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Corporate social responsibility and cash flow volatility: The curvilinear moderation of marketing capability

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ABSTRACT

CSR's beneficial roles on firm financial performance have been well documented. However, the relationships existing in the literature are largely assumed to be linear. In this research, we propose a U-shaped relationship between CSR and firm cash flow volatility to demonstrate CSR's dynamic implication on the performance instability and therefore extend the understanding of CSR into a new area involving firm performance risk factors. Further, we incorporate another key firm characteristic, marketing capability, to formulate the interactive associations between CSR and firm market-side ability toward better risk management. The results show that CSR may reduce firm cash flow volatility at low and moderate levels but will increase the volatility when the engagement is high. However, a firm with high marketing capability will eliminate the negative impact of CSR.

1. Introduction

A firm's corporate social responsibility (CSR) is an activity that goes beyond its business realm into fulfilling the firm's obligations to the society (Carroll, 2000; McWilliams & Siegel, 2001; Prasad & Holzinger, 2013; Smith, Palazzo, & Bhattacharya, 2010). It is largely voluntary in nature and represents the firm's goodwill and commitment to improve the public welfare (Husted & de Jesus Salazar, 2006). While CSR has been extensively examined regarding its philanthropic nature in sociological fields, its role in business fields has been focused on a more strategic way in which CSR represents a firm effort that allows business entities to achieve financial outcomes from involving in socially beneficial activities (Harrison & Wicks, 2013). For example, a number of studies in the business literature strongly support the idea that CSR should effectively lead to better financial performance (e.g., Mackey, Mackey, & Barney, 2007). However, this doesn't mask the fact that evidence exists showing CSR may also impair firm financial wellbeing or fail to yield either positive or negative business outcomes (Klassen & Whybark, 1999; Roman, Hayibor, & Agle, 1999). In this current research, we do not intend to solve this debate because we fully acknowledge that CSR's power of driving firm performance is highly dependent upon the diversity of external conditions within which firms design, deploy, and implement CSR projects (Marin, Ruiz, & Rubio, 2009; Sun & Cui, 2014), and it is largely affected by the specific inherent nature of different firms (Farooq, Farooq, & Jasimuddin, 2014). Instead, our literature review on the extant CSR research streams yields several noticeable understudied areas beyond this scope.

First, the existing studies that examine the impacts of CSR primarily assume and formulate its linear associations with firm performance. This assumption of linearity is understandable because these findings can more saliently demonstrate the role of CSR without providing a seemingly confusing pattern that undermines the knowledge clarity. But a salient drawback of this assumption is that firm assets/strategies may have more complicated influence patterns on performance depending on the specific levels of these firm inputs (Zhang & Rajagopalan, 2010). Thus envisioning CSR's functions beyond the linear pattern can more realistically and more precisely reflect the essence of this firm attribute. In this research, we propose a U-shaped function of CSR to deepen the understanding in this research direction. This special model formulation is crucial because on one side CSR may bring firms benefits such as revenue as well as stock price stability; on the other, firms cannot continuously increase CSR engagement without incurring costs and penalties such as resource distraction and financial burdens (Salzmann, Ionescu-Somers, & Steger, 2005; Wang, Choi, & Li, 2008). Thus, the U-shaped pattern should better capture the essence of CSR that is largely neglected in the literature. Another important issue arises when it comes to the performance measure selection. This paper takes a unique angle to incorporate firm performance turbulence into consideration. Although CSR has been linked to many revenue side performance indicators such as customer satisfaction, brand equity,

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revenue, and profitability (Luo & Bhattacharya, 2006; McWilliams, Siegel, & Wright, 2006; Walsh & Bartikowski, 2013; Weber, 2008), its implication to the risk side performance measures such as the uncertainty of incoming cash flow is surprisingly missing. Cash flow is the essential and preferred measure of firm financial performance (Gruca & Rego, 2005). Its turbulence is a special risk type that indicates the firm's strengths in pursuing its future goals (Minton & Schrand, 1999). Stable cash flow is valued by firm key stakeholders such as managers because their operations and planning are highly dependent on the smooth cash flows (Gruca & Rego, 2005). Cash flow stability is also critical to investors and thus is one of the fundamental determinants on the firm's shareholder value (Srivastava, Shervani, & Fahey, 1998). Therefore, the incorporation of cash flow volatility into CSR studies examines an important but currently missing link that illustrates CSR's impact on firm uncertainties. It also renders a more transparent mechanism explaining why a firm's CSR may affect the extended performance measures such as stock return and risks as well as why some firms can use CSR to realize their goals while the others are not capable of doing so. Linking CSR and cash flow volatility thus creates a meaningful view regarding the firm's social endeavors and its fundamental consequences.

More importantly, this paper takes the first endeavor to enrich the nonlinear model by examining the synergy between CSR and the dynamic capability of the firm. Although CSR and firm capabilities have been confirmed to strongly influence firm operations and outcomes, their effects are largely separated in the literature. A combination of CSR and firm capability in this case stands for a valuable attempt to reveal how the two critical firm attributes may intertwine and thus produces a new set of knowledge in this scheme. In particular, firm marketing capability is of high interest because it shares important and strong connection with CSR when both of them are focused on appealing a firm's external parties (Morgan, Vorhies, & Mason, 2009; Vorhies & Morgan, 2005). Therefore, checking how marketing capability may moderate the function of CSR becomes a highly rewarding research avenue.

To this end, this paper formulates a quadratic moderating model that illustrates the U-shaped relationship between CSR and cash flow volatility as well as the interaction effect induced by marketing capability under the schemes of resource-based view (RBV) and dynamic capability theory (DCT). We collected a large set of firm data and used multiple robust analytical tools to empirically test the proposed model. Our research is intended to produce several important contributions to both the literature and the business practice. First, for the CSR literature, the proposed non-linear relationship extends the current strategic view of CSR in that the cost-benefit scale varies in a more complicated way. This contribution is important because the current paper stands for a new approach depicting the varying functions of CSR on the firm and more realistically draws the image of this critical firm activity. This lens strongly complements the traditional CSR studies in which linear relations are dominant. Second, our research contributes to the understanding of the strategic risk management of the firm in that CSR is considered to be a likely facilitator or hindrance for firm's income uncertainties, depending on its different engagement level (reflected by the proposed U-shaped relationship). This aspect adds a new image of CSR in the firm regarding its authentic functions in helping the firm coping with risks. Third, the current research provides a distinctive value for further understanding firm risk situation by purposefully integrating CSR, marketing, and risk factors of the firm, and thus creates a unique contribution and paves the way for future research efforts that focus on the cross-functional strategy portfolios in coping with firm risks. In the traditional RBV and DCT, CSR and firm capabilities are largely separated when firm performance uncertainties are under consideration. But the reality is that firm strategic actions are inevitably intertwined with firm inherent nature such as capabilities. Fourth, the endeavor examining CSR/Marketing capability's impact on firm cash flow volatility is particularly valuable because on one side, CSR is a firm strategic means that may be launched and supervised by different functional units and on the other side, marketing capability is a special firm ability associated with the marketing area. Bringing them together reveals how firms may utilize functional strengths to facilitate corporate-wide strategic moves in yielding better results. In this way our paper has power to produce strong implications for firm managerial superiority. Fifth, introducing the volatility-based outcome into CSR research carries special merits because there is a long-hold notion that CSR is helping firms to achieve stability but empirical studies in this area are rare. Our research thus echoes the calling for more research of CSR's role of stabilizing the firm (e.g., Orlitzky, 2013) and provides useful insights in this area. In addition, the extant understanding of CSR's risk implications has been largely focused on the financial market metrics. But this view neglects an essential fact that it is the firms' operational outcomes such as cash flows that essentially drive stock market performance. Thus, our research bridging CSR and cash flow uncertainty reveals the deeper mechanism of CSR's performance implications.

