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CORPORATE SOCIAL RESPONSIBILITY AND FIRMS CREDIBILITY: A COMPARATIVE STUDY OF FAMILY AND NON-FAMILY FIRMS; EVIDENCE FROM PAKISTAN STOCK EXCHANGE

Kanwal Ikqbal Khan [1]
Ayesha Mushtaq [2]

Abstract

Corporate violations have drawn the attention of scholars and business analysts in the last decade. Although regulations regarding CSR practices prevail, yet organizations are reluctant in their implementation as it is perceived costly, thereby neglecting its long-term institutional benefits. The current study bridges the gap between application of CSR practices in a firm and its impact on market credibility. Further, the study also addresses seven dimensions of CSR in measuring its magnitude to retain the market credibility, reducing information asymmetry and enhancing a firm's loan accessibility. The study focuses on the non-financial firms listed at Pakistan Stock Exchange from 2009 till 2018. The results confirm that CSR practices enhance firms' credibility. Further, the comparative analysis demonstrates that family firms that are older, bigger in size, maintain low cash holdings and financial leverage, are risk aversive, having high asset tangibility due to their involvement in CSR practices than non-family firms. Managers and shareholders may use these results to publicize CSR in order to create more opportunities for financial accessibility which is further beneficial for making informed investment decisions yielding higher profits.

Keywords: Corporate Social Responsibility Practices, Market credibility, Information Asymmetry and Family firms

JEL Codes: G32,I31,L25.

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1. Assistant Professor, Institute of Business & Management, University of Engineering & Technology, Lahore, Pakistan Email: kanwal.khan@uet.edu.pk
2. Research Scholar, Institute of Business & Management, University of Engineering & Technology, Lahore, Pakistan Email: ayeshamushtaqkhan78@gmail.com

1. Introduction

In recent times, great attention has been drawn by World Leaders and Young activists on the subject of environment protection, preservation and public involvement towards social responsibility (Michelon, Rodrigue, & Trevisan, 2019). The concept of CSR comprises of all such governmental and individual concerns. The CSR is not merely about active engagement towards social causes rather it is the impact caused by the countermeasures which are taken to eliminate such inadequacies. The CSR impacts similar to a snowball effect; as it descends down it transforms massively affecting all the fragments of the society resulting in well-being of the society and community at large. Recently, Forbes 2018 listed CSR scores of all the businesses across the globe on their CSR involvement and practice. Among them the highest scores were achieved by Corporate Giants like Apple, Microsoft, E-bay and Facebook; a CSR score of five (5), followed by the rest for instance Google and Wal-Mart with a CSR score of four (4).

Prior literature showed that in the last decade, many concerns regarding corporate transparency and social responsibility has arisen; these concerns are mostly due to past accounting scams and information misrepresentation (Khosroshahi, Rasti-Barzoki, & Hejazi, 2019). The fraudulent reporting and accounting scams results in loss of trust, reputation and a decline in market share. Since then, corporations have focused more on infusing greater information disclosure, clarity and accuracy into their communication with stakeholders (Christensen & Cheney, 2014) which results in greater public consideration. Previous studies demonstrated that firms practicing ethical business practices are more transparent in terms of their policies than others reflecting less information asymmetry (Guiso, Sapienza, & Zingales, 2015).The accurate information disclosure of such firms results in retaining stakeholders trust and confidence which leads to lower cash holdings (C.-H. Chang, Chen, Chen, & Peng, 2019). In this regard, the Sarbanes Oxley Act 2002 serves not only as a repercussion to corporate crime but also induce firms towards CSR activities (Angie Chung & Kang Bok Lee, 2019). Now firms are more involved in social activities like corporate governance, community service, environment protection, human rights, and developing good employee relation to create good market image that makes them more credible (Muhammad Shahid ullah & Mutakin, 2019).

CSR includes all socioeconomic activities that assist businesses in expanding their due market share (Jain & Jamali, 2017). CSR in financial and non-financial markets, as measured by, CSR scores or indexes, varies significantly over sectors and in a correlated manner across industries. A number of research studies examine empirically whether ethical component of businesses (CSR) is a profit-driven factor: are firms observing high profits ascribed to their engagement in CSR activities (Venkatesh, Mathew, & Chaudhuri, 2020). The literature has found ample evidence on CSR activities indicating it as a source of retaining market credibility (Maiorescu-Murphy, 2020). Yet, an adequate evidence for CSR; as a credibility factor is limited. This study must address, in particular, why firms engage in CSR activities, how CSR activities aid firms in credit accessibility and lastly, how CSR activities as credibility-function boosts firm’s information symmetry?

An emerging line of research addresses these concerns by investigating the impact caused by CSR activities on stakeholder's acumen. Jingyu et al., (2019) argued that stakeholders explicitly investors prefer those firms which are more engaged in CSR activities. Hence, firms which are more active in CSR activities significantly draw greater public attention. Helen Brown et al., 2018 allege a positive link exists between CSR and firms solvency; which is further debated by (Lee, Zhang, & Abitbol, 2019) in his research that CSR practicing firms are creditable among stakeholders.

While there has been more attention in the literature, measures regarding evaluation of CSR activities, a few studies have investigated only certain aspects related to CSR activities. For instance, (Barrena-Martinez, López-Fernández, & Romero-Fernández, 2019) examines the CSR activities on the basis of only five dimensions out of seven. Subsequently, CSR activities are measured by CSR index and its effect on firm's value has been explored. The author concludes that results are inconsistent as the computed CSR index does not take into account all the aspects related to CSR.

The paper contributes to the primary line of research on the benefits and costs of symmetric information moreover the impact of CSR activities on firm external financing accessibility (Crisóstomo, de Souza Freire, & Freitas, 2019) by providing evidence on how actively CSR practice can assist firms in making loan accessible reflecting firms fulfillment of promises made towards their respective stakeholders. (Flammer, 2015) demonstrate that the adoption of CSR practices is value enhancing. The possible reason is that firms highly engaged in CSR activities have a stronger reputation and an esteemed position in the market, thereby attracting whole lot of investors signifying greater public trust. (Lins, Servaes, & Tamayo, 2017) suggest that stakeholders perceive high CSR firms as more trustworthy in fulfilling their legal obligations towards their stakeholders than the low CSR firms. (Martínez & del Bosque, 2013) examination of business group affiliation demonstrated that family businesses engaged in incorporating CSR activities have a greater market share and value which yields in higher returns. Yet there remains limited evidence regarding how high CSR practicing firms are more prone to loan accessibility while retaining their market credibility. To the best of our knowledge, our study is one of the first to establish a causal link between CSR activities and loan accessibility, results in reducing firms' operational costs (Information Asymmetric costs and cash holding costs).

