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The Impact of Corporate Governance and Intellectual Capital on Firm's Performance and Corporate Social Responsibility Disclosure: Evidence from Australian Listed Companies

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Abstract

Whether the corporate governance (CG) and intellectual capital (IC) affects the firms' financial performance and corporate social responsibility (CSR) disclosure of Australian stock exchange (ASX) listed firms or not? To answer this crucial question we use the data of all firms listed at ASX for the year 2014. Using the Partial Least Square based Structural Equation Modeling (PLS-SEM) we find reliable evidence that the main driving force behind the CSR disclosure in ASX listed firms is CG rather than IC. These results suggest that, the firms with sound corporate governance practices are more environment-friendly. In addition, we also find that both CG and IC are associated with improved firm financial performance. Our study is helpful for both Australian government and regulatory bodies that are keenly interested in improving the policies on the issues of global warming (i.e. climate change, carbon emission trading schemes, and preservation of natural capital) by providing the empirical evidence that the strong CG practices are not only beneficial for the shareholders but also for the society.

Keywords: corporate governance, intellectual capital, corporate social responsibility, Australian stock exchange (ASX), PLS-SEM, NVIVO.

1. Introduction

Year 2010 was the biodiversity year, now CG principles uphold the highest ethical standards for cleaner environment, healthy and fair working condition, environmental friendly product, and services other than accountability to key stakeholders. Sense of social obligation is embedded in the strategic goals of an organization. CG and CSR features are concerned with organization practices and therefore get muddled with each other. So, a good understanding is necessary to grasp the concept and nature of CG and CSR relationship. If the core objective of the organization is to increase the wealth of shareholder then what responsibility do the shareholders have (Devinney et al., 2013)? However, the impact of CG and IC on CSR with such a detail dimensions of CG and CSR on all listed firms of any single stock exchange is still uncharted. This study has strong contribution towards literature because of its measurement of CSR scores with the help of qualitative software NVIVO, which is not commonly used in this detail manner for the measurement of CSR

Sustainability reporting has considered as standard practices by the growing firms in their annual reports whereas others reporting are weak that is shown a vibrant understanding of what is immaterial and what is material for the stakeholder views (Font et al., 2016). CG is the more comprehensive concern of management of a company than CSR, whereas CSR is only one dimension of an organization's governance and risk management practice. CSR is an advanced form of CG whereby corporate responsibility flows from its fiduciary obligations towards the owners to the equivalents fiduciary responsibilities towards shareholders, community and employees (Sacconi, 2004). Therefore, it is difficult to differentiate between CG and CSR because both are closely interconnected.

Affective CG is mainly ensuring the financial sustainability of any organization that's why it is broadly understood that sound organized governance is the core condition required for any corporation for improving its financial performance (Sonmez & Yildırım, 2015). Financial soundness varies due to dissimilar structure of CG in different industry of the same country. With the development of information technology the timely reporting is demanded by the investors, which is only possible because of effective governance system. Resources are limited either visible or invisible as each company is trying to increase its customers and investors loyalty as well as attracting, holding and motivating the talented employees. CG is now shifting from its conventional attention on agency issues by focusing more on matters related to social and business ethics, accountability to shareholders, transparency of financial statements, and disclosures. Board of Directors and management of an organization obviously study numerous elements when formulating policies to improve the community welfare that is constant with the directives of good governance.

IC is the part of strategic management and used for value creation of an organization to sustain and retain its loyal customers, employees and investors. IC disclosures are significant and have become as much important as CG. Financial position of any firms only represents the value of tangible or intangible assets but do not show the value of structural capital, human capital, and relational capital separately under the IC disclosures. IC is positively associated with profitability of the firm and growth. Therefore, it can be the

reason to fulfill the CSR as well. Growing trend of environmentalism IC is now converted into the green IC which is not only the matter of wealth maximization but also enlargement of environmental consciousness.

IC is being acknowledged as one of the necessary elements for value creation of an organization (Stuart, 1996). Knowledge base resources are the key indicators for any organization. The growth of business depends upon the competency of its human and structural capital. IC is now known as more advanced tool to measure the profitability of a concern other than traditional financial ratios. There are rapid changes in business environment and traditional financial measures to calculate performance are considered to be incomplete (Gan & Saleh, 2008).

Now a day's intellectual resource such as employees' skills, knowledge, capabilities and other non-visible resources play vital role in the success of any organization. No solid reason was found for the separation between IC and CSR because there are many common indicators in the presentation of IC and CSR reporting (Sułkowski & Fijałkowska, 2013). Undoubtedly the spirit of CSR is to perform in ethical manners towards its employees, suppliers and community that generate reputation of an organization. For achieving the firm's financial vulnerability, IC is very necessary from all of its elements even it is difficult to measure but now reliable techniques have approved to calculate IC (Makki & Lodhi, 2014).