This article is developed as follows: following the introduction, we review the literature and generate hypotheses in the second section. Then we discuss our data collection, measures, and analytical methods. We discuss the analytical results in the fourth section. In the fifth part, we propose a series of implications for theories as well as real business practices. Last, limitations and future research directions are discussed.

2. Theories and hypotheses

2.1. Cash flow and cash flow volatility

Cash flow is the income stream resulted from the firm's business activities (Gruca & Rego, 2005). These activities cover the value chain under a firm's control and they are deployed in a way that achieves intended market performance (Deeds, DeCarolis, & Coombs, 2000; Vorhies, Morgan, & Autry, 2009). Thus cash flow essentially reflects the magnitude of a firm's capability of translating its assets and resources into monetary results (Deeds et al., 2000; Vorhies et al., 2009). Cash flow is treated as a preferred measure of performance because it not only authentically indicates the financial strengths of a firm, but also it is less susceptible to the biases originated from the accounting rules that are purposefully selected to lean to a firm's specific interests (Gruca & Rego, 2005).

Although the importance of cash flow has been adequately recognized, its volatility is largely understudied in the literature. Yet, management and marketing researchers are increasingly suggesting that cash flow volatility is one factor that should receive emphasis because of its key roles, which can be summarized into three main categories. First, cash flow volatility (CFV hereafter) is driven by firm's assets, abilities, knowledge, and strategies (Luo & Bhattacharya, 2009; Srivastava et al., 1998) and thus is an adequate gauge of the quality of managing a firm's resources and performing in its key markets (Irvine & Pontiff, 2009). This backward-looking view of CFV fully recognizes that a firm's performance uncertainty can result from different aspects of firm operations and therefore creates useful warning signs for optimizing business activities in order to ensure stable future income flow. Second, a forward-looking view of CFV describes that CFV is among the most critical factors that determine a firm's ultimate performance such as stock return and risk (Cebenoyan & Strahan, 2004; Srivastava et al., 1998). Investors scrutinize the firm's financial vigor as indicated by the income volume as well as stability (Maines & McDaniel, 2000). Drastic uncertain income flows increase the risk propensity to shareholders and thus negatively influence the stock valuation (Pástor & Pietro, 2003). Third, CFV yields difficulties for the functional operations of the firm in that it restrains the firm from deploying its resources smoothly into its management and marketing activities. For example, CFV is likely to disrupt the R&D input flow and advertising expenditure (Minton & Schrand, 1999). These disruptions not only hurdle the key business activities and thus undermine the performance, but they also create

more profound impacts such as the risk of bankruptcy (Wasley & Wu, 2006). Therefore, CFV generates a double-fold harm that operationally restrains the firm and perceptually alienates key fund sources such as debt holders and investors. Given the importance of CFV, checking the key factors and relationships that may reduce it becomes theoretically interesting and practically meaningful.

2.2. CSR's U-shaped relationship with CFV

CSR is deeply rooted in the RBV and we use this theory stream as the basis for illustrating CSR's functions for the firm. Although CSR's beneficial roles of enabling firms to achieve higher gains such as revenue, profit, and stock return have been well documented (Luo & Bhattacharya, 2006; Margolis & Walsh, 2003; Weber, 2008), its effects on a firm's CFV remains missing in the literature. This neglected link is among the most critical areas in firm management systems. The risk reduction portion of CSR can be illustrated by at least three distinctive characteristics of this firm activity. First, in the RBV framework, CSR stands for the essential form of "moral capital," which serves as an "insurance-like" asset that creates the goodwill image of the firm and assures important firm stakeholders such as investors, leading to more stable valuation process and thus financial support (Jo & Na, 2012; Luo & Bhattacharya, 2009). This CSR effect ensures the firm to adequately obtain assistance from fund sources and avoid drastic shifts of firm operations that often occur when firms encounter sudden disrupts of investment. This stable operation creates the fundamental conditions for stable incoming cash flows. Second, Stewart (2009) indicates that customers are the essential source of firm cash flow and thus a positive perception in consumers' minds yield valuable brand assets that hedge the key markets from the attack of competitors (Torres & Tribó, 2011). CSR has long been confirmed to create relational stock by arousing the identification effect and building stronger bonding between the firm and customers (Du, Bhattacharya, & Sen, 2007; Luo & Bhattacharya, 2006), resulting in higher customer loyalty that translates to less churn and thus lower uncertainty of incoming cash flow (Vlachos, Tsamakos, Vrechopoulos, & Avramidis, 2009). Third, the stakeholder view of CSR describes CSR as an important ingredient that enables the firm to build a friendly external environment network constituted by a group of key stakeholders such as key customers, investors, channel members, and regulatory organizations (Brown & Forster, 2013). This network of stakeholders represents an ecosystem within which the firm operates. The supportiveness of this system gives the firm important strategic flexibility and avoids possible severe penalties from accidental misconduct (Basu & Palazzo, 2008). These mechanisms create a necessary foundation for the firm to achieve a lower CFV.

However, when a firm continues to invest in CSR, the positive impact may reverse due to several important reasons. First, CSR is essentially a firm's expenditure that requires a firm's resource commitment and thus engaging CSR creates financial burdens that will increasingly lead to uncertainties when the expenditure escalates (Wang et al., 2008). Second, firms have limited corporate resources and CSR may likely compete with other firm activities for key firm inputs. Thus, too much resource commitment to CSR will distract the firm from its core businesses and leave the firm vulnerable to external threats such as competition, resulting in higher uncertainty in performance (Salzmann et al., 2005). Third, CSR is highly influenced and driven by firm stakeholders and excessive CSR is likely to lock the firm into the certain directions of appealing to its specific stakeholders and thus lower the firm's adaptability regarding the market changes and competition evolution (Sénéchal, Georges, & Pernin, 2014; Steenkamp & Baumgartner, 1992), leading to more unstable revenues. Fourth, the external market has an optimal arousal mechanism in which consumers find CSR a pleasant firm image only within a certain range. The stimuli generated by CSR decrease when CSR goes beyond that range (Sénéchal et al., 2014; Steenkamp & Baumgartner, 1992). This mechanism is also in line with the special nature of corporate signaling effect, which denotes that the functionality of firm's positive signals decreases when the signals become the industry parity points or the firms over-invest or sacrifice too much in building these signals (Bergh, Connelly, Ketchen, and Shannon, 2014). Further, too much CSR actually leads to increased customers' uncertainty about the firm's capability to manage its core business and thus this loss of trust affects the stability of incoming cash flow (Bhattacharya & Sen, 2004). Fifth, continually increasing CSR activity may raise the tension between firm management team and shareholders because managers naturally incline to use CSR in favor of their own benefits such as personal reputation rather than serving the firm's goals (Brammer & Millington, 2008). This type of conflict sacrifices the firm's ability to control its markets and it raises the risk of revenues due to the turbulence of support from the shareholders (Deutsch, Keil, & Laamanen, 2011). Given the strong evidence in the literature, we hypothesize that:

H1: Firm CSR will have a U-shaped relationship with firm CFV.