Our findings suggest an important motive for firms to retain information symmetry, to ensure corporate transparency making loan accessible which results in optimal financial decision choices. Furthermore, our results also suggest that by mitigating firm's information asymmetric costs, the effect caused by both internal and external financial indicators on firm performance and its market position can also be controlled to some extent.

The rest of the paper is distributed as follows: the section-II consists of the literature review, section III research methodology, section IV data collection and analysis and lastly section V contains implications of the study followed by its limitations.

2. Literarure Review & Hypothesis Development

2.1 Corporate Social Responsibility

CSR is a powerful tool to unveil the concealed agendas in organizations in any developing country. Fundamental token philanthropic gestures have recently extended and industrialized into the mainstream corporate plan. CSR is now becoming embedded in firms practice and is not just perceived as an altruistic burden but as creating sound business sense and for providing a chance to achieve a premeditated competitive advantage (Xia, B and Liu, Y., 2018).

CSR includes not only firm's legal and economic obligations but also certain social responsibilities which extend beyond these obligations (Wood, 2018). Literature provides us with the evidence of multiple concepts regarding the understanding of CSR. (Fallback and Hebraic 2017) elaborated CSR as the obligations of businesses to pursue their policies to make such decisions, or to follow those lines of actions which are desirable in terms of objectives and values of the society. The literature also demonstrated that the concept of CSR has also been opposed as well by a well-known economist Milton Friedman who argued that social issues were not the concern of a capitalist as his concern is seeking higher profits resulting in shareholders wealth maximization. Later on, the concept of CSR was advocated by Mackerel & Bauer, (1976) stated that CSR emphasizes on motivation rather than performance.

Various schools of thoughts prevail among institutions and scholars regarding CSR have been proposed (Archie B. Carroll, 2012; European Commission, 2011: World Business Council for Sustainable development, 1999, 2015), classifying CSR into three broad categories ESG namely environmental concerns, social responsibility and corporate governance. Both environmental concerns and social responsibility further comprise of four specific dimensions including community, product, human rights and employee relations (Folk. 2016), while corporate governance has been recognized as a distinct dimension consisting of managerial obligations to take such actions which protects and improves the welfare of the society (Davis and Stromboli, 1975). The definitions of CSR dimensions are shown in the table attached in the appendix.

2.1.1 Overview of Global CSR Regulations and Guidelines

After describing the subject matter, it is important to point out the universal doctrine reflecting to CSR, which was created as an ethical or moral issue of corporate behavior is received by the regulations documented in the UN charter for Human Rights. The UN charter for Human Rights laid the foundation for businesses across the globe serving as a preemptive for CSR guidelines. The preliminary guidelines are as follows: (1). Businesses should support and respect the protection of internationally proclaimed human rights within the scope of their influence. (2) Business should be certain that they are not complicit in human rights abuse. (4) Businesses should uphold the elimination of all forms of forced and compulsory labor. (5, 6) businesses should uphold the abolition of child labor and discrimination biases. (8) Businesses should undertake initiatives to promote greater environment responsibility. The aforementioned guidelines are adopted by corporate giants across globe including Microsoft, Alibaba and E-bay operating in US and

UK (Kwak, Zhang, & Yu, 2019). With the evolving times, these guidelines have been rectified and ameliorated as globally attention has been shifted from profit seeking mindsets to altruistic mindsets.

Observing CSR regulations from western to eastern part of the world; the financial and non-financial sectors of Bangladesh stock exchange provide assistance to diverse groups, state beautification and aids in patronizing cultural events (Chowdhury, 2018). Likewise, the Tata Motors and the Reliance Industries of India focuses on empowerment through girl child education and providing advanced medical facilities to visually challenged people (Kumar, 2019). The focus of companies viewed as a responsible citizen of the state as the power or obligation dictated to them by the Constitution of Pakistan (1973) under Article 38 urges them to play their due role in social upheaval. In the last decade, many businesses in Pakistan are focused on their social responsibility for instance, Nestle Pakistan and DG khan Cement focus on spending a share of their annual earnings on important causes like child education and health (Ahmad & Khan, 2019). In relation to the earnings component the clause 135 of the companies bill (2013) states that it is mandatory for companies with revenue greater than $200 million or net worth corresponding to $100 million to spend 2% of average profit from last three years towards CSR activities.

2.1.2 Corporate sector outlook on CSR

Corporate sector views CSR whole differently as it is more engaged in CSR activities due to multiple benefits, prior to be viewed as a cost or constraint to the organization. However, in the last decade it has proved to be a source of opportunity, innovation and competitive advantage (Michael E.Porter and Mark R Frames, 2006). There are numerous reasons underlying organization motivation for engaging in socially responsible endeavors. First, firms may have altruistic intentions, to work for the welfare of the community as a whole and to be a part of good global citizen chain. Secondly, firms engaging in CSR activities believe that such activities assist them in retaining a good public perception (Kim et al., 2013) that consequently, helps to recruit, motivate and retain employees (Geoffrey et al., 2010). Thirdly, CSR activities help firms in attracting greater customer share due to their market credibility (Martinez et al., 2013). Fourthly, firms practicing CSR focus more on environmental concerns which leads to reduction in production costs (Landal et al., 2010). And lastly CSR is viewed as an integral part of a company's risk reduction efforts. CSR serves as an effective lever in easing legal or regulatory constraints. Furthermore, it also reduces the chances of lawsuits and damage to the firm's reputation (A Stitch, 2006).Further research is needed on the implication of CSR in non-financial corporate sector (Malik & Kanwal, 2018) and its influence on the decision making of shareholders-managers which is the scope of the current study. Thus, present study demonstrates all of the seven dimensions related to CSR by analyzing the following sub-dimensions: transparency, support for education and housing, environment protection measures, labor rights, anti-discrimination measures, employee engagement, superior quality of products and social concerns. Furthermore, this research also focuses on the consistent activities of socially responsible firms in contrast to non-socially responsible firms of all the listed non-financial organizations at PSX. Consequently, present study highlights the dire need of CSR practices in underdeveloped countries like Pakistan.