In this study we have three objectives. First is to determine the effect of CG and IC on CSR disclosures in financial statement of ASX listed companies. Second is to explore the impact of CG and IC efficiency on financial performance. Third is to conclude the driving forces behind CSR disclosures. We find reliable evidence that the main driving force behind the CSR disclosure in ASX listed firms is CG rather than IC. In addition we also find that both CG and IC are associated with improved firm financial performance. Overall our results demonstrate that CG is more explanatory variable to incline the firm's towards its social and environmental responsibilities.

This study makes three main contributions. First, the impact of CG and IC on CSR with such a detail dimensions of CG and CSR on all listed firms of any single stock exchange is still unexplored. Second, we extend the literature and provide the first evidence that the main driving force behind the CSR disclosure in ASX listed firms is CG rather than IC. Third, we add towards the limited but growing literature (e.g., Liu & Zhang, 2017; Coffie et al., 2017) by supporting the notion that quality CG practices are not only constructive for the legitimacy management but also for responsible environmental reporting

2. Literature Review

Firstly in 1924 Oliver Sheldon proposed the concept of CSR (Habbash, 2016). After that number of studies has been conducted towards CSR but still the theory of CSR is not yet accurate (Xie et al., 2015). Reporting issues are dramatically increasing among the shareholders not only in the reference of profitability but also in respect of social performance of the firms (Bhimani & Soonawalla, 2005). Socially Responsible Investment (SRI) companies achieve four core advantages: improved corporate image, better induction

of employees, improved managerial decision making, and the benefit of economies (Adams & Zutshi, 2004).

From last decade CSR has known as a fundamental research area with the context of its disclosures in reports and also causes for better financial results (Laskar & Maji, 2016).CSR is an emerging subject for all the economies irrespective of their size, due to its necessities in business practices it is still in the process of developing (Truscott et al., 2009). CSR in Australia is in early stage and need to develop internal corporation for the good reputation. ASX listed companies attitude towards CSR is still mainly branded by uncertain and short term ingenuities of philanthropic nature. Most of the ASX companies found low intension to include CSR practices in their corporate culture (Anderson & Landau, 2006). Employee's power, strategic posture and economic performances are highly inclined by the human resource practices (Zunker, 2011). More attention is required in the global reporting framework for the better disclosures of CSR practices in annual reports of companies (Golob & Bartlett, 2007). Most of the listed firms are grappling CSR at their least priority rather entertaining CSR as fundamental responsibility of an entity (Jamali & Mirshak, 2007).

Sarbanes-Oxley-Act in July 2002 has also directly influenced the ASX listed firms. Before Enron, Australia had found round of dramatic bankruptcies name as One Tel Telecommunications Company by A$2.4 billion in debt and losses, Harris Scarfe national retailer inflated assets and number of irregularity in accounting principles in County's 2nd largest insurance company HIH by A$5.3 billion. Neither management nor the two of the Big-5 auditors have noticed (Robins, 2006). Numbers of responses were found after such financial scandals like A Corporate Law Economic Reform Program Act in July 2004(CLERP), London-Based international accounting standards in Australia January 2005, Australian Securities and Investment Commission and Australian Prudential Regulation Authority. Australian companies involving more CSR practices in energy sector due to proper formulation of climate change standards (Haque & Deegan, 2010).

Different classification of CG principles in Australia has been concentrated (Dignam & Galanis, 2004). ASX listed companies had misclassification of CG system. These misclassifications significantly affect the reform agenda of ASX, as it may be indecent that ASX companies have an outsider system of CG. As CG structure consists of interconnected modules of principles and activities. Till 1980s, number of Australian economic activities was occurring outside the listed stock exchange. In 1987 ASX was established. Still the study of CG in Australia is less developed as compare to UK and USA (Kiel & Tolhurst, 1981). Ensuring the complete CG practices adoption meet the expectation of all stakeholders and also promote the CSR activities (Kaymak & Bektas, 2017).

Now all over the world awareness about CG matter has been well achieved. In 1987 Treadway Commission report declared 12 important CG reforms initiatives across seven nations. These initiatives are in reaction of corporate raids and failures, which restore the investor trust on listed companies (Cadbury, 1997; Norburn et al., 2000). From the early 1990s reforms CG practices disclosures began in ASX listed firms. In 1991 Corporate Practices and conduct was revised in 1993 and 1995. The purpose of such revision is to inform the management, investors and auditors about principles of good CG. ASX rule

only consist of list of items that would be disclosed by listed firms. In result of this disclosures practices in ASX listed firms are varying in term of comprehensive way so rules become unenforceable and being soft (Carson, 1996).

CG and its components have been used number of time to check its association with CSR practices. Yet there is no comprehensive model which would fit for CG or CSR system. Almost all emerging markets are adopted the western codes of CSR (Lenssen et al., 2011). Some scholars believe that CG is main elements to control the CSR disclosures. Therefore, effective governance structure tends to account for the development in CSR and development of policies that are included as a long term goal of the organization. Any organization CG practices towards it social responsibility can be audited. CG and its components are highly associated with CSR activities. CG model is also helpful to understand the management style (Hazlett et al., 2007). Quality CG practices are constructive for the legitimacy management and also responsible for social and environmental reporting as well (Liu & Zhang, 2017). Strong CG practices like the larger size of board will not only be the cause of good governance but also put their efforts for better environmental practices and its disclosure (Coffie et al., 2017).