2.3. Marketing capability and CFV

Dynamic capability theory (DCT) define firm capability as the ability of controlling and deploying firm resources to achieve expected outcomes (Barney, 1991; Cepeda & Vera, 2007; Teece, Pisano, & Shuen, 1997). Firm capability thus signifies how a firm can use its available assets, knowledge, information, and skills towards a systematic integration (Helfat & Peteraf, 2003; Teece et al., 1997). A firm has a set of capabilities in its entire spectrum of operations. Among these capabilities, marketing capability captures the degree to which a firm utilizes its marketing resources such as salespeople, advertising, and customer relations to realize optimal market performance (Angulo-Ruiz, Donthu, Prior, & Rialp, 2018; Morgan et al., 2009). It is one of the most critical capability types in the firm because of its special nature such as inimitability and complexity (Krasnikov & Jayachandran, 2008; Orr, Bush, & Vorhies, 2011).

To our best knowledge, marketing capability's link to CFV has not been found in the literature. Yet, ample theoretical reasoning can be built to bridge the gap. Marketing capability enables a firm to realize better customer satisfaction and hence higher loyalty rates (Mithas, Krishnan, & Fornell, 2005; Nath, Nachiappan, & Ramanathan, 2010), which translate to more stable cash flows because consumers are less likely to switch if a firm can effectively and timely identify and satisfy their needs (Angulo-Ruiz et al., 2018; Johnson & Selnes, 2004). Furthermore, marketing capability creates two forms of complexities (operations and social) and thus erects a strong competition barrier. For one thing, a firm that has high marketing capability is likely to organically blend its key resources towards a high level of operations complexity, which is hard for competitors to imitate (Krasnikov & Jayachandran, 2008). For another, high marketing capability leads to social complexity that nests the firm into a network involving different parties such as employees, channel members, key customer groups, and third-party supporting organizations (Greenley, Hooley, & Rudd, 2005). This network is unlikely to be easily copied by companies in the same industry. The operations complexity and social complexity protect the firm from disturbance caused by competitive actions and therefore ensure the stable cash flow. The power of risk reduction of marketing capability also originates from its function of detecting risk, analyzing market environment, and implementing coping strategies (Weerawardena, 2003). A firm with high marketing capability actively seeks market trend information, detects possible threats, and gives timely feedback to its strategic planning. This proactive mechanism resulted from high marketing capability helps the firm more reliably envision the future and avoid unnecessary turbulence and in turn realize lower volatility of its cash flows. Therefore, we hypothesize that:

H2: Marketing capability will have a negative relationship with firm CFV.

2.4. The moderating effect of marketing capability

The DCT supports that firm capability not only directly drives firm performance, but it also assists other firm attributes to obtain performance. In particular, marketing capability has been confirmed to enhance the strength of R&D, operations, and diversification when firm return is considered (Dutta, Narasimhan, & Rajiv, 1999; Kotabe, Srinivasan, & Aulakh, 2002). The underlying rationale is clear: when a firm is capable of managing its marketing information, customer relationship, and external network, it automatically gains benefits from such superiority in that it can leverage them into deploying other firm resources such as innovation and production. For example, a precise understanding of customer needs can give R&D department clear guidelines about how to develop better new products to satisfy customer needs (Dutta et al., 1999; Dutta, Narasimhan, & Rajiv, 2005). Further, marketing capability is found to leverage its operations and social complexity into other areas of the firm and yield extra protection for these areas from being threatened by competition (Krasnikov & Jayachandran, 2008). CSR is essentially a firm expenditure targeting social recognition. Thus, CSR initiatives necessarily publicize the key processes to the external parties and automatically make it transparent to competitors (Udayasankar, 2008). This nature of CSR either entices the competitors to deploy similar CSR projects or make it easier to seek substitute strategies to neutralize its superiority. Therefore, CSR by itself may be unlikely to create sustained competition barriers due to the high imitability, high visibility, and low complexity. This vulnerability of CSR should be addressed by integrating marketing capability into the firm's social engagement. The operations complexity and social complexity that are inherent to high marketing capability firms enable those firms to encode CSR activities into its marketing strategies. For example, a firm can embed its social welfare messages into its promotion campaigns to its key customer groups or it can utilize its channel network to spread its CSR activities. This way not only spreads the goodwill of the firm, but it also seamlessly encloses key stakeholders such as channel members into the process and builds more solid channel relationship (Maignan & Ferrell, 2004). An example is Home Depot in its partnership with KABOOM! Home Depot successfully motivated its salespeople into local level philanthropic activities. The close connection built from the interaction benefits both the two organizations in regards to social welfare gained and firm brand image favorability (Peloza, 2006).

From the stakeholder view of the firm, firm stakeholders are constantly scrutinizing the firm from its orientation, strategies, and abilities, to performance indicators (Donaldson & Preston, 1995). Stakeholders are particularly attentive to possible gaps between different aspects of the firm. Sénéchal et al. (2014) find that firm stakeholders such as customers will be alienated if a firm demonstrates too much distance in their commitment to the general public and to their customers. For example, if a firm consistently shows its goodwill to society but meanwhile it demonstrates inferior ability to tailor to its customer needs, customers will have significant negative attitude towards the firm. Therefore, marketing capability is important to complement CSR endeavors because its safeguards the beneficial effects of CSR and thus achieves more consistent market performance as reflected by incoming cash flows.

From the resource allocation perspective, the moderating effect of marketing capability becomes even more desirable. Researchers strongly support that CSR activities consume valuable firm resources such as financial input, human resources, and communication channels (Barnett & Salomon, 2006). This resource requirement often produces internal competition and conflicts between functional departments when all the departments are competing for support (Jensen, 2002). Marketing capability turns out to be an ideal solution to this type of resource competition because it represents the ability of a firm to efficiently utilize its available resources (Morgan et al., 2009; Song, Droge, Hanvanich, & Calantone, 2005). A high marketing capability firm can more efficiently deploy resources to achieve its goals, and thus it is likely to release more slack resources to CSR activities and gives CSR managers more freedom to launch CSR in the right direction rather than a suboptimal choice constrained by resource shortage. In this sense, marketing capability facilitates a firm to realize its CSR goals and indirectly drive firm performance stability because of the enhanced relational stock and environmental supportiveness.

H3: Marketing capability will moderate the relationship between CSR and CFV. The negative association between CSR and CFV will be stronger for firms with high marketing capability.

3. Data, measures, and method

To empirically test the proposed theoretical relationships, we collected a large set of company information from multiple sources including KLD, Compustat, firm annual reports, and business segment databases. The same data approach has been popularly used in both CSR research streams and strategic management/marketing areas (e.g. Marano & Kostova, 2016; Minor & Morgan, 2011; Mishra & Modi, 2013). This approach carries a number of important benefits for our specific research purpose. First, these databases allow us to cover a wide range of firms from different industries and therefore ensure the generalizability to the external business world. Second, the large sample size available in these dataset further enhance the reliability our research results. Third, databases such as Compustat are characterized as having a higher level of objectivity than perceptual data methods such as surveys. This benefit is of particular importance when firm capability is under investigation. Different respondents may have a significantly different rating for the same firm, depending on their viewing angle of the firm. Therefore, using an objective dataset to measure firm capability reduces the risk of subjective bias. Fourth, the inclusion of multiple sources further reduces the possible systematic bias caused by common methods. Fifth, using data items that are readily available to researchers and practitioners strongly facilitate future research as well as practical implications for business. Our final merged non-missing dataset includes 10,572 observations from 1510 firms (from year 1996 to 2015). The firms cover the entire spectrum of industries such as transportation, manufacturing, retail trade, wholesale trade, and service firms. One firm may have multiple data points over the years, so this panel dataset requires a special process that will be discussed in the method section. The descriptive information of the data items are presented in Table 1. The measures of our variables are discussed below.

3.1. Cash flow volatility

To be qualified as an adequate measure of CFV, the variable must contain multiple cash flow data points over a certain time span to show the fluctuation. The cash flow data item from Compustat becomes the preferred choice because it has time-series cash flow data that capture richer information about the turbulence (Minton & Schrand, 1999). A typical method to reflect volatility is to use coefficient of variation (e.g. Fang, Palmatier, & Steenkamp, 2008; Han & Qiu, 2007; Minton & Schrand, 1999). Using coefficient of variation is advantageous because it removes the effect of scale such as firm size effect because large firms automatically have greater cash flow changes over time. By using standard deviation scaled by the mean of a specific firm's cash flow, this measure pinpoints the volatility magnitude inherent to each firm and in a manner comparable to each other. One additional concern is that when a firm's cash flow steadily grows or decreases over a period of time, the coefficient of variation will still be high while the turbulence is actually minimal. We addressed this problem by using growth rate to scale the coefficient of variation and therefore only retain the turbulence of cash flow. We collected the yearly cash flow data and used moving windows for every five year and calculated CFV for each period

Table 1
Variable Descriptive Statistics and Correlations.

		Mean	SD	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
Cash Flow Volatility	V1	0.42	0.25											
CSR	V2	0.93	0.38	−0.03 ***										
MKT Capability	V3	0.65	0.19	−0.29 ***	0.07 ***									
Firm Size	V4	14.46	1.22	−0.22 ***	0.05 ***	0.25 ***								
Firm Age	V5	2.98	0.73	−0.18 ***	0.03 ***	0.12 ***	0.25 ***							
Munificence	V6	1.05	0.10	0.07 ***	−0.04 ***	−0.03 ***	0.06 ***	−0.11 ***						
Turbulence	V7	1.03	0.03	0.11 ***	0.01	0.12 ***	−0.10 ***	−0.01	−0.03					
Competition	V8	0.74	0.19	−0.03 ***	0.02 **	−0.17 ***	0.16 ***	−0.10 ***	0.05 ***	−0.19 ***				
Diversification	V9	1.02	0.42	−0.07 ***	−0.04 ***	0.15 ***	0.20 ***	0.29 ***	−0.04 ***	0.03 ***	−0.12 ***			
Leverage	V10	0.21	0.19	−0.06 ***	−0.10 ***	0.02 **	0.21 ***	−0.06 ***	0.00	−0.02	0.06 ***	0.05 ***		
Liquidity	V11	2.37	1.59	0.13 ***	0.00	−0.07 ***	−0.30 ***	−0.05 ***	−0.02 **	0.03 ***	−0.02 *	−0.10 ***	−0.24 ***	
Asset Growth	V12	0.13	0.37	0.16 ***	−0.01	0.04 ***	−0.04 ***	−0.16 ***	0.08 ***	0.02 *	0.04 ***	−0.06 ***	0.01	0.04 ***

*p < .10, **p < .05, ***p < .01

of time (Larkin, 2013; Bekaert, Harvey, & Lundblad, 2006).

3.2. CSR

We collected CSR data from Kinder, Lydenberg, and Domini (KLD), a large database that gathers information from industry experts regarding firms' engagement in 13 areas such as community, diversity, employment, and environment. It not only investigates the multi-faceted overview of a firm's social engagement, but it also rates firm's strengths and weaknesses in each area. These ratings serve as the basis of measuring CSR. We relied on studies by Waddock and Graves (1997) and Ruf, Muralidhar, Brown, Janney, and Paul (2001) to measure CSR as the total strengths minus total weaknesses of a firm. This provides a comprehensive picture of the firm's CSR engagement. One caution of using KLD is that, within each rating area, the individual item numbers may slightly change over the years, so we normalized each firm's numbers of strengths and weaknesses against the industry mean of the same year. This method enables data consistency across different time periods and industries.

3.3. Marketing capability

Measuring marketing capability involves an important consideration that it must precisely reflect the conceptualization under the dynamic capability framework in that marketing capability to reflect how efficiently a firm can translate its marketing related resources into outcomes. To achieve this goal, we used the Stochastic Frontier (SFM), which is a powerful tool that gauges the degree to which a firm uses its inputs to realize outputs (Hirunyawipada & Xiong, 2018). It essentially benchmarks each firm's ability against the frontier curve of the group and assigns inefficiency scores for each individual firm. We used selling, general, and administrative (SG&A), receivables, intangible assets, install base, and slack resource as input factors and generated the efficiency scores of translating these inputs into market performance (sales) as well as profitability (gross margin). The SFM is specified as:

$$Y_{it} = \alpha + X_{it}^{'} \times \beta + \varepsilon_{it},$$

$$\varepsilon_{it} = v_{it} - u_{it}$$

$$v_{it} \sim N(0, \sigma_v^2)$$

$$u_{it} \sim N^{+}(0, \sigma_u^2)$$

where i = 1, …, N (firms), t = 1, …, T_i (time periods), Y includes the output variables and X is a vector containing the input variables. The $u_{it} > 0$ captures the inefficiencies of a firm's capability of using the inputs to obtain the outputs and thus the reversed term of u_{it} becomes the measure of marketing capability. This approach of capability measure has a wide application in this area (e.g., Dutta et al., 2005; Lieberman & Dhawan, 2005; Nath et al., 2010). It not only has the strength of objectivity, but it is also preferable to handle outliers and heterogeneity due to its stochastic nature (Aigner, Lovell, & Schmidt, 1977; Dutta et al., 1999; Greene, 2000).

3.4. Control variables

We enclosed a set of control variables that may influence the dependent variable, CFV. We controlled for firm size effect because large firms may have lower performance risk due to the scale of business. We collected firms' number of employees from Compustat and applied a log-transformation on this data item (Baumann-Pauly, Wickert, Spence, & Scherer, 2013). We controlled for firm age because the longer time a firm operates in its industry, the better knowledge it can accumulate to cope with income turbulence. We measured this factor by using the number of years that a firm is publicly listed and again applied a log-transformation (Anderson & Reeb, 2003). A firm's market scope may influence the revenue patterns and we controlled for this effect by including firm diversification as measured by the number of market segments of each firm (adjusted by the industry mean to account for the systematic differences across industries) (Mansi & Reeb, 2002). Because a firm's cash flow is associated with its borrowing and liquidity, we controlled for these effects by adding firm leverage (long-term debt ratios) and liquidity (the current ratio) (Aivazian, Ge, & Qiu, 2005; DeAngelo, DeAngelo, & Wruck, 2002). We also included firms' dividend pay, a dummy variable indicating whether a firm paid dividend in a certain period (Moyen, 2004). Because growth momentum may bring firms' advantages in generating revenue, we controlled for this effect by adding the firm's yearly asset growth rate. In addition to the firm specific control variables, industry factors may create systematic variation on CFV because firms' income patterns are partially determined by industry situations. Thus, we included industry munificence,

dynamism, and competition (Pelham, 1999). Munificence is measured as the industry sales growth in a five year time period. Dynamism is measured as the turbulence of industry sales in the same period. Competition is measured by 1-HHI (Herfindahl-Hirschman Index) of each industry (Lee & Grewal, 2004). Further, because different time periods may affect firm performance, we included a set of time dummy variables to capture this effect. We also included a set of industry dummy variables to account for additional industry heterogeneities.

3.5. Empirical model estimation method

The full model we formulated for empirical estimation uses CFV as the dependent variable. To address the concern of reverse causality, we use a lagged $CFV_{(t+1)}$ as the DV. The main effects are CSR and marketing capability. To capture the nonlinear effect of CSR, its quadratic term CSR^2 is included. To examine the moderating effect of marketing capability, we formulate the moderating terms of CSR and marketing capability, CSR^2 and marketing capability. The final model is specified as follows:

$$\begin{aligned}\text{Cash Flow Volatility}_{it+1} &= \beta_0 + \beta_1 \times \text{CSR}_{it} \\ &+ \beta_2 \times \text{Marketing Capability}_{it} \\ &+ \beta_3 \times \text{CSR}_{it} \times \text{CSR}_{it} \\ &+ \beta_4 \times \text{CSR}_{it} \times \text{Marketing Capability}_{it} \\ &+ \beta_5 \times \text{CSR}_{it} \times \text{CSR}_{it} \times \text{Marketing Capability}_{it} \\ &+ \beta_6 \times \text{Firm Size}_{it} \\ &+ \beta_7 \times \text{Firm Age}_{it} \\ &+ \beta_8 \times \text{Envionmental Munificence}_{jt} \\ &+ \beta_9 \times \text{Envionmental Dynamism}_{jt} \\ &+ \beta_{10} \times \text{Competition Intensity}_{jt} \\ &+ \beta_{11} \times \text{Diversification}_{it} \\ &+ \beta_{12} \times \text{Leverage}_{it} \\ &+ \beta_{13} \times \text{Liquidity}_{it} \\ &+ \beta_{14} \times \text{Asset Growth}_{it} \\ &+ \text{Time Dummies} \\ &+ \text{Industry Dummies} + \varepsilon_{it}\end{aligned}$$

(i denotes individual firms, j denotes industries, and t means time, which is year in this model).

From the methodology perspective, this model formulation carries a number of strengths. First, firms in the real business world display significant variations. Among them, firm scale and tenure are two inherent aspects that must be accounted for. The firm size and age variables in our model serve this goal. Second, firms may have distinctive business configurations as well as financial states. The firm factors such as diversification, leverage, asset growth in our model effectively account for these aspects. Third, the influence of industry and its associated macro-environment are adequately captured by the three environmental variables that are widely adopted in the similar research models. Fourth, the time effect is controlled by the introduction of year dummies in this model and further adds strength.

Two additional concerns remain. First, although the heterogeneities of the firms are sufficiently accounted for, possible heteroscedasticity might occur because the variance of CFV could be disproportionally explained by certain groups of firms. Second, although the panel data structure gives several important benefits such as less influenced by omitted variables, more estimation efficiency, and more accurate results (Hsiao, 2014), it also raises threats of autocorrelation that result from the correlated error terms of the same firm across several years. Therefore, we selected two sets of solutions, White-Cluster and Newey-West robust regressions, that are suggested for estimating panel data (Newey & West, 1987; Rego, Billett, & Morgan, 2009). The White-Cluster robust regression produces White standard errors to address heteroscedasticity while at the same time clusters each firm that has multiple years' data points to address autocorrelation. In a different way, the Newey-West robust regression generates Newey-West robust standard error and generates heteroscedasticity and autocorrelation consistent results (Blanchard & Leigh, 2013; Newey & West, 1987). The choice of two different robust methods further ensures the reliability of our findings.

4. Results and discussion

When running the model estimation, we used a stepwise regression method by first entering the control variables, then adding main effects, and finally adding the quadratic and moderating terms. There are no significant inconsistencies for the control variables and main effects across the incremental variable addition. In addition, we conducted partial F tests to examine the contribution of the added variables to the explanatory power at each step. We found that adding main effects ($F = 134.45$, $p < 0.01$) and then adding quadratic and moderating ($F = 2.78$, $p < 0.05$) are significant. To ensure that our model was not affected by multicollinearity, we checked the Variance Inflation Factors (VIFs) and found all the VIFs are lower than 10, which means multicollinearity should not be a concern (Geyskens, Gielens, & Wuyts, 2015). In the control variable, firm size was found to negatively affect CFV. This is in line with the reasoning that large firms are able to lower their performance volatility from the portfolio effects due to the diversified business areas (McAlister, Srinivasan, & Kim, 2007). Firm age is also found to negatively impact CFV, supporting that knowledge accumulation indeed functions as a risk reduction factor. We also found that the environmental factors are highly associated with CFV. It signifies the importance of external situation on firm revenue characteristics (Robert Baum & Wally, 2003). Liquidity and asset growth are found to drive CFV. This is in line with previous studies supporting that the firms tend to engage in more experimental and risk-seeking activities when there are less resource constraints (e.g., Sarin & McDermott, 2003; Tyler & Caner, 2016).

The first hypothesis postulates that CSR should exert a U-shaped effect on firm CFV. The analysis results strongly support such a proposition (Table 2). The main effect of CSR is significantly negative ($\beta = -0.194$, $p < 0.01$), but its quadratic term is positive ($\beta = 0.120$, $p < 0.05$). A further analysis of the number reveals that the turning point is around the CSR mean of the firms in the sample set. This finding of the U-shaped relationship confirms the theoretical reasoning about the negative aspect of CSR when a firm's cash flow stability is under consideration. Previous researchers in this area believe that if CSR goes to an excessive level, it will start undermining firm performance. Our finding suggests that CFV seems to be more sensitive to the negative impact of over-engaging in CSR and it increases quickly if CSR goes beyond a moderate level.

Our second hypothesis posits that marketing capability, as an integral part in a firm's resource portfolio, should reduce firm CFV. The empirical analysis confirms such a proposition ($\beta = -0.297$, $p < 0.01$). A comparison between the effect size of marketing capability and CSR reveals interesting insights. Previous researchers have found strong influence of CSR and firm capabilities in separated studies. When they are modeled together and use firm CFV as the dependent variable, marketing capability seems to be a much more powerful factor than CSR. This is meaningful because marketing capability is directly associated with income flows, but CSR affects cash flow through an indirect way. Therefore, although the beneficial role of CSR is valid, marketing capability seems to be a more practical way to ensure smooth CFV. This finding can be further explained from the resource implication of these two traits. CSR is basically an expenditure type that consumes firm valuable resources and thus yields a trade-off between costs and benefits. However, marketing capability is an inherent ability that enables a firm to more efficiently use resources and therefore carries critical benefits that make it a more vigorous driver.

The third hypothesis suggests the moderating role of marketing capability. We find that the interaction term between marketing

Table 2
Analytical Model Using Cash Flow Volatility as Dependent Variable.