2.2 CSR and credibility

The concept of CSR has risen to unprecedented popularity throughout the global business community during the last decade (Melanie et al., 2019); which is assumed as persistent measures taken by businesses to work for the well-being of all its stakeholders. Jones (2018) argued that firms strongly committed to CSR retain credibility, trust and cooperative relationship with their stakeholders (Chang & Sheng-Cyan Chen, 2019) which results in attaining competitive advantage (Jingo Bon-Kim et al., 2018). Previous studies on CSR have confirmed that a nexus exists between CSR engagement and corporate credibility (E Baraza Die et al., 2017).Mostly revealing positive relationship between credibility and CSR practices (Kim, Li et al. 2018). The advancing CSR practices in the corporate sector helps in attracting en-bloc of investors because of high credibility factor. The credibility analysis conducted by (Ran Bhang & Hezbollah Freezable., 2018) by computing corporate credibility index CCI stated that corporate credibility is positively correlated to CSR activities (Ba, Chang et al. 2018). Ran Bhang (2018) reported that 50.4% of firms have high CCI scores while the rest 40.9% have low CCI scores. Based on these CCI scores the performance with respect to firm's reputation in the market can also be measured. The high corporate credibility index score is a reflection of firm's high reputation in the market both in the eyes of its suppliers and investors as well as customers. The firm with high CCI score attracts en-bloc of investors both institutional as well as individual.

Prior literature demonstrated that CSR is the most scrutinized topic in the field because it is supposed to benefit not only corporations but also other stakeholders (Melanie et al., 2019). The concept of CSR dates back in 1953, where this concept was introduced for the first time by Howard Bowen. However with evolving times, the need for CSR practices became more important that is why companies have advocated for the concept of CSR in the last decade. The majority of CSR related studies compared it with credibility or public trust (Wu 2019) and has demonstrated a positive or neutral relationship with CSR activities. A detailed analysis conducted by Wen et al., (2019) on the effectiveness of CSR activities coupled with other factors in measuring the credibility of CSR practicing firms. The results state that a positive association is found between CSR and firms credibility. Recent studies demonstrated that social responsibility and credibility are not dichotomous mutually exclusive concepts rather they are interlinked (Chan, Gargantuan et al. 2019). Moreover, (Wen et al., 2017) argued that generally being good should lead to appear good but the results state otherwise. For instance, if a firm practicing CSR is carrying out more philanthropic activities; signifying that specific firm is doing well but the public perception might state otherwise. This difference in perception might be caused by false media coverage, which not only reclines firms performance in the stock market but also abates market share.

H1: CSR practicing firms are significantly credible than non-practicing firms

2.3 CSR and Loan Accessibility

Salia et al., (2018) documented that financial access and management are both distinct from one another; former concept refers to the possibility that individuals or enterprises can access financial services whereas the latter concept emphasizes on its control. Since post-Enron era firms have been striving in accessing and generating more sources of finances from external sources while retaining their credibility due to increase public distrust (Kreft, 2019). Since then firms have been incorporating such ways into their business operations to retain their market credibility and confidence which has been an arduous task. For that firms are more engaged in social and philanthropic activities in order to retain their market credibility. The pecking order theory of the capital structure demonstrates that aids firms in prioritizing their choice of finances both internal and external for their capital expenditure stating that the foremost choice for finance is the internal source then the external sources.

Tan (2018) argued that the connection between CSR and financial accessibility is influenced by the level of national partner direction. The study highlighted the following findings: First that nations with better CSR application and performance are more credible as the default risk is less likely to happen which favors lower credit costs in more partner situated nations than are their partners in less partner arranged nations. Secondly, this analysis adds to the extant literature on CSR by featuring the significance of national institutional conditions in deciding the performance related outcomes of CSR practices.

Sylvia et al., (2019) comprehends the impetus behind conducting this research on the concurrent connection between CSR and the executive's income in banking industry via two intermediaries to quantify earnings management: credits misfortune arrangement and security acknowledged additions and misfortunes. Though to gauge CSR, they utilized the aftereffect of substance examination dependent on agenda created utilizing GRI 3.1. The outcomes demonstrate that there is a synchronous connection between non-vital social obligation and income the executives in banking industry, which are commonly beneficial outcome. In any case, they don't locate any concurrent relationship of key CSR and profit the board. They just archive one direct affiliation which is board's income influencing vital social obligation, though vital CSR does not have any noteworthy relationship with profit the executives are seeking.

Former studies revealed that firms observing market frictions may avert them from funding a desired investment project. The firms inability to obtain external finances may be due to credit constraint, inability to issue equity or illiquidity of assets (Ojikutu et al.,2017).Prior studies revealed that capital constraints can lead to lower profits (Stein, 2003), consequently due to descending stock market performance. Prior studies also revealed that firms engaging in CSR activities face lower capital constraints (Beiting Cheng et al., 2015) resulting in more investments and attainment of goodwill among its stakeholders. The analysis conducted by (Beiting Cheng et al., 2015) comprised of computing KZ index which serves as a measure of capital constraint. Despite KZ index, SA index (Hadlock & Pierce, 2010) and WW index (Whitted & Wu, 2008) were also employed as a capital constraint measure. The results suggested that CSR practicing firms get easier access to external finances than non-practicing ones because of strong market position.

H2: CSR practicing firms have significant access to finances than non-practicing ones.

2.4 CSR and Information Asymmetry

Recently, relative studies have addressed the component of transparency within CSR (Low and Siegel 2019), moving the research focus from the well-examined question of ensuring transparency in firms including both large and small medium enterprises to the sole concept of CSR. The role of transparency specific to CSR which was restricted to accountability and openness has been moved to the fore, suggesting that implicating such policies reflects good corporate governance which is a subset of CSR. However, understanding the cost impact on firm finances of possible transparent policies and measures (das Neves & Vaccaro, 2013), is still blurred.

Few empirical studies (Kaal, 2019) attempted to address the problems related to high information asymmetry that is the costs associated with it are also likely to rise. Only the impact on cost due to high information asymmetry was considered in this study, implicating that the firm having high information asymmetry has higher costs, this postulate is consistent with the theory of information asymmetric. In economics, the theory of information asymmetry is a subset of the contract theory (1960's) which postulates that the information asymmetry is considered in the context of agency problems; which results in increasing information asymmetric costs. High information asymmetric costs indicate multiple problems such as low transparency is being retained by the management and higher agency conflicts leading to higher agency costs which occur due to mismanagement according to the agency cost theory.

Prior literature demonstrated that CSR performance results in information symmetry. Cui et al., 2018 argued that CSR and information asymmetry are empirically associated. And for that multiple proxies have been used in the literature for measuring information asymmetry (Amihud 2002). Yet (Coën and de La Bruslerie 2019) managed various firm characteristics while finding out the relationship between CSR performance and information asymmetry. This study highlighted the following findings: First, the CSR and information asymmetry connection is enhanced in high hazard firms because of director's endeavors to assemble a decent notoriety. Secondly, the CSR commitment is contrarily connected with reputation hazard measure and lower anticipated estimation of reputation risk is decidedly connected with lower data asymmetric measures. These findings are consistent with the stakeholder's theory considering CSR engagement as a measure to build and maintain firm reputation consequently enhancing the information symmetry.

Cheung 2018 located that both positive and negative CSR execution reduces information asymmetry. In addition, he found out the impact of negative CSR execution is a lot more grounded than that of positive CSR execution in diminishing information asymmetry. Furthermore, the impact of educated financial specialists on the CSR execution-asymmetry connection was also analyzed. He found out that the negative relationship between CSR execution and offer approach spread abatement's for firms with an abnormal state of institutional financial specialists contrasted with those with a low degree of institutional speculators. This finding recommends that educated speculators may abuse their CSR data advantage. By and large, these outcomes recommend that CSR execution assumes a positive job for financial specialists by diminishing information asymmetry and that administrative activity might be fitting to relieve the antagonistic choice issue looked by less-educated speculators.

(Attig, El Ghoul et al. 2013) observed that firms engaging in CSR practices are more likely to disclose the information related to their CSR and other practices than the rest consequently making them more transparent in nature. Researchers have empirically proved (Jinhua Cai & Hoje Jo, 2016) an association between CSR activities and information asymmetry by investigating their simultaneous and endogenous effects. For this regard, multiple proxies have been utilized to investigate the effect of information asymmetry; first, the spread is used as a proxy for information asymmetry. The bid-ask spread is based on the dynamic panel system generalized method of movement GMM (Blundell & Bond, 1998). Second, Amihud's (2002) price impact measure was used defined as daily price response associated with 1$ of a trading volume.

And lastly dispersion is utilized which represents the annual average of monthly dispersion of analysts' forecasts of the current fiscal year EPS available up to the given month, scaled by the absolute value of mean forecasts dispersion of analysts' forecasts. According to (Zhao et al., 2018) dispersion means difference in the investors opinion. A combination of time series and cross-sectional panel data a sample consisting of 15,700 firms from year 1991-2010 was used. All these proxies were used as a measure of information asymmetry which leads to the following findings more transparent firms tend to reduce information asymmetry between firms and its stakeholders as evident by a research conducted by Ojikutu et al., (2017). The results suggested that due to transparent policies adopted by CSR practicing firms, the magnitude of information asymmetry is low.

H3: A relationship exists between firms information asymmetry and CSR activities.

2.5 CSR and Cash Holdings

CSR practicing firms are less susceptible to methodical hazard because of more noteworthy reputation in the market (Scherer, 2018). Lower methodical hazard may increment or lessen cash holding. Albeit low methodical hazard initiates firms to diminish their cash holdings, it additionally instigates firms to hold a short obligation development structure, with higher renegotiating dangers that higher money property may relieve. The organization perspective on CSR contends that settled in administrators in a firm with solid corporate administration may utilize CSR exercises to intrigue with partners so as to get higher administrative tact (counting money) to extricate private advantages. In any case, the corporate administration job of CSR suggests that CSR is additionally successful in lessening the office issues related with the money property choice. They set up the constructive outcome of CSR on money property by means of the efficient hazard channel is vigorous, while the impacts of CSR by means of the other two channels are definitely not. These discoveries are strong to various estimation strategies and elective proportions of money possessions, CSR, dangers and corporate administration.

(Lu, Kozak, Toppinen, D'Amato, & Wen, 2017) documented whether CSR reports address the issues related to increments in real money property. They found out that the issuance of an independent CSR report expands the minimal estimation of cash holding and this impact is directly linked with higher information symmetry. The outcomes propose that data in CSR reports can encourage checking and consequently actuate progressively effective utilization of cash holdings.

(M. J. Chang et al., 2016) argued that CSR engaging firms employ cash reserve as a commitment tool to fulfill their obligations towards their stakeholders. The prevalence with which these commitments are fulfilled depends mostly on stakeholders expectations (Silva, Nuzum, & Schaltegger, 2019). The expectations level reaches beyond the standard, results in higher satisfaction among firm's stakeholders. Additionally, the financial distress acts as an indicator of stakeholder's satisfaction, firms' liquidity, capital constraint and market performance. Research conducted by (Golmakani & Fazel, 2011) suggests that financially unconstrained firms have high CSR engagement due to large cash reserves. Recently, (Chae & Park, 2018) investigated the hybrid role of cash holdings in fulfilling stakeholder's commitment and in determining firm's liquidity. The ratio of cash and short term investments to book value of assets was used as a measure of cash holding. For estimating the value of cash (Faulkender & Wang, 2006) model was employed. The findings revealed that cash holdings due to active CSR engagement of firms moves in a parallel direction. Moreover, the results suggested that CSR practicing firms are less financially constrained leading to low cash holdings.

H4: There is a significant relationship between cash holdings and firms engaging in CSR activities.

2.6 Credibility and Information Asymmetry

Theoretically, two opposing views emerge as crucial to the discussion regarding public trust and transparency of socially responsible firms in the corporate sector. The first view is supported by the stakeholder's theory (Ian Mitroff, 1983) which illustrates that a firm is bound to work for the welfare of all its stakeholders. In accordance with this theory, a firm engaging in CSR activities influences more customer retention than non-CSR practicing firms (Wilkinson et al., 2016). Contrarily, the second view is advocated by the information asymmetric theory which elaborates that CSR aids firm in maintaining transparency (Carnevale, Mazzuca, & Venturini, 2012).

The transparent policies adopted by businesses reflect effective internal control. Besides (Lyon & Maxwell, 2011) argued that firms exercising CSR practices timely disclose information which helps in increasing earnings quality. Such timely information disclosures and improved earnings quality increase firms' transparency, which, in turn, reduces information asymmetry and consequently increases firm's credibility (Clarkson et al., 2018).

Moreover, Brown et al., 2007 examined the two potential components through which divulgence quality is required to lessen data asymmetry: (1) changing the exchanging motivating forces of educated and clueless financial specialists so that there is moderately less exchanging by secretly educated speculators, and (2) decreasing the probability that speculators find and exchange on private data. The outcomes demonstrate that the negative connection between revelation quality and data asymmetry is basically brought about by the last system. While data asymmetry is contrarily connected with the nature of the yearly report and speculator relations exercises, it is emphatically connected with quarterly report divulgence quality. Moreover, this examination guess and find that that the negative relationship between revelation quality and data asymmetry is more grounded in settings described by larger amounts of firm-financial specialist asymmetry.

Helland (2007) investigated the outcomes of bordering a symmetry gathering to a factual model. Gathering activities are first instigated on the example space, and after that on the parameter space. It is contended that the correct invariant measure prompted by the bunch on the parameter space is a characteristic non-instructive earlier for the parameters of the model. The allowable sub-parameters are presented, i.e., the sub parameters whereupon gathering activities can be characterized. Equivariant estimators are comparably characterized. Circles of the gathering are characterized on the example space also, on the parameter space; specifically the gathering activity is called transitive at the point when there is just one circle. Believable sets and certainty sets are appeared (under right invariant earlier and accepting transitivity on the parameter space) to be equivalent when characterized by passable sub-parameters and built from equivariant estimators. The impact of various decisions of change gathering is outlined by models, and properties of the circles on the example space also, on the parameter space are examined. It is contended that model decrease ought to be obliged to one or a few circles of the gathering. Utilizing this and other characteristic criteria and ideas, among them ideas identified with plan of tries under symmetry, prompt joins towards chemo-metrical expectation strategies and towards the establishment of quantum hypothesis.

H5: There is a significant relationship between credibility and information asymmetry of CSR practicing firms.

3. Descriptives

The summary statistics of this study involves the descriptive statistics of all the variables which include the Mean, Standard Deviation, Skewness, Kurtosis and number of observations. Furthermore, skewness and kurtosis values yield that data has observed normality problems which has been further confirmed by conducting panel data assumption tests extrapolating that the problem of heteroscedasticity exists. The extreme outliers were detected which lead to the problem of hetroscedasticity. The descriptves and correlation after winsorization are shown in the table below.

4. Correlation

The table shows the correlation of all the respective variables with the variable of interest, the measure of credibility, loan accessibility and cash holdings are highly correlated with the CSR activities, while information asymmetry is negatively correlated. The mean value of z-score for CSR firms is 1.91 and that for non-CSR firms is 1.632, which means that the z-score for CSR firms is high, i.e. they are more stable. The difference between the two groups of firms is statistically significant as indicated by the t-test value of -2.351 and Wilcoxon t-test value of -2.259. Since that t-values are greater than 1.95, the corresponding p-values are less than 5%. The mean value of cash holdings for CSR firms is 0.055 and that for non-CSR firms is 0.034, which means that the cash holding for CSR firms is high, i.e. they are more stable as such firms are reinvesting and regaining more than their counterparts. The difference between the two groups of firms is statistically significant as indicated by the t-test value of -4.594 and Wilcoxon t-test value of -4.885.

All the performance indicators including net profit ratio, return on assets and price earnings ratio are positively c orrelated with CSR index, the return on assets, earnings per share and price earnings ratio of CSR practicing firms are 0.024, 2.73 and 16.493 times more than non-practicing firms which reflects that CSR practicing firms have sound performance than their counterparts.

Among growth and risk indicators, sales growth and market to book ratio is highly correlated with CSR whereas, earnings volatility is negatively correlated. Comparatively, a significant growth of 5.6% has been observed in firms practicing CSR while 5% growth has been observed in non-practicing firms.

The Firm characteristics including firms Age and Quality are negatively related to firms CSR activities while CSR activities showed a positive relation with firms size. Greater firms size suggests that longer such firms are involved in CSR activities.

The CSR activities are positively related to Financial Market Indicators including Interest Coverage ratio, tax ratio and credit ratings, while negatively related to firms financial ratio. Indicating that CSR practicing firms attain a firm position in the market due to their credibility as compared to non-practicing firms.

CSR activities are positively related to regulation and median industry growth while negatively related to median industry leverage. Lastly, CSR activities are negatively related to the economic indicators. Comparatively, the CSR practicing firms are performing well in terms of their market position, firms internal position and growth as the difference between these two group of firms is statistically significant as indicated by the t-test values which are greater than 1.95 and the corresponding p-values which are less than 5% except for book and median industry leveraaged.

4.1 Tobit and Probit Regression

As CSR our dependent variable is censored, we apply TOBIT regression models in the first instance,the TOBIT regression model (Tobin 1958) is commonly used in studying cases of censored data. If the values of the dependent variable in some of the observations are grouped at a limiting amount, which is commonly zero, TOBIT regressions become more powerful than other regressions, since they make use of all observations regardless of whether they are at the limit or above. This distinguishes the TOBIT regression from other regressions that estimate the best fit only based on values which lie above the limit (McDonald and Moffitt 1980).

The TOBIT model equation is formed as follows:

$yt=Xt\beta+ ut$ if $Xt\beta+ ut>0=0$

If $Xt\beta+ ut\leq 0$

t=1,2,⋯,N

where N denotes the number of observations; y t denotes the dependent variable at time t; X t denotes the independent variables at time t; β are the coefficients, and ut represents the error term (McDonald and Moffitt 1980).

The results of the Tobit model suggests that the coefficients for credibility and cash holdings are statistically significant whereas information asymmetry and loan accessibility are insignificant and unable to explain the relationship with the dependent variable. The number of observations are 2931 (2565 are right censored and 366 are left censored) as outliers were detected in data through histogram which were later on treated through winsorization. Furthermore, among the control group variables earnings volatility, age, market to book, market leverage and median industry leverage showed a significant relation with the dummy variable. While the rest observe no relation with the dummy variable

The results of the probit regression demonstrate that a significant and positive relation exists between credibility and cash holdings of firms involved in CSR practices. Insignificant relation has been observed of the dummy variable with information asymmetry and loan accessibility.Among the control group variables some have observed including sales growth and market to book ratio a positive and significant relation with the dummy variable. The pseudo R square for probit is less as compared to tobit, whereas, the AIC and BIC both are lower for tobit regression as compared to probit suggesting that tobit model is of higher quality as less information has been lost.

4.2 Study Contribution

The study offers threefold contribution to the Corporate Finance and CSR literature. First, it attempts to examine empirically how CSR activities aid firms in retaining market credibility. A complete, comprehensive overview of all the CSR dimensions used in the non financial market is presented including good governance policies, employee relations, human rights, environment protective measures and superior quality products), and useful insights are obtained regarding CSR activities. Firm CSR activities were thoroughly analyzed to the extent with which firms are engaged in such activities comprehensively, and in its respective dimensions explicitly. Furthermore, firms CSR practicing frequencies were recognized signaling the need to progress from an exclusive society into an inclusive one.

Second, the research adds to the scarce literature on Pakistan's CSR practicing firms as a credibility function. Globally CSR has become a touchstone of corporate trust, contrarily in the developed countries like Pakistan it is still a buzzword for most of the organizations and individuals (Canh, Liem, Thu, & Khuong, 2019) but a paradigm shift has been observed in the recent years. Surprisingly, Pakistani market has been a focus of only few papers for instance, (Ahmad, Naeem, Hasan, Arif, & Ur Rehman, 2019) have covered it within the context of Pakistani banks, while other authors refer to other Asian countries (Weerasinghe et al., 2019).Research into the non-financial market is necessary as it comprises of almost two-third of the Pakistani stock market and is growing tremendously.

Third, this study upgrades the existing research by addressing the CSR activities of the number of CSR dimensions applied and its potential relationship with the credibility and loan accessibility measures. Finally, the paper offers novel methodological approach for studying CSR activities and its impact. For instance, a difference in difference approach has been applied to address the effect of credibility, loan accessibility and cash holdings on CSR activities.

5. Implications

5. 1 Theoretical and Practical

The study has all theoretical and practical implications. Foremost, from the theoretical standpoint our results represent an advancement of the current literature on the relationship between CSR and loan accessibility by dint of firms credibility as a predictor variable besides loan accessibility and firm cash holdings which has heightened the relationship among all the variables. Therefore, these results enable a more nuanced interpretation of this relationship. Moreover, the results suggest that scholars should explore an additional variable that may provide a more realistic representation of this relationship. This paper investigates not only whether CSR activities positively or negatively affect firms loan accessibility measures and opportunities but also in what context CSR activities positively or negatively impact firms cash holdings. By doing so, this study provides well-defined management implications, useful insight and advice to businesses within CSR framework. Moreover, this approach could address the inconsistent results in the literature regarding the impact of firm CSR activities on its credibility, loan accessibility and cash holdings. Therefore, the authors believe that the approach utilized in this study represents an important contribution to the literature.

This focused research effort offers a detailed insight into impression of social responsibilities from the perspective of CSR activities. In particular, an overview of specificity of CSR dimension has been provided, with important practical implications. Empirical evidence demonstrates the usual dimensions related specifically to CSR adopted and implemented by the firm that have been formed by revising CSR concept infinitesimally, and how they assist firms in accessing credit from the financial institutions.

5.2 Managerial Implications

The research findings may serve as a basis for managers making decisions on the selection and implementation of CSR dimensions which are of supreme importance to the firms in retaining their dire market reputation. In other words, they may serve for selecting the CSR dimension which they want to focus on or avoid, based on the impact caused by it on firms credibility. The paper offers a better practical understanding of how financial institutions perceive CSR practicing firms and lend them loan due to their engagement in such activities.

Moreover, by recognizing differences in the application of CSR dimensions by businesses the research findings may be useful to investors, in making elite choices regarding their future investments and making informed decisions in choosing an organization to which they want to entrust their money. A recent study from Oxford University published in Harvard Business Review (2018) disclosed that more than 80% of mainstream investors now consider environment, social and governance ESG factors while making investment decisions. Globally $22.89 trillion of assets are being professionally managed under responsible investment strategies and the numbers are growing at an impeccable pace in CSR market thus, can present a useful reference point for both researchers and practitioners in their understanding of CSR activities. However, social responsibility is well enforced globally and has become quite a norm in the Pakistani market (Ameer & Khan, 2019). We should not neglect the issue of drastic climate change, which affects the entire community, offering noval opportunities for businesses to expand their CSR horizon. According to (Kouloukoui et al., 2019) climate change trigger a positive response by the corporate sector. As the business world, align its beliefs and core values with emerging social problems, thereby improving CSR performance and credibility consequently attracting long-term investors as well.

5.3 Limitations and Suggestions for Future Research

The contributions discussed above should be explained and generalized in the light of the following study limitations; this study is that in pairwise correlation a high correlation in Return on Assets of 92.4% has been observed. Return on assets has been treated as a control group variable which is present in the baseline model. Thus, a variable of such high correlation to be included in a model is not useful as it will hinder the relationship among other variables.

Apart from this Price impact measure has been treated as an information asymmetry measure, due to the unavailability of daily bid-ask prices, daily quotations including high, low, close, open price, volume and return has been used instead. This study is focused on the span of last decade, post Enron period where corporate scandals were on rise making it difficult for firms in reviving their credibility.

The authors recognized the criteria followed by firms in practicing CSR activities, which were later analytically tested and eventually used for studying its impact on the predictors. Due to different set of strengths and concerns while composing CSR score, this study has noted the issue of variance observed in strength and concerns data set, which keeps on evolving with time as few strength and concerns hold supreme importance in the managers perception though they may not be synchronized with the customer perspective. The authors therefore used multiple set of measures for calculating CSR activities comprising of CSR score, index and also treated as a dummy variable. However, a more clear delineation of different CSR competitive strategies is needed in the future to further increase the scientific rigor and validity of CSR based research efforts.

The research refers to a period post global economic recession; this poses the question of possible different results in other circumstances not affected by the crisis in CSR perspective. A time frame of this study offers indicative results, but presented findings should be further validated across a large time period including till 2020 as it has been predicted by some analysts that a global recession will hit in 2020. Specifically, it would be interesting to examine how ongoing global economic trends effect at the level of Pakistan's economy.

Significant efforts made recently already started to boost CSR as part of sustainable competitive strategy (O'Brien, 2001). As a result, not only we might expect to see more CSR activities in practical grounds aiding firms in informed decision making process. A study conducted on the data set exclusively about CSR activities is potentially biased towards non-profit organizations like NGO's in practicing ethical duties towards the society, therefore bringing into question its generalization at firm level especially in the context of non-financial companies at Pakistan Stock Exchange PSX. Although, CSR as a concept has evolved globally (Visser, 2010) creative and altruistic mindsets foster different solutions to the problems observed in across regions and countries. This rich diversity of approach with business ethics that incorporate ESG considerations in CSR represents a global opportunity for industry players to learn from each other by sharing experiences (Global Sustainable Investment Alliance, 2013). However, the research offers new findings with a focus on an important vast CSR market, and it is aligned with recent calls for such an approach very few studies have started to reveal the important question of CSR as a competitive strategy. More research needs to be done to examine the role of CSR as a fundamental business practice and how it is related to the performance of the non-financial companies.

Finally, this research may serve as a guideline for investigating whether CSR serves as a competitive strategy and how it assists firms in accessing external finance. For instance, it would be interesting to validate and extend recent research showing a positive link between implementation of CSR activities and firm gaining prominent position in the market besides its counterparts operating in the businesses.

6. Conclusion

The study confirms the role of CSR activities in increasing firms credibility, loan accessibility, in reducing firms cash holdings and information asymmetry. The correlation analysis confirms the above mentioned relationship. In spite of correlation, the regression analysis further justifies the relationship among these variables due to CSR activities. The objectives that were set initially are achieved. Furthermore, on hypothesis testing it was confirmed that significant relationship exists among all the variables. The study considers the whole population of all 410 listed non-financial companies at PSX from 2009 till 2018. The final sample size was reduced up to 388 firms. Our findings suggest that a significant relation exists. However, an increasing trend in firms involvement in CSR activities has been observed due to corporate sector engagement in ethical business practices after prominent corporate scandals in 2009

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	CSR FIRMS					ALL FIRMS				
Variables	**Freq**	**Mean**	**Std. Dev.**	**Skew.**	**Kurt.**	**Freq**	**Mean**	**Std. Dev.**	**Skew.**	**Kurt.**
CSR Dummy	3592	1	0	.	.	3962	0.907	0.291	-2.795	8.811
Z score	3561	1.91	2.171	1.082	3.899	3928	1.884	2.16	1.091	3.949
Loan Accessibility	3561	0.19	0.188	1.232	3.828	3928	0.194	0.192	1.21	3.699
Amihud	3016	0.119	0.394	3.569	14.291	3288	0.125	0.405	3.466	13.516
Cash Holdings	3561	0.055	0.084	1.869	5.371	3928	0.053	0.083	1.943	5.684
NPR	3559	-0.258	0.901	-3.17	12.07	3926	-0.272	0.923	-3.09	11.475
ROAV	3561	0.047	0.136	0.342	3.001	3928	0.045	0.135	0.367	3.049
ROAV	3561	0.024	0.099	-0.163	2.746	3928	0.022	0.098	-0.142	2.767
EPS	3561	2.73	9.528	1.295	5.266	3928	2.612	9.519	1.281	5.281
P/E RATIO	3561	16.49	59.884	1.936	7.288	3928	15.705	59.475	1.937	7.393
Sales Growth	3561	0.056	0.357	-0.027	3.51	3928	0.051	0.359	-0.041	3.469
Market to Book	3561	2.983	5.743	2.412	7.778	3928	2.911	5.69	2.449	7.983
Earnings Volatility	3561	0.098	0.08	1.628	4.981	3928	0.099	0.082	1.596	4.763
Size	3561	3.199	1.121	-0.979	3.525	3928	3.182	1.135	-0.958	3.431
Age	3217	1.371	0.276	-0.853	3.342	3551	1.376	0.271	-0.86	3.433
Asset Tangibility	3561	0.687	0.22	-0.98	3.459	3928	0.689	0.223	-1.023	3.58

Quality	3558	0.212	1.567	-0.234	4.653	3925	0.213	1.583	-0.24	4.571
Market Leverage	3561	0.586	0.333	-0.341	1.678	3928	0.593	0.332	-0.373	1.704
Book Leverage	3561	2.327	28.513	20.22	447.65	3928	2.382	29.659	20.363	449.29
Int coverage ratio	3559	73.61	244.799	3.416	13.214	3926	71.157	241.418	3.483	13.693
Tax ratio	3562	0.141	0.263	-0.018	2.798	3930	0.138	0.263	0.021	2.807
Financial ratio	3552	0.112	0.275	3.424	13.499	3919	0.118	0.285	3.3	12.562
Creditrating	3592	0.171	0.377	1.746	4.047	3963	0.169	0.374	1.771	4.135
Regulation	3561	0.221	0.415	1.347	2.814	3930	0.214	0.41	1.397	2.95
Median industry book Leverage	3592	0.572	0.055	0.109	2.125	3962	0.574	0.056	0.073	2.088
Median industry Market Leverage	3592	2.171	3.114	1.669	4.03	3962	2.142	3.09	1.687	4.1
GDP Growth rate	3560	0.128	0.058	1.05	2.719	3927	0.128	0.058	1.042	2.696
Expected Inflation	3560	0.1	0.078	1.959	6.135	3927	0.101	0.078	1.96	6.148
Term Structure	3561	-0.831	2.215	-2.334	6.999	3928	-0.83	2.213	-2.335	7.011

Correlation with Difference in Difference DID Approach

		CSR Firms		Non-CSR		Test of Differences	
Variable	**Correlation**	**Mean**	**SD**	**Mean**	**SD**	**ttest**	**Wilcoxon**
Z-score	0.038**	1.91	2.171	1.632	2.037	-2.351**	-2.259**
hhi csr	0.049***	0.129	0.234	0.09	0.193	-3.098***	-4.998***
loan accessibility	-0.073***	0.19	0.188	0.238	0.226	4.578***	3.172***
amihud	-0.047***	0.119	0.394	0.188	0.502	2.712***	3.172***
cash holdings	0.072***	0.055	0.084	0.034	0.066	-4.549***	-4.885***
net profit ratio	0.050***	-0.258	0.901	-0.415	1.109	-3.113***	-3.702***
roa	0.042***	0.024	0.099	0.01	0.089	-2.610***	-3.246***
eps	0.038**	2.73	9.528	1.471	9.375	-2.414**	-2.734**
p/e ratio	0.041***	16.493	59.884	8.055	54.833	-2.590***	-3.480***
sales growth	0.041**	0.056	0.357	0.005	0.376	-2.568**	-2.053**
market to book	0.039**	2.983	5.743	2.211	5.101	-2.476**	-4.879**
earnings volatility	-0.066***	0.098	0.08	0.116	0.1	4.175***	2.216***
size sale log	0.046***	3.199	1.121	3.02	1.258	-2.873***	-2.257***
ln age	-0.056***	1.371	0.276	1.423	0.214	3.349***	1.952***
asset tangibility	-0.028*	0.687	0.22	0.708	0.242	1.757*	2.837*
quality	-0.002	0.212	1.567	0.22	1.725	0.097	0.347
market leverage	-0.069***	0.586	0.333	0.665	0.313	4.358***	4.395***
book leverage	-0.006	2.327	28.513	2.921	39.111	0.365	5.197
int cover ratio	0.032**	73.611	244.799	47.36	204.537	-1.984**	-3.657**
tax ratio	0.035**	0.141	0.263	0.109	0.26	-2.193**	-2.983**
financial ratio	-0.057***	0.112	0.275	0.168	0.364	3.603***	1.884***
credit rating	0.022	0.171	0.377	0.143	0.351	-1.368	-1.368
regulated	0.055***	0.221	0.415	0.144	0.352	-3.422***	-3.418***
median ind book leverage	-0.114***	0.572	0.055	0.593	0.057	7.234***	7.097***
media nind market to book growth	0.029*	2.171	3.114	1.86	2.827	-1.844*	-4.640*
GDP growth rate	-0.015	0.128	0.058	0.131	0.059	0.927	1.052
expected inflation	-0.006	0.1	0.078	0.102	0.077	0.379	1.057

**** p<0.01, ** p<0.05, * p<0.1*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
(1) [illegible]	1												
(2) [illegible]	0.038**	1											
(3) [illegible]	-0.073***	-0.250***	1										
(4) [illegible]	-0.047***	-0.193***	0.168***	1									
(5) [illegible]	0.072***	0.376***	-0.189***	-0.123***	1								
(6) [illegible]	0.050***	0.330***	-0.110***	-0.056***	0.151***	1							
(7) [illegible]	0.046***	0.563***	-0.238***	-0.168***	0.374***	0.407***	1						
(8) [illegible]	0.042***	0.536***	-0.234***	-0.154***	0.342***	0.486***	0.924***	1					
(9) [illegible]	0.038**	0.307***	-0.165***	-0.131***	0.206***	0.246***	0.610***	0.615***	1				
(10) [illegible]	0.041***	0.351***	-0.111***	-0.078***	0.095***	0.193***	0.228***	0.215***	0.048***	1			
(11) [illegible]	0.041**	0.169***	-0.007	0.02	0.032**	0.396***	0.268***	0.297***	0.214***	0.063***	1		
(12) [illegible]	0.039**	0.607***	-0.107***	-0.130***	0.129***	0.078***	0.173***	0.126***	-0.030*	0.336***	-0.011	1	
(13) [illegible]	0.029*	0.434***	-0.108***	-0.160***	0.068***	-0.028*	0.071***	0.008	-0.088***	0.296***	-0.047***	0.563***	1

**** p<0.01, ** p<0.05, * p<0.1*

Note: The pairwise correlation confirms that a significant relationship exists between credibility and information asymmetry with CSR activities, while a negative correlation has been observed with Loan Accessibility. However, between Return on Assets ROA and Return on Assets Volatility ROAV high correlation of 92.4% has been recorded which hinders the relationship among other variables.

Regression Probit and Tobit

Probit			**Tobit**	
csrdummy	**Coef.**	**St.Err.**	**Coef.**	**St.Err.**
zscore	-0.122***	0.033	-0.019***	0.005
loanaccessibility	-0.161	0.203	-0.028	0.031
amihud	-0.035	0.084	-0.01	0.014
cashholdings	1.522***	0.588	0.187**	0.076
NPR	-0.016	0.063	-0.002	0.009
ROA	0.643	0.627	0.102	0.09
EPS	0.007	0.005	0.001	0.001
P/E RATIO	0	0.001	0	0
Sales Growth	0.022	0.115	0.006	0.017
M/B RATIO	0.035***	0.012	0.004***	0.001
Earn.Volatility	-1.776***	0.39	-0.31***	0.064
Size	-0.052	0.05	-0.007	0.007
Age	-0.559***	0.146	-0.072***	0.019
Asset Tangibility	0.239	0.195	0.036	0.029
Quality	0.028	0.021	0.004	0.003
Market Leverage	-0.562***	0.195	-0.083***	0.028
Book leverage	0.002	0.01	0	0.001
Tax ratio	0.023	0.139	0.003	0.021
Financial Ratio	-0.184	0.134	-0.035	0.021
Credit Rating	-0.026	0.1	-0.004	0.014
Regulation	0.102	0.098	0.013	0.013
Median Industry BL	-2.453***	0.819	-0.358***	0.122
Median Industry ML	-0.03	0.022	-0.004	0.003
GDP Growth rate	0.312	0.694	0.035	0.102

Expected Inflation	0.833	0.572	0.129	0.082
Constant	4.119***	0.58	1.3***	0.083
Mean dependent variable		0.915	0.912	
SD dependent variable		0.278	0.278	
Pseudo r-squared		0.062	0.129	
Number of observations		2931	2931	
Chi-square		105.176	105.819	
Prob > chi2		0	0	
Akaike crit. (AIC)		1648.178	770.272	
Bayesian crit. (BIC)		1809.722	937.798	
*** *p<.01*, ** *p<.05*, * *p<.1*				

Assumption Tests:
Panel Level Stationarity Test (Fisher)

The null hypothesis is that the series contains a unit root, and the alternative is that the series is stationary. P-value less than .05 shows that there is no unit root test.

Variable	Z-test	p-value
zscore	-22.637	0.000
loanaccessibility	-7.656	0.000
amihud	-86.709	0
cashholdings	-7.759	0.000
netprofitratio	-5.797	0.000
roa	-8.589	0.000
eps	-10.730	0.000
peratio	-22.550	0.000
salesgrowth	-18.103	0.000
markettobook	-21.741	0.000
earningsvolatility	-6.743	0.000
sizesalelog	-7.366	0.000
lnage	16.735	1
assettangibility	-5.919	0.000
quality	-22.033	0.000
marketleverage	-25.578	0.000
bookleverage	-1.901	0.029
intcover	-7.935	0.000
taxratio	-46.680	0
financialratio	-13.459	0.000
creditrating2	.	.
regulated	.	.
medianindustrybookleverage	-1.450	0.074
medianindustrymarkettobookgrowth	-26.571	0.000
gdpgrowthrate	13.877	1
expectedinflation	2.894	0.998

Variance inflation factor

	VIF	1/VIF
marketleverage	2.737	.365
roa	2.558	.391
medianindustrymark~h	2.208	.453
sizesalelog	1.891	.529
netprofitratio	1.868	.535
eps	1.851	.54
markettobook	1.714	.583
expectedinflation	1.672	.598
cashholdings	1.599	.625
medianindustrybook~e	1.56	.641
assettangibility	1.48	.676
gdpgrowthrate	1.47	.68
intcover	1.333	.75
amihud	1.314	.761
loanaccessibility	1.299	.77
salesgrowth	1.274	.785
peratio	1.236	.809
regulated	1.172	.853
creditrating2	1.159	.863
taxratio	1.155	.866
financialratio	1.136	.88
lnage	1.08	.926
hhicsr	1.075	.93
bookleverage	1.037	.964
earningsvolatility	1.024	.976
quality	1.018	.982
Mean VIF	1.497	.

Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of zscore
chi2(1) = 318.61
Prob > chi2 = 0.0000

VIF test does not confirm any sign of multicollinearity problem

The Heteroscedasticity test shows that there is a problem of Heteroscedasticity.