IC systems are themselves system of CG. As the attention of businesses is being changed from physical resources to physical and non-physical resources parallel (Makki & Lodhi, 2014). IC is a rising area of research and still remains uncharted and no single acceptable definition has been decided. Many research scholars, practitioners and academicians try to define IC but no standardized definition of IC is available in the literature (Bontis et al., 2000; Khalique et al., 2011). Highly significant relation of IC and FP was found especially in the investment companies of ASX (Joshi et al., 2013). Human Capital (HC) efficiency is higher than Structural Capital (SC) and Capital employed (CE) efficiency in ASX banking sector (Joshi et al., 2010). IC disclosures are found weak in ASX firm and vary from company to company and still not adopted uniform framework for the adoption of IC disclosures (Sujan & Abeysekera, 2007).

IC and FP coherence on CSR depicted in the strategic investment of socially responsible companies. The examination has verified that variables like ecological enactment of the firms and IC play a vital role on the demonstration of socially responsible investment fund companies. Actually sustainable achievement and CSR seems to be truly interconnected philosophies (Musibah & Alfattani, 2014). Overall firm effectiveness can be predicted by the utilization of its human resources to compete in the knowledge base economy. If health and safety issues of employees and CSR awareness are high in the audited annual reports of the company, the financial institution becomes more valuable for investors (Aslam & Amin, 2015).

3. Theory and Hypotheses Development

There are number of theories to clarify the causes why any organization engages in CSR activities. It is difficult to explain CG and IC impact on CSR activities completely by using single theory so these four theories legitimacy theory, stakeholder theory, agency theory and resource based view are lead to clear the impact of CG and IC on CSR and the financial stability of any organization.

3.1 Legitimacy Theory

Legitimacy theory is the central thought of the social contract between organization and society. There is a social contract between the society and organization. As the society grants permission to organizations to use their scare natural resources and consider it as a legal entity person and hire the worker from society, take advantages of the resources and output both goods and services and pollute the environment through its wastage. Therefore an organization must continually meet the twin examination of legitimacy and significance by representing that society needs its facilities and that the group's aids from its rewards have society's authorization. Any society has a right to become threatened for those organizations that breached its social contract. No doubt every organization has to perform itself as a good corporate citizen for its society. If the decisions of the organizations are not up to the expectation of society then it leads to the creation of 'legitimacy gap' between society and organization (Haniffa & Cooke, 2005).

Health and safety disclosures are significantly changed the perception of the society (Gray et al., 1995). Consistent changes have found in the policy of corporate environmental issues of AXS listed companies that were based on legitimacy theory (Deegan & Rankin, 1996). Only few companies were found to completely adopted New South Wales, Victorian Environmental protection authorities' rules during the period of 1990 to 1993. After these rules, there is a significant increase in the environmental reporting disclosures which accomplished the advantage of legitimating.

Environmental reporting patterns in ASX companies are changed after the five major incidents that are Exxon Valdez and Bhopal disasters; Queens-land disaster of Moura Mine; Iron Baron an oil spill; Tasmania off the coast and the Kirki oil spill, off the coast of western Australia. These incidents had changed the disclosures requirement of Australian companies especially in term of environment, employees' health, and safety and on community welfare issues. After these events moral and social pressure for proper reporting in annual reports increased this is because of legitimacy theory (Deegan et al., 2000). High profile companies are having more sense in respect of CSR disclosures as compare to the low profile companies in Australia (Chan et al., 2014).

3.2 Stakeholder Theory

Second theory is the stakeholder theory which measures the motivational level of the management to adopt the CSR practices in any organization. Before the Freemans' work on stakeholder theory it was only the part of academic literature. Management of any organization is the main player who decided how to handle with the conflicting demand of stakeholders group to achieve the strategic goals of the organization. Now in a strategic management plan, managers decided how the organization can increase its image as a social responsible company. For managing good relationship, all information needs to be reported properly to stakeholders (Ullmann, 1985). Therefore, based on the legitimacy and stakeholder theories this study will examine the hypothesis.

- **H_1:** Companies disclose more CSR information when the companies have strong CG structures.

3.3 Agency Theory

To understand the relationship between management and shareholders the agency theory is still very important and controversial (Eisenhardt, 1989). Agency theory has been used in different studies of accounting, finance, economics, marketing, political science, organizational behavior, and sociology. Mainly agency theory apprehension with two main issues that falls under the definition of agency relationship (a) conflict between principals (shareholders) and agent (management) about their desirable goals and (b) difficulties to confirm the performance of the agent by his principal. Due to different risk preferences, the conflict arises between principal and management of the company. On the basis of discussion in theory and literature this study hypothesis that:

- **H_2:** Companies are highly profitable when the companies having strong CG structures.