DV: Cash Flow Volatility (t + 1)								
	Control Model		Main Effects		White-Cluster Robust Estimation		Newey-West Robust Estimation	
	Coeff. (t)	Sig.	Coeff. (t)	Sig.	Coeff. (t)	Sig.	Coeff. (t)	Sig.
CSR			−0.063	***	−0.194	***	−0.194	***
			(-3.48)		(-3.05)		(-4.06)	
MKT Capability			−0.289	***	−0.297	***	−0.297	***
			(-16.53)		(-7.51)		(-8.35)	
CSR^2					0.120	**	0.120	***
					(2.50)		(3.22)	
CSR × MC					0.095		0.095	
					(1.50)		(1.54)	
CSR^2 × MC					−0.087	**	−0.087	**
					(-2.13)		(-2.30)	
Firm Size	−0.154	***	−0.035	*	−0.047	**	−0.047	***
	(-7.38)		(-1.71)		(-2.32)		(-3.45)	
Firm Age	−0.071	***	−0.075	***	−0.073	***	−0.073	***
	(-3.40)		(-3.83)		(-3.74)		(-5.61)	
Munificence	0.038	**	0.045	***	0.038	***	0.038	***
	(2.52)		(3.07)		(2.63)		(3.10)	
Turbulence	0.083	***	0.104	***	0.103	***	0.103	***
	(4.50)		(5.68)		(5.48)		(7.37)	
Competition	−0.013		−0.062	***	−0.067	***	−0.067	***
	(-0.65)		(-3.29)		(-3.52)		(-5.61)	
Diversification	0.009		0.015		0.010		0.010	
	(0.48)		(0.87)		(0.58)		(0.88)	
Leverage	0.009		−0.024		−0.024		−0.024	**
	(0.50)		(-1.42)		(-1.47)		(-2.11)	
Liquidity	0.055	***	0.049	**	0.039	*	0.039	***
	(2.77)		(2.46)		(1.96)		(2.99)	
Asset Growth	0.110	***	0.111	***	0.138	***	0.138	***
	(8.95)		(8.50)		(9.80)		(10.02)	
Dividend Pay	−0.205	***	−0.152	***	−0.154	***	−0.154	***
	(-10.52)		(-8.21)		(-8.36)		(-12.84)	
Time Dummies	Yes		Yes		Yes		Yes	
Industry Dummies	Yes		Yes		Yes		Yes	
Adj. R^2	0.161		0.212		0.225		0.225	

*p < .10, **p < .05, ***p < .01
All VIFs are lower than 10

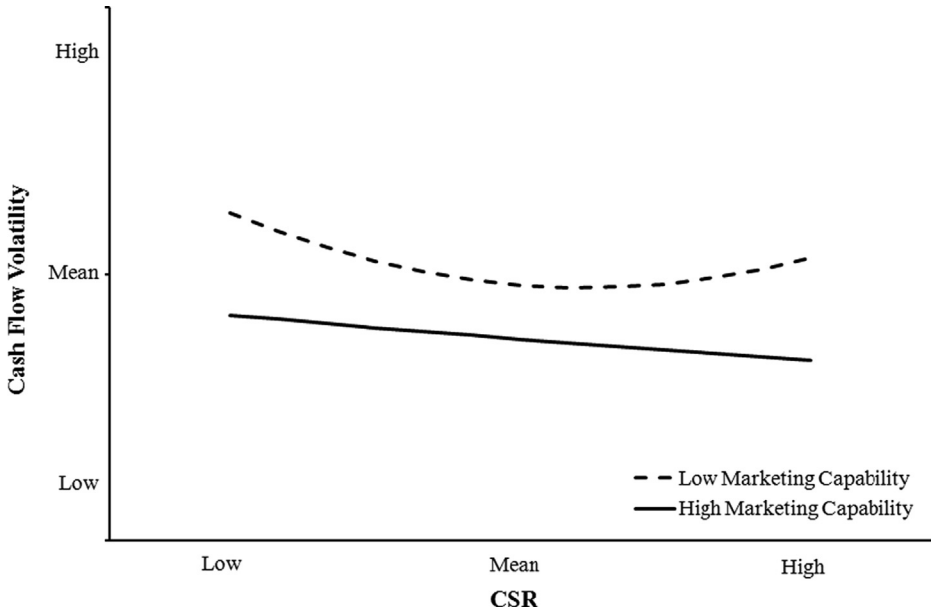

Fig. 1. The Curvilinear Moderation of Marketing Capability on CSR and Cash Flow Volatility.

capability and the quadratic term of CSR is significant (β = − 0.087, p < 0.05), signifying a quadratic moderating pattern is supported. The quadratic moderation may produce rich insights because it not only reveals the changing impact of one variable from low to high levels along with the levels of another variable, but it also shows if the non-linear relationship holds when the moderator changes. To better

illustrate the quadratic moderation, we plotted it into Fig. 1, which clearly indicates that marketing capability brings considerable difference in terms of CSR's impact pattern on CFV. When marketing capability is low, CSR demonstrates a clear U-shaped pattern, but when marketing capability turns stronger, the U-shape pattern virtually disappears. CSR seems to be unidirectionally reducing CFV when a firm has superior ability in deploying its marketing resources. We further followed the procedures proposed by Haans, Pieters, and He (2016) and confirmed that these patterns are valid. This finding precisely echoes the theoretical foundations of RBV and DCT from a unique angle. Marketing capability is likely to be a factor that not only directly reduces firm risk, but it also indirectly supports other factors' strength of risk-reduction. Further, turning a U-shaped pattern into a unidirectional impact robustly illustrates the positive role of marketing capability.

In addition to the analysis above, we also conducted a series of robustness checks to secure the reliability of our findings. As discussed in the method section, we not only chose White-Cluster robust regression, but we also used Newey-West robust regression to estimate the model. Both methods show consistent results. When we measured CFV, we used yearly cash flow data to calculate volatility in order to capture richer information. We also used quarterly cash flow data (five year moving windows) to measure its volatility. The results are largely consistent. In our main model, we defined industry by using the 4-digit SIC code. This is a refined way to consider industry. In addition, we also tested the 3-digit and 2-digit SIC code as the industry categorization, and again we obtained consistent results.

4.1. Additional study using default vulnerability

To further examine the relationship bundle in our model, we conducted an additional study by using firm's default vulnerability as the dependent variable. In the literature, researchers strongly suggest that firm CFV may be a main determinant leading to firm default risk. Dramatic cash flow uncertainty drives up a firm's possibility to fall into financial shortage and even bankruptcy (Uhrig-Homburg, 2005). This additional study further extends the interplay between CSR and marketing capability into a cash flow risk related but more forward-looking outcome, default vulnerability. We collected firms' credit rating from Standard&Poor firm credit database. We then reverse coded each credit category such as "AAA" into numbers such as "1." We then formulated another model that specified it as follows:

$$\begin{aligned}\text{Default Vulnerability}_{it+1} = {} & \beta_0 + \beta_1 \times \text{CSR}_{it} \\ & + \beta_2 \times \text{Marketing Capability}_{it} \\ & + \beta_3 \times \text{CSR}_{it} \times \text{CSR}_{it} \\ & + \beta_4 \times \text{CSR}_{it} \times \text{Marketing Capability}_{it} \\ & + \beta_5 \times \text{CSR}_{it} \times \text{CSR}_{it} \times \text{Marketing Capability}_{it} \\ & + \beta_6 \times \text{Firm Size}_{it} \\ & + \beta_7 \times \text{Firm Age}_{it} \\ & + \beta_8 \times \text{Envionmental Munificence}_{jt} \\ & + \beta_9 \times \text{Envionmental } \textit{Dynamism}_{jt} \\ & + \beta_{10} \times \text{Competition Intensity}_{jt} \\ & + \beta_{11} \times \text{Diversification}_{it} \\ & + \beta_{12} \times \text{Leverage}_{it} \\ & + \beta_{13} \times \text{Liquidity}_{it} \\ & + \beta_{14} \times \text{Asset Growth}_{it} \\ & + \text{ Time Dummies} \\ & + \text{Industry Dummies} + \varepsilon_{it}\end{aligned}$$

The results are presented in Table 3. We found that the proposed relationships still holds. The quadratic moderation is illustrated in Fig. 2. This result indicates that in addition to the backward-looking measure CFV, our proposed framework also applies to the forward-looking performance indicators. Default risk is significantly driving debt-holder's decisions. In this sense, marketing capability seems to effectively help CSR assure debt-holders.

4.2. Implications for theories

Although CSR has been linked to ample firm performance measures, its relation with performance uncertainty is still missing in the literature. Bridging this gap not only strengthens the existing viewpoints of the beneficial social engagement but also extends the research horizon to a new area. Researchers are increasingly realizing that firm's financial performance turbulence is meaningful when they want to more effectively understand the contribution of firm strategies or attributes. The U-shaped relationship between CSR and CFV indicates that the previous understanding of CSR may need rethinking, especially when firm risk is under consideration. Although CSR can be treated as a strategically beneficial factor, the costs associated with it cannot be underestimated. The extant literature suggests the diminished return effect should apply. However, the U-shaped results in our study further illustrate that the concern could even be more serious. If without the support from the firm marketing capability, CSR expenditures could eventually become a burden and then harm the firm because the increased CFV may be detrimental to a firm's business outcomes.

Previous research has successfully established the associations between CSR and financial market performance such as stock return and stock market risk (Becchetti, Ciciretti, Hasan, & Kobeissi, 2012). However, while focusing on the ultimate outcomes such as shareholder value is legitimate, the intermediate firm results such as cash flow pattern cannot be neglected because the decisions of shareholders are largely dependent on their observation and evaluation on the intermediate results. Therefore, our research contributes unique insights that help researchers understand the links between CSR and its various performance items.

Our research also contributes to the DCT with the new findings of marketing capability. Although firm capabilities are well-known to drive firm performance, its impact on firm risk factors such as CFV has not been touched. Our research shows that marketing capability not only directly reduces firm CFV, but it also moderates the link between CSR and CFV and thus indirectly contributes to risk reduction. Furthermore, our results show that marketing capability can smooth out the U-shaped pattern of CSR and thus provide a strong support for a firm to realize the strengths of CSR. These findings jointly deepen the theoretical knowledge of marketing capability in that its power may be more prominent when CSR and CFV are involved. CSR is essentially a spending format and thus automatically possesses a financial risk inclination. Marketing capability appears to be a powerful tool to deal with such situation. CSR researchers suggest that CSR may be costly because it consumes valuable firm resources and necessarily increases the internal competition. Capabilities researchers, on the other side, support that marketing capability is characterized as a resource-saving factor because a firm with a high capability is able to more efficiently deploy its resources and thus it is more likely to alleviate the internal competition on resources. Our research thus provides a timely contribution to combine these two research streams together and successfully show how marketing capability complements CSR in terms of resource allocation, leading to smoother incoming cash flows. In this sense, our research not only separately contributes to both CSR and capability literature, but it also creates a new synergy between the two steams and a useful guideline for CSR and DCT researchers.

In regards to strategic marketing, our research also sheds lights in that CSR often is embedded into marketing strategies targeting better customer relationships. Debate often occurs about the true advantages of launching CSR in gaining firm market performance. For one thing, CSR is strategically useful because of its functions of inducing consumers' identification mechanism. However, academic researchers are often confused by the inconsistent or contradicting results from the studies. Our research therefore serves as a clear example of showing the importance of incorporating key moderating factors such as marketing

Table 3
Additional Study: Analytical Model Using Default Vulnerability as Dependent Variable.

DV: Default Vulnerability (t + 1)								
	Control Model		Main Effects		White-Cluster Robust Estimation		Newey-West Robust Estimation	
	Coeff. (t)	Sig.	Coeff. (t)	Sig.	Coeff. (t)	Sig.	Coeff. (t)	Sig.
CSR			−0.107	***	−0.180	***	−0.180	***
			(-4.96)		(-2.74)		(-3.91)	
MK Capability			−0.294	***	−0.257	***	−0.257	***
			(-15.75)		(-7.60)		(-9.20)	
CSR^2					0.089	*	0.089	**
					(1.72)		(2.29)	
CSR × MC					0.026		0.026	
					(0.50)		(0.52)	
CSR^2 × MC					−0.086	**	−0.086	**
					(-2.25)		(-2.50)	
Firm Size	−0.322	***	−0.248	***	−0.249	***	−0.249	***
	(-11.89)		(-9.84)		(-9.85)		(-17.61)	
Firm Age	−0.097	***	−0.106	***	−0.107	***	−0.107	***
	(-3.60)		(-4.58)		(-4.62)		(-8.36)	
Munificence	−0.005		−0.005		−0.005		−0.005	
	(-0.29)		(-0.34)		(-0.29)		(-0.38)	
Turbulence	0.045	*	0.045	**	0.045	**	0.045	***
	(1.90)		(2.33)		(2.32)		(3.37)	
Competition	0.036		−0.021		−0.024		−0.024	*
	(1.20)		(-0.77)		(-0.90)		(-1.82)	
Diversification	−0.004		−0.007		−0.008		−0.008	
	(-0.17)		(-0.34)		(-0.39)		(-0.70)	
Leverage	0.310	***	0.286	***	0.288	***	0.288	***
	(12.87)		(13.33)		(13.44)		(23.06)	
Liquidity	−0.020		−0.007		−0.007		−0.007	
	(-0.95)		(-0.37)		(-0.38)		(-0.66)	
Asset Growth	−0.012		0.008		0.009		0.009	
	(-1.12)		(0.97)		(1.06)		(1.11)	
Dividend Pay	−0.255	***	−0.210	***	−0.211	***	−0.211	***
	(-11.14)		(-10.26)		(-10.32)		(-17.80)	
Time Dummies	Yes		Yes		Yes		Yes	
Industry Dummies	Yes		Yes		Yes		Yes	
Adj. R^2	0.501		0.590		0.596		0.596	

*p < .10, **p < .05, ***p < .01
All VIFs are lower than 10

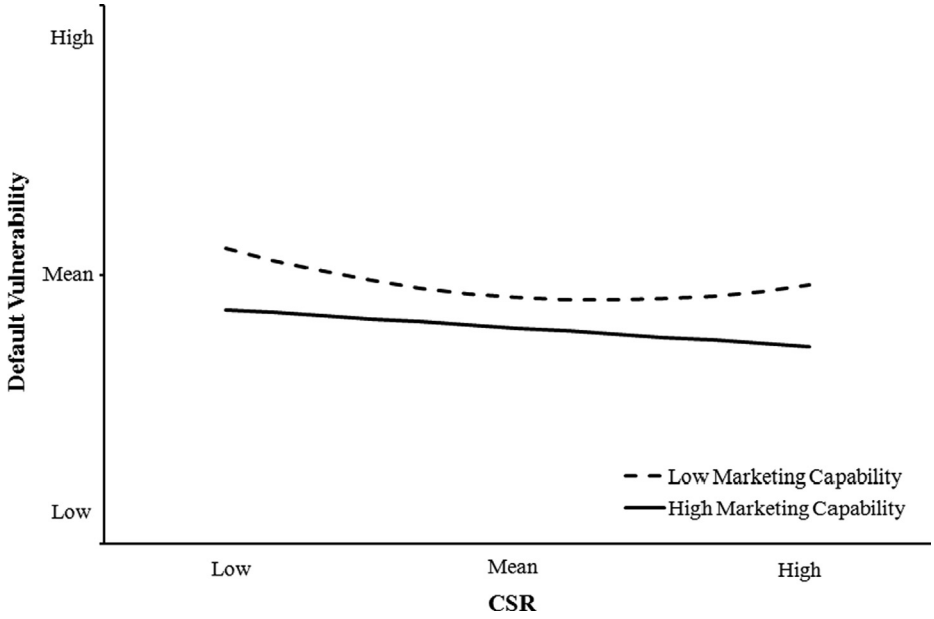

Fig. 2. The Curvilinear Moderation of Marketing Capability on CSR and Default Vulnerability.

capability. Its inherent positive feature leads to the different effectiveness of launched firm strategies. This notion further stresses the protecting power of firm capability in addition to the "insurance-like" asset view of CSR. The combination of marketing capability and CSR can render an essential form or protection on firm's performance stability.

Our research also contributes to furthering the knowledge of risk management. Researchers in business areas are increasingly interested in finding proper firm or environment factors that may mitigate firm uncertainties. In this research stream, the scope of investigation has deepened the theories. On the explanatory factor side, more antecedents need to be considered, and on the outcome side, more risk measurements need to be studied. Our research adds insights in this regard because we not only consider the interplay of CSR and marketing capability in this realm, but we also examine firm CFV and default vulnerability; thus our research contributes to create a more comprehensive view of firm risk management involving both social and marketing competencies.

4.3. Implications for practice

Studying CSR's effects on firm performance can render useful guidelines for managers because managers often face the dilemma about the resource deployment. A deep understanding of CSR's role helps managers justify the decisions of launching CSR projects. Although the increasingly popular recognition of CSR strengthens the standpoint of adopting CSR initiatives, managers should not neglect the dark side of CSR. As illustrated by our results, CSR displays a salient U-shaped influence on firm cash flow uncertainty. This nature of CSR is of particular importance for managers because they often pay attention to the outcomes that are more visible and easier to obtain, such as revenue and profitability. However, the performance turbulence may bring profoundly negative results to the firm by disturbing firm strategic planning, disrupting normal marketing activities, and lowering the confidence of key stakeholders. Therefore, CSR's tendency of increasing firm CFV should be carefully tracked when managers decide to further their CSR engagement. Proper risk management instruments should be accompanied with the high level of CSR commitment in the decision making process. Marketing capability, thus, is one of the preferable tools to help the firm in this area.

In practice, firm managers tend to perceptually segregate marketing and CSR because on the surface they are serving different target groups. Even some managers realize the possible overlap between these two firm activities, the operations are still largely separated due to the distinct strategic making techniques as well as departmental assignments. Yet, our research strongly suggests that managers should build a much stronger view of combining CSR and marketing in order to achieve smooth financial performance. Specifically, public relation managers should actively seek support from marketing sector regarding encoding CSR into marketing processes. If CSR is handled independently, competitors may follow or conceive counting strategies that may soon neutralize the beneficial results of CSR to the business performance, and thus it lacks the ability to bring sustained competitive advantages. This mechanism is one of the main reasons that a high level of CSR involvement will quickly drive up performance turbulence because it cannot sufficiently protect the firm and is more and more vulnerable to external attacks. Importing marketing support, therefore, becomes an ideal solution because marketing capability is inherent to a firm and is equipped with operations and social complexity. If CSR is supported by firm marketing-side competency, its power can be sufficiently sustained and enhanced (e.g., Home Depot and KABOOM!). This indicates that our research can guide managers who are eager to manage firm risk with a unique and statistically confirmed approach. The high and low marketing capability draws surprisingly different pictures of CSR's roles to the firm. Furthermore, the support of marketing not only facilitates CSR's implementation but also assists the CSR planning at the earlier stage. A high marketing capability firm can detect, analyze, and disseminate abundant market intelligence and therefore create a solid basis for other functional departments' decision. CSR can directly benefits from this aspect for two reasons. First, CSR activities can be more precisely pinpointed to the intended target people group due to the deeper knowledge about the external environment through the marketing. Second, the contribution of CSR to business can be more visible and measurable from market feedback and therefore top management can be more likely to convince of the need for a future CSR commitment. These benefits create a cross-department synergy and induce a positive loop for the firm to support social welfare.

Our research also extends the vision of managerial view of performance. Shareholder value is always treated as the fundamental goal of the firm and thus managers tend to directly link their strategies to shareholder value. However, this view of firm goal often obscures managers' strategic clarity because before they look at the fundamental goals, they need to first focus on the more immediate outcome of their actions, such as the uncertainty of incoming cash flow. Taking this view of strategic outcomes has at least three noticeable benefits. First, the uncertainty of income flows adequately summarizes the strategic competency of firm management and thus is able to provide prompt feedbacks to managers. For example, our research demonstrates how CSR escalates CFV when it is not protected by a strong marketing side capability. Second, CFV is a strong determinant for other performance sectors of the firm. For example, in our default vulnerability model, high CFV is strongly associated to a firm's likelihood to fall in default. Therefore, in order to achieve more fundamental performance goal such as better default situation, firms must first manage towards smoother income flows. Among all the options, our research considers a combination of CSR and marketing capability and shows how they jointly and complementarily serve the goal. Third, CFV represents the synergy level between the firm and its external environment that provides a meaningful indicator that shows the fit between the firm and stakeholders. High CFV not only leads to the lower confidence from key stakeholders such as shareholders and debt holders, but it also functionally disrupt the firm strategic effectiveness and thus further drives down stakeholders' evaluation, which will finally translate to unwillingness to support the firm. This negative loop, once established, will fundamentally harm the internal operations as well as the external relations of the firm. From this angle, our proposal of the synergy of CSR and marketing capability provides a preferable solution that can protect the firm's performance integrity.

5. Limitations and future research directions

This study aims at cash flow-based turbulence due to the specific merits of selecting this construct. However, the firms may have a number of other outcomes that are emphasized by managers regarding the stability (e.g., market share, customer satisfaction, and competitive positions). In this sense, our paper only generates a partial picture of the instability and it should be recognized that all of the outcome types have different sets of antecedents and effects, and therefore they should be carefully examined in new research settings. Future researchers can further explore CSR's new effects on the additional performance volatility types.

In the current study we only examined the moderating effect of marketing capability. However, there are a number of other firm capabilities such as operations capability, technological capability, and value chain management capability, amongst others. Future researchers can explore these firm capabilities regarding their effects on CSR. These endeavors will be meaningful because marketing capability only represents a specific functional area but a full understanding on CSR's joint power with firm capability must be complemented by the additional studies involving capabilities from other firm functional areas.

This paper is positioned to reveal the U-shaped power of CSR. However, there is an emerging calling for more detailed understanding

on its counterpart, corporate social irresponsibility, which has been looked as a fairly different construct than just a mirrored notion of CSR (Murphy & Schlegelmilch, 2013). In this sense, modeling the interactions between corporate social irresponsibility and marketing capability (along with other firm capability types) will yield very interesting insights and useful implications for both academic researchers and business managers.

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