lipton and Lorsch (1992) find that small boards consolidate monitoring quality as it is more effective to coordinate among fewer directors. Similarly, Jensen (1993) argues that firms with larger boards may facilitate managers to have more discretion since higher numbers of directors are associated with higher levels of "politeness and courtesy" towards managerial decisions. Consistenly, Yermack (1996), Eisenberg et al. (1998) and Mak and Kusnadi (2005) document a positive link between board size and firm performance.

In summary, the association between board size and corporate cash holding is still a matter of empirical evidence. If firms are to enhance firm performance, board size should act as an effective mechanism to resolve agency cost associated with higher amounts of cash hoarding. On the other hand, more board members could become less worthy as a decent whistle blower, so managers may have more discretion to hoard more cash at their will. We therefore establish two contrasting hypotheses about the impact of board size on cash holdings as follows:

Hypothesis H_{2a}: Larger board size is negatively related to cash holdings.

Hypothesis H_{2b}: Larger board size is positively related to cash holdings.

Prior studies have not dissected the impact of the interaction between board size and CSR on firm's tendency to save cash. The main findings from the literature are that CSR activities are capable of relieving information asymmetry and agency cost related to high levels of cash holding, so often it is found that CSR is negatively related to cash holding. If board size also negatively correlates with cash holding as a result of it being an effective mechanism against firm's large cash hoarding, this would easily lead to too much reduction of cash. As trade-off theory suggests, the benefit of holding cash lies in precautionary and transaction motives, which are not always against shareholder's interest. In other words, it is expected that if both board size and CSR have negative impact on corporate cash holding, the interaction between them should have a positive link with cash holding to avoid excessive cash reduction which could be destructive towards firm value.

Hypothesis H_{2c}: The interaction between CSR and board size is positively related to cash holding if both CSR and board size individually are negatively related to firm cash holding.

3. RESEARCH METHODOLOGY

To test the hypotheses established, we rely on the following model:

$$Cash_{it} = \beta_0 + \beta_1 Cash_{it-1} + \beta_2 CSR_{it} + \beta_3 BoardSize_{it} + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 NWC_{it} + \beta_7 Capex_{it} + \varepsilon_{it} \quad (1)$$

Where: Cash is the ratio of cash to assets (Almeida et al., 2004; Acharya et al., 2007; Cheung, 2016). We follow Opler et al. (1999), Bates et al. (2009) and Cheung (2016) and include the following control variables: Size (firm size) which is measured as the logarithm of total assets, Leverage to control for the effect of debt on cash holding, and is measured by the ratio of total debt to total assets, Net working capital, which is the ratio of the deduction of current liabilities from current assets to total assets. We also include FirmAge, the number of years from the establishment of the firm to control for the effect of access to capital market on corporate cash holdings Alzoubi (2019) and Drobetz et al. (2015).

The main explanatory variables in this study are CSR, BoardSize and Family. For CSR variable, we follow Gray et al. (1995), Scholtens (2009) and Jizi et al. (2014) in filtering CSR activities into 4 categories of Community, Environment, Employees and Social products. In each category, we check the content of the annual reports of energy firms in Vietnam and award 1 if they actually engage in the respective question, and 0 otherwise. We

sum up the scores and finally divide it by the total number of questions, or total number of activities. Therefore, the minimum value of this variable is 0 and maximum 1. BoardSize represents the number of board members (Boubaker et al., 2015). ε_{it} is the residual of the model.

We employ dynamic model to control for the dynamics of corporate cash holding (Dittmar and Duchin, 2010; Anand et al., 2018). As a consequence, we rely on System Generalized Method of Moments to address endogeneity arising from the inclusion of lagged dependent variable as an additional explanatory variable in the model (Roodman, 2009). To ensure that the instruments employed are valid, we perform two standard tests including autocorrelation of order 2 test and test of overidentification, both of which require P-values higher than 10%. Apart from model (1), we also build another dynamic model with return on asset as the dependent variable and estimate the impact of CSR, BoardSize and Family as robustness test. The financial data in this study are retrieved from Thomson Reuters from 2007 to 2017, while CSR and BoardSize are manually collected for all the listed firms operating in the energy field in Vietnam.

4. RESULTS AND DISCUSSION

Table 1 provides descriptive statistics of the variables in the study. The mean return on assets is 7.7%, but the minimum return is minus 56.1% while maximum is 32.2%. The leverage ratio is 51.2%, or about half of the assets of the energy firms are financed by debt. FirmAge is about 4.137 or on average firms have 4 years after listing date. The CSR variable receives an average value of 0.409, or firms tend to engage in about 40% of the total activities in environmental and social fields. BoardSize is approx 5.3 or there are about 5 members in the board of managent. Capital expenditure is 6.8% or each year energy firms spend an amount of about 7% for this category. It can be seen from Table 1 that the range of the variables are not too wide and the standard deviations are not large compared to the means, which suggests outliers should not be a considerable concern in the present study.

Table 2 provides the result of the estimation of model (1) regarding the determinants of cash holdings. The table presents the results for the model with only individual effects and also the one with interaction effect of CSR and board size on cash holding. In both models, the results are strongly consistent, firms that have more years of being listed could have larger base of shareholders, which could create free-rider problem related to governing the firm cash hoarding. Larger firms and those with higher net working capital (or higher levels of current assets) tend to have more cash. Higher capital expenditure leads to lower cash holding, and this may imply that investment improves collateral and borrowing capacity, resulting in the reduction in the cost of external financing and firms will therefore have lower need for storing cash (Sher, 2014).

Our variables of interest are CSR and board size, both of which have significantly negative coefficients. The negative coefficient of CSR suggests that firms that have higher levels of CSR have lower exposure to risk since these activities tend to resolve conflict with different stakeholders and consolidate corporate reputation. Lower

Table 1: Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min.	Max.
Profit	448	0.077	0.073	-0.561	0.322
Size	448	27.062	1.376	24.169	31.625
Lev.	448	0.512	0.204	0.015	0.952
FirmAge	387	4.137	2.837	0.000	12.000
CSR	448	0.409	0.134	0.129	0.742
BoardSize	446	5.289	0.778	3.000	8.000
Capex.	442	0.068	0.091	0.000	0.575
Cash	447	0.208	0.179	0.001	0.974
NWC	448	0.177	0.236	-0.373	1.946

Source: Author's calculation from dataset

Table 2: Regression results on the link between CSR, board size and cash holding

Cash	Coef.	Std. err.	P>t	Coef.	Std. err.	P>t
L1. cash	0.624	0.043	0.000	0.951	0.020	0.000
CSR	-0.157	0.025	0.000	-0.632	0.312	0.048
BoardSize	-0.025	0.006	0.000	-0.011	0.003	0.001
FirmAge	0.002	0.001	0.094	0.175	0.043	0.000
Size	0.012	0.005	0.012	0.080	0.043	0.067
Lev.	0.051	0.060	0.402	0.001	0.001	0.234
NWC	0.127	0.050	0.014	-0.053	0.023	0.027
Capex.	-0.382	0.019	0.000	-0.384	0.028	0.000
CSR×BoardSize				0.113	0.059	0.061
_cons	-0.085	0.104	0.419	0.520	0.165	0.003
No of obs.	311			311.000		
AR2.	0.618			0.925		
Hansen	0.54			0.817		

Source: Author's calculation from dataset

risk and lower information asymmetry translate into better access to external financial markets, which weakens the constraints that firms face. The extant research has shown that firms have lower cost of equity and debt as a result of CSR implementation. The negative link between CSR and cash holding in the present paper is also in line with a vast number of papers examining the preferable impact of CSR on information asymmetry and agency cost (Little and Little, 2000; Godfrey et al., 2009; Mishra and Modi, 2013; Reverte, 2012; Xu et al., 2015), and consistent with hypothesis H_1.

Board size has a significantly negative coefficient towards cash holdings, or more crowded board tends to refrain firms from hoarding too much cash. A number of extant studies have found evidence in contrast with this finding, i.e., larger boards tend to be less efficient in monitoring the firms because of the requirement of higher effort and cost in coordinating board members upon corporate decisions. The negative sign in this Table 2 shows a different story for energy firms in Vietnam: more board members could have a better effect on corporate governance, and more expertise to uncover managerial incentives to stock cash when firms have low growth opportunities. The evidence herewith is in accordance with hypothesis H_{2a}.

Finally, the interaction between CSR and board size has a positive impact on corporate cash holdings, in line with hypothesis H_{2c}. As mentioned earlier in this study as well as the main findings from the literature that CSR activities are capable of relieving information asymmetry and agency cost related to high levels of cash holding, CSR is negatively related to cash holding. Also

Table 3: Regression results on the link between CSR, board size, cash holding and firm performance

Profit	Coef.	Std. err.	t	P>t
L1. profit	-0.008	0.008	-0.890	0.375
CSR	0.056	0.023	2.370	0.021
Size	-0.003	0.002	-1.290	0.202
Lev.	-0.163	0.016	-10.350	0.000
NWC	0.026	0.011	2.300	0.025
FirmAge	0.000	0.000	-0.610	0.547
BoardSize	0.036	0.002	17.640	0.000
Capex.	0.005	0.003	1.710	0.092
Cash×CSR×BoardSize	0.015	0.005	3.340	0.001
_cons	0.010	0.048	0.210	0.832
No of obs	311			
AR2	0.145			
Hansen	0.591			

Source: Author's calculation from dataset

board size negatively correlates with cash holding as a result of it being an effective mechanism against firm's large cash hoarding, and this would easily lead to too much reduction of cash. Lower levels of cash holding could be detrimental to firm performance or even existence in extreme events, which calls for the increased relevance of precautionary motives. This could be the reason why if both CSR and board size individually have a negative effect on cash holding, the interaction between these two factors tends to have a reverse link with cash holding.

We further provide robustness test to ascertain the findings above by examining the link between CSR, board size, cash holding and firm performance as in Table 3. We use return on assets to proxy for firm performance, and estimate the dynamic model using System Generalized Method of Moments. Interestingly, CSR and board size have positive effects on firm ROA, and these effects are significant at least at 5%. This result is consistent with the view that both CSR and board size act as effective governance mechanisms to enhance firm decisions, including cash holding decision.

Holding more cash may be neatively related to firm performance as suggested by agency cost theory. This calls for the need to contain cash hoarding in the energy firms. The most relevant finding from Table 3 is that the triple interaction between CSR, board size and cash has a positive impact on firm profitability. This is strongly consistent with the significantly positive coefficient of the interaction of CSR and board size on corporate cash holdings. These pieces of evidence strongly support hypothesis H2c, implying that strong governance mechanisms if in place could help firms increase cash holdings without destroying firm performance.

5. CONCLUSION AND IMPLICATIONS

The level of cash holding has an important impact on firm operations as well as survival, which spells the desire to study the determinants of cash holding to the benefits of the firm. Nonetheless, little effort has been done on the link between the recently emerging field, CSR. In addition, board size, a perspective that has empirically been found to exert inconsistent impact on cash holding, also warrants further research. This study seeks to examine the individual effect of CSR and board size on cash holding, as well as their interaction on this factor for a sample of listed energy firms in Vietnam. We select this sample, for energy firms should have strong concern about environmental performance as well as other social contribution. Also, Vietnam is a developing country with less advanced regulatory framework and institutions to protect the interests of shareholders and debtors, which heightens the importance of internal governance mechanism such as board size.

Our results show that CSR and board size both negatively affect cash holdings, implying that these two factors act as effective mechanisms to curtail excessive cash holding, which may harm firm performance as suggested under agency theory. Even though previous literature in developed countries tends to suggest that larger board size could be more cumbersome and result in more efforts in coordinating board members, our evidence supports the contrasting view: board size is actually negatively related to cash holding, so more board members have more knowledge and expertise that are crucial to governing firms.

An interesting finding from our research is that if both CSR and board size are negatively related to cash holdings, the interaction of these two factors is positively related to cash holdings. The reason for this could be that if CSR and board size each have the ability to contain cash holding, corporate cash holding could increase without negatively affecting firm performance. An implication from this finding is that firms with proper governance characteristics could pay less attention to agency cost and information asymmetry, and in fact show more concern about precautionary motives when it comes to cash holding decisions.

The paper suffers from data limitation, even though we have screened all the listed energy firms in Vietnam. Future studies could examine the same link in other countries or sectors, or combine other governance mechanisms such as board independence or CEO duality with CSR activities.

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