3.4 Resource Based View

The main force behind the financial growth of the firm is its resources. This success is based on the assets of the firm whether tangible or intangible, that might lead the organization to achieve the competitive edge. A large number of studies have explained the role of tangible assets in the growth of the company but there is a need to investigate the strategic role of intangible assets. Resource based view is introduced to measure the competitive edge of any firm, especially to those firms that depends on knowledge based economy. Resource based view is the leading paradigm in the field of strategic management, which is going to be more and more familiar in all fields of business and economics. Most of the advancement in resources based theory was done by the scholars of management sciences. It was introduced by the Edith Penrose in 1959 in the field of economics. Resource based view has developed a new paradigm to report the perilous issues in the field of operational management (Hitt et al., 2016). Theory of resource based invented with the view that financial performance of the same firms are different. Structure of behavior performance considers that the financial outcomes of the firm based on the industry in which it was operated (Marzo, 2014). The main focus of this theory is to achieve competitive gain and sound financial performance which cannot be achieve with effective utilization of strategic resources (Zéghal & Maaloul, 2010). Improving in the reporting of CSR, IC information is also seen to be increased and both of these concepts are linked with each other. That is why the regulator body is preparing such rules and policies for reporting which integrate the IC and CSR information in the publicly available information of the listed firms (Sułkowski & Fijałkowska, 2013). In this way, this study will hypotheses are as follows:

- **H_3:** Highly IC values leads to profit maximization of the company
- **H_4:** Highly IC values leads to better CSR practices.

Stakeholder theory and legitimacy theory are considered as two core perspective on the relationship of CG and CSR disclosures. Generally, theory of stakeholder in the companies' deals with its different stakeholders group and the theory of legitimacy explain the companies' concessioners about the whole society. Whereas, agency theory is used to explain the CG influence on FP.As far as agency theory is concerned, it explains management relationship with its shareholders and their common goal that is profit maximization. But the theory of resource based view support relationship between IC with FP and CSR disclosures. Resource base theory states the availability of companies resources' which companies use to generate their assets and helpful to being social as an artificial entity. On the basis of all these theories overall conceptual/ theoretical model of the study is given below:

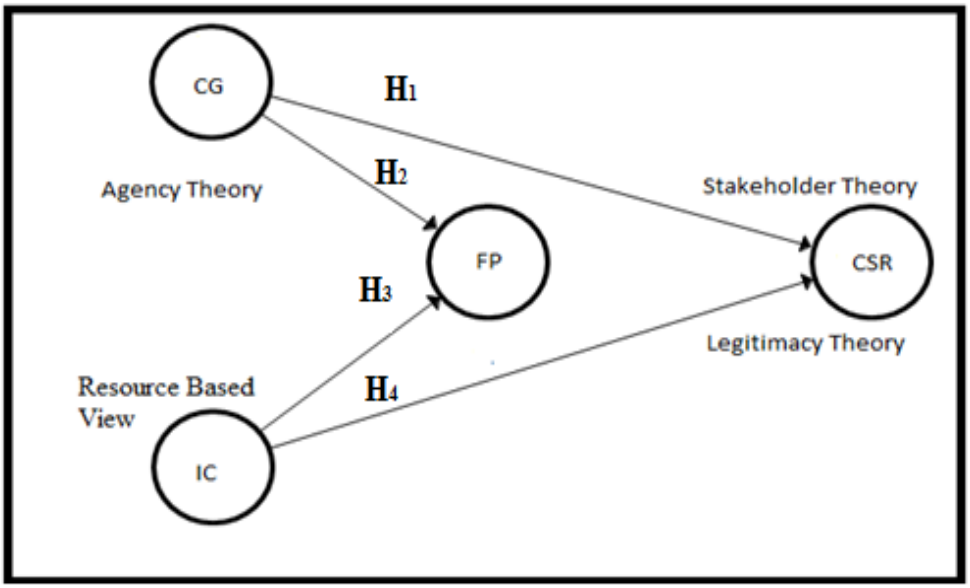

Figure 1: Overall Conceptual Model of the Study

4. Research Methodology

Australia is the 6th largest country by the total area in the world and having population of 24 million. It is the world 12th largest economy and considered as an economically strong country in the world. In year 2014, Australia is ranked as 5th highest per capital income of the world that is US $61,887 as per World Bank report (2014). ASX is known as one of the world's most successful stock exchanges in the world's financial market. Its total market capitalization of approximately AU $1.5 trillion. This cross sectional research examined the whole population of ASX listed firms that are 2194 listed companies in 10 different sectors and having 26 industry groups till June 30, 2014.

Disproportionate stratified random sampling is used due to more variability suspected in the disclosures pattern of different firms in the same industry group. The purpose of this research is to find the main driving forces behind the CSR disclosures in Australia. This study was confined sample size from 2194 to 1948 due to elimination of two sectors; Not

Applic and Class Pend industry group. The potential sample size of 1948 is further reduced on the basis of following criteria. First, we removed those firms from the sample whose annual reports are not available on any electronic media mainly the companies' own web site or at the web site of ASX till December 2014. Secondly, those firms were excluded from the sample whose annual reports are in form of scanned copies but neither in pdf or nor in word document due to limitation of the software used for content analysis to measure the CSR disclosures. Third criteria of removal is incomplete information regarding CG or other disclosures which are normally disclosed in the financial audited data like the chairman address, disclosures of employees and products. Fourthly, removed all delisted firms. At last removed all those firms where outliers are found. The process of elimination of firms from the sample is depicted in table 1.

However, the final sample of the study is 1456 ASX listed companies. Sample sizes used in previous studies in the context of CSR disclosures in Australian listed companies are either small or partial. Reliability of the study can be achieved through large sample size. The final sample is the 74.74% of the total population which shows no issues in generalize of this research in the context of Australia. The data regarding the variables is extracted from the audited annual reports of ASX listed companies.

Table 1: Summary of the Sample Design

Description	N
Initial sample of ASX listed firm (24 industries)	1948
Eliminate: Companies whose annual audited report for the year ended June 30, 2014 was not publicly available.	60
Eliminate: All those companies, whose reports are in scanned copies rather any PDF or word form.	155
Eliminate: All those companies in which incomplete information (having only financial data or foreign currency)	83
Eliminate: All the delisted firms form ASX	33
Eliminate: Due to outliers	157
Final Sample Companies	1456

4.1 Measurement of Dependent Variable CSR Disclosures Scores

A process for assembling data transforming qualitative information based on literature into quantitative scales at variant difficulty levels (Abbott & Monsen, 1979). Reliability and validity in coding is more important than measuring the CSR scores due to more subjectivity involved in the measurement. Therefore, the focus to measure CSR must be on the number of CSR disclosures rather on qualitative aspects of it (Jitaree, 2015). Number of different way to measure CSR by content analysis like focus on number of word, number of sentences, photos and graphics has extracted from the annual reports of the company.

The final themes to measure CSR is presented in Annexure 1 as adapted from the study of (Chan et al., 2014).The main themes to measure the CSR disclosures are: environment, energy, employees, products, and community. The preliminary study of all these themes has been done by (Chan et al., 2014) to explore the impact of quality of CG on the CSR disclosures of the top 300 ASX listed firms in Australia. So, these themes have no issues in language and meaning. These themes were converted into sub-code (child nodes). Each theme has different codes. If any code is available in annual report, it will be scored "1" otherwise "0". Number of earlier literatures also measured the CSR scores by dichotomous variable like (Chan et al., 2014; Jitaree, 2015; Rouf, 2011).

4.2 Content Analysis

NVIVO 10 was employed to collect the CSR scores from the annual reports of the ASX listed companies to import one by one report then using the text search option in the query. For using the text search we develop the nodes of the themes of CSR. The text search provides the tree of all the words or phrases the report contained. NVIVO is very helpful and the genuine way to employed content analysis and can be removing the problems of lack of reliability and validity. The word search option provides all synonyms of the codes of the themes. So, the score contained in report are more reliable and having novelty because of using NVIVO 10 for first time for the content analysis in that way. By using the text search option the large data sets can be handled while doing content analysis of qualitative research. It also facilitates to attach the memos and nodes to the data of research. Its visual index trees help the research to find the exact themes or it also provide complete sentences of that particular search. So, it is best suitable for qualitative data analysis by the content analysis. All the limitation of reliability and validity has minimized due to utilization of qualitative software NVIVO for content analysis in calculating the scores of CSR disclosures.

Table 2: Descriptions and Measurement of Independent Variable CG

Construct	Name of the Variables	Abbreviations	Measurement
Corporate Governance	CEO Duality	CEO_DUL	CEO is not the chairman of board of directors 1 otherwise 0
	Board Size	B_SIZE	Total No. of directors in board
	Chair of the Board	B_CHAIR	Chairperson of the board is an independent director 1 otherwise 0
	Total number of employees as Key management	NKMP	No. of key management reported in annual report
	Percentage of Independent Directors in Board	B_IND_DIR_P	No. of independent directors/ total directors*100
	Proportion of Attendance in meeting	B_MEET_A_P	Total attendance/ total meetings held of BOD*100
	Proportion of independent directors in Audit & Risk Committee	A&R_C_IND_P	No. of independent directors/ total members in A&R committee*100
	Independent chairperson of Audit & Risk Committee	A&R_C_CHIR	If chairman of A&R committee is not the chairman of any other committee 1otherwise 0
	Independent chairperson of Remuneration/Compensation committee	R_C_CHAR	If chairman of compensation committee is not the chairman of any other committee 1otherwise 0

	Independent chairperson of Nomination Committee	N_C_CHAIR	If chairman of Nomination committee is not the chairman of any other committee 1 otherwise 0
Intellectual Capital	Human Capital Efficiency	HCE	VA/HC VA=OP+EC+D&A HC= total salaries & benefits VA = Value Added; OP = Operating Profit; EC = Employee Cost; D = Depreciation; A = Amortization
	Structural Capital Efficiency	SCE	SC/VA, SC= VA-HC ICE = HCE + SCE
	Capital Employed Efficiency	CEE	VA/CE CE= TA – CL, CE = Equity +LTD

Prior literature has enriched to explain the accounting measures of profitability that is return on assets (ROA), return on equity (ROE), earning per share (EPS) and sales growth (SALESGR). Whereas ROA is defined as (net profit after tax minus preferred dividend divided by total assets; ROE is measured as net profit after tax minus preferred dividend divided by shareholder's equity; EPS is defined as net profit after tax minus preferred dividend divided by average number of common shares; SALESGR is measured as current year sales minus previous year sales divided by previous year sales.

Table 2 shows the measurement of CG and IC variables. Measurement of IC can be done by different techniques but due to shortcoming of IC disclosures in annual report, Value Added Intellectual Coefficient (VAIC) is easily calculated to measure IC. This technique to measure IC is viable due to easily availability of audited financial data and it is also well recognized and less criticized model.

Whereas, VAIC had been previously used in several studies to see the correlation between firm financial performance and IC (Clarke et al., 2011; Maditinos et al., 2011; Mehralian et al., 2012; Mention & Bontis, 2013; Vishnu & Gupta, 2013). This study used the most emerging technique of multivariate analysis known as PLS-SEM. It is one of the best techniques for non-normal data and especially for those researches having different level

of measurement of latent construct (Henseler et al., 2009). For this study Smart PLS 3.2.3 latest version has employed to estimate the multiple regressions among dependent and independent constructs. PLS-SEM is known as non-parametric approach (Chin, 2010).

4.3 PLS-SEM ANALYSIS

For the PLS-SEM analysis first step is to decide the direction of construct whether formative or reflective. Independent variables of the study are measured as formative construct that are Corporate Governance and Intellectual Capital because both of these are fulfilling the requirement of formative construct. Because previous studies considered CG (e.g., Makki & Lodhi, 2014; Usman et al., 2015) and IC (e.g., Makki & Lodhi, 2014) as formative constructs. CSR and FP are the dependent variables of the study and fulfilled the assumptions of reflective measure. Corporate Social Responsibility Disclosures and Firm Performance are also taken reflective measure by (Moneva & Ortas, 2010). Assessment of PLS-SEM results has done in two main stages. So, for the assessment of result of PLS-SEM measurement model of the first model of the study are discussed with its all assumptions.

4.4 Measurement of Reflective Model

Measurement of reflective constructs that are CSR and FP are discussed with the assumptions of:

1- Indicator Reliability (loading of each indicator)
2- Internal Consistency of the construct level:
   (i) Composite Reliability (CR)
   (ii) Cronbach's Alpha (α)
3- Convergent Validity on construct level Average Variance Extracted know AVE
4- Discriminant validity of construct:
   (i) Fornell-Lacker Criterion Analysis
   (ii) Cross loading of indicators
   (iii) Heterotrait-Monotrait Ratio (HTMT)

The study of Chan et al. (2014) contains seven main themes of CSR i.e., general, environmental, energy, human resources, products, community, and fair business practices. But this study taken only five main themes and remove the themes of General disclosures of CSR and Fair Business practice due to low indicators reliability that were below 0.4. In reflective construct, we removed all those indicators whose loadings are lesser than 0.40 as it will lead to increase the AVE of the construct for exploratory study (Hair et al., 2014). The second reflective construct of the study is FP which is measured through EPS, ROA, ROE and SALESGR that all are well recognized measured of financial soundness of any company and have no issue with respect of its indicator reliability all the indicators of FP are above the standard.

Table 3: Reflective–Measurement Model

Constructs	Indicators	Loadings	CR	Alpha	AVE	HTMT
Corporate Social Responsibility (CSR)	Community	0.736	0.841	0.768	0.517	0.109
	Employees	0.817				
	Energy	0.642				
	Environment	0.758				
	Product	0.627				
Firm Performance (FP	ROA	0.971	0.814	0.823	0.534	
	ROE	0.685				
	EPS	0.666				
	SALESGR	0.530				

The next step in the assessment of measurement model is to check the internal consistency of the construct. Two main techniques are used to measure the internal consistency of the reflective construct that are composite reliability and Cronbach's alpha. If composite reliability is between 0.60 to 0.70 is considered good enough in case of exploratory research. (Hair et al., 2014). Whereas, both reflective constructs are having CR above 0.80 that fulfilled the threshold of the internal consistency. Other technique to measure the reliability assumption is Cronbach's alpha. The threshold of Cronbach's alpha is $\geq$ 0.70. CSR and FP are having more than the standard value. After completed the reliability measures of reflective construct the third step in the measurement of reflective construct is to assess the validity of the constructs and its indicators. First method to explore the validity of reflective construct is well known test of AVE which proved the convergent validity of the construct. The threshold for the AVE must be $\geq$ 0.50 (Hair et al., 2014). Table 3 shows that the value of reflective constructs (i.e., CSR and FP) AVE is higher than minimum standard acceptable limit.

A new criterion to measure the discriminant validity for variance based structural equation modeling is Heterotrait-monotrait (HTMT) ratio, which is considered as more dominant technique to examine the discriminant validity among reflective construct. The threshold to measure the HTMT ratio it should be below 1.0 (Henseler et al., 2015). Table 3 shows that the HTMT ratio is 0.109, which ensures the discriminant validity between two reflective constructs i.e. CSR and FP of the study.

Table 4: Discriminant Validity of Constructs

Fornell-Larcker Criterion				
	CG	**CSR**	**FP**	**IC**
CG	N/A			
CSR	0.477	0.719		
FP	-0.017	0.061	0.731	
IC	0.047	0.013	-0.397	N/A

Table 5: Cross Loadings of Indicators

Constructs	**Indicators**	**FP**	**CSR**
FP	EPS	0.666	0.077
	ROA	0.971	0.047
	ROE	0.685	0.059
	SALESGR	0.530	0.053
CSR	Community	-0.004	0.736
	Employee	0.072	0.817
	Energy	0.024	0.642
	Environment	0.024	0.758
	Product	0.094	0.627

Traditionally in variance base SEM validity of reflective measurement model is to examine through discriminant validity of the constructs and as well as validity among the indicators of reflective construct. The Fornell-Larcker Criterion is used to know the validity of the reflective constructs (please see Table 4). Both the reflect constructs of the study didn't violate the assumption for discriminant validity standard.

Other method to determine the discriminant validity is the discriminant validity of each indicator that would be examined through cross loadings. The threshold of the discriminant validity of indicators is that the outer loading of the associated indicator must be higher than its outer loading of other indicator (Hair et al., 2014). Table 5 reflects that none of the reflective constructs indicators are beyond the standard.

Table 6: Formative –Measurement Model

Constructs	Indicators	VIF	Weights	t-value	p-value
Corporate Governance (CG)	A_R_CHAIR → CG	2.004	0.095	1.625	0.105
	A_R_IND_P → CG	2.297	0.236	3.426***	0.001
	B_CHAIR → CG	1.309	0.113	1.933*	0.054
	B_IND_P → CG	1.169	0.063	1.290	0.198
	B_MEE_P → CG	1.039	0.143	3.478***	0.001
	B_SIZE →CG	1.972	0.459	6.311***	0.000
	CEO_DUL → CG	1.191	0.065	1.336	0.183
	C_CHAIR → CG	1.671	0.176	2.801***	0.005
	NKM → CG	1.989	0.335	5.069***	0.000
	N_CHAIR → CG	1.161	0.191	3.428***	0.001
Intellectual Capital (IC)	HCE → IC	1.000	0.652	5.352***	0.000
	SCE → IC	2.036	0.463	4.974***	0.000
	CEE → IC	3.321	0.617	4.792***	0.000

*p < .10, **p < .05, ***p < .01; 1% = 2.57, 5% = 1.96, 10% = 1.65

After the measurement of reflective construct the next step is to check the assumptions required for formative construct. Due to formative in nature, the internal consistency and composite reliability are considered unnecessary because correlation between construct are neither required nor fit to estimate the construct validity. Before empirically evaluated the formative construct there is a need to examine the content validity. CG is measured on the direction of ASX Corporate Governance principles and IC is calculated through VAIC model, so there is no content validity issue in this study because this study considering all the components of its formative construct. Moreover, the formative construct is evaluated on the basis of collinearity among indicators, significance, and relevance of weight.

Correlation between two formative indicators is known as issue of collinearity. To assess the issue of multicollinearity we use variance inflation factor (VIF).Table 6 shows that all the indicators of CG and IC didn't violate the assumption of collinearity that is greater that equal to 5. As high level of collinearity is crucial problem which lead to impact on the outer weight and the significance level of the indicators. Second step for evaluating the formative indicators is its weight. Statistical significance (t-values) is calculated by bootstrapping procedure that is a nonparametric technique. Table 6 shows the weights and t-values of CG and IC indicators. As it observed that A_R_IND_P, B_MEE_P, B_SIZE, NKM, C_CHAIR and N_CHAIR are found significant at 1% and B_CHAIR is found significant at 10%.

4.5 Assessment of Structural Model

After the assessment of measurement model PLS-SEM results are examined on the basis of its structural mode. First common measure to evaluate the structural model is known as R^2 coefficient of determinants. It is difficult to develop standard value for R^2 because it totally depends on the nature of model and the field of study (Hair et al., 2013). Table 7 shown R^2 value of the impact of CG and IC on CSR is 0.228 whereas impact of CG and IC on FP is 0.158.

Table 7: Overall Statistics of Structural Model

	R^2	Q^2
CG & IC → CSR	0.228	0.110
CG & IC → FP	0.158	0.033

However in PLS-SEM, model validity is measured through predictive relevance (Q^2). Generally, Q^2 values must be greater than zero for endogenous constructs in the structural models. In addition, it is argued that greater the value of Q^2, higher the predictive relevance of the model. Whereas a Q^2 value less than or equal to zero suggest that the model lacks predictive relevance. Moreover, Q^2 can be applied in a model with reflective constructs only (Chin, 2010). Table 7 shows the Q^2 values of both models. The Q^2 values of the sub models one and two are 0.110 and 0.033 respectively, which are greater than the standard value of Q^2. This guarantees the fitness of the model of our study. After the measuring the value of path coefficients and R^2 the effect size of each construct would be measured through $f^{2.}$ When any mentioned independent variable is removed from the model what was its impact on the model. CG has large effect size on CSR than IC as the Table 8 shows its contribution to explain the CSR is more as compare to IC.

Table 8: Evaluation of Structural Model

Paths	**Path Coefficients**	**t-value**	***f*2**	**Effect Size**
CG →CSR	0.477	26.506***	0.482	Large
CG → FP	0.114	1.790*	0.109	Small
IC→ FP	0.397	4.104***	0.023	Small
IC → CSR	0.062	1.020	0.000	No effect

*p < .10, **p < .05, ***p < .01; 1% = 2.57, 5% = 1.96, 10% = 1.65

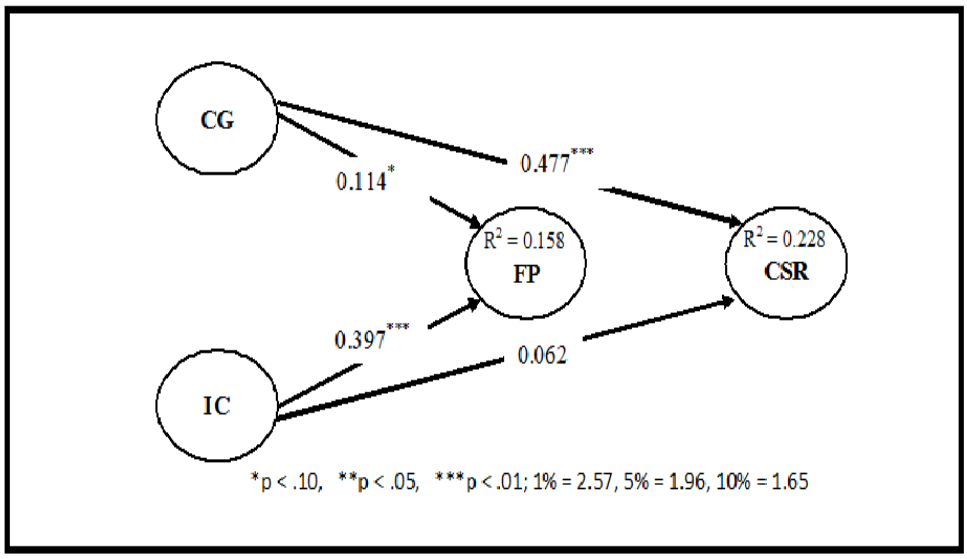

Figure 2: Structural Model

For the value of path coefficients in PLS-SEM, bootstrapping techniques is employed. Bootstrapping in PLS-SEM can be employed in all types of structural model. It generated subsample with replacement ranging from 500 to 5000 samples (Hair et al., 2013). This research used 5000 subsample in bootstrapping to generate results that are more relevant to the actual data. Specifically, through bootstrapping path coefficients are measured with an absolute value of *t*-statistics over ± 1.64, ± 1.96 and ± 2.57at 10%, 5% and 1% level of significance with two-tailed test, respectively. The finding of this study about the two explanatory variables of the CSR and FP is given below in table 8. Figure 2 is clearly shown the combine effect of CG and IC on CSR and FP. However, the detail results of each hypothesis are explained in the next paragraph.

H_1 predicts a positive significant positive relation between CG and CSR disclosure of the ASX listed firms with (β= 0.477, t= 26.506 significant P < 0.001). This result is not only in line with the same country as well as with prior literature ((Beltratti, 2005; Chan et al., 2014; Filatotchev & Nakajima, 2014; Haniffa & Cooke, 2005; Jamali et al., 2008; Jo & Harjoto, 2011).

H_2 predicts the impact of corporate governance on financial performance of ASX listed companies. Results demonstrate that significant positive impact of CG on FP. It is confirmed from the results of path coefficient is (β= 0.114, t= 1.790 significant P < 0.10). The finding of this hypothesis is matched with the (Arora & Sharma, 2016; Collett & Hrasky, 2005; Miglani et al., 2015).

H_3 predicts the impact of Intellectual capital on the firm performance. This study found significant positive relationship between IC and FP which is also verified from the results of path coefficient (β= 0.397, t= 4.104 significant P < 0.001). The result of this hypothesis

is consistent with the result of (Amin et al., 2014; Aslam & Amin, 2015; Joshi et al., 2013; Makki & Lodhi, 2014) argued that human capital is highly influenced in the value creation capabilities of the financial sectors of Australia. The results also matched with the study of (Makki & Lodhi, 2014) suggested that the profitability of the firm can be measured by the value of IC.

H_4 predicts the impact of intellectual capital on the CSR disclosure. We reject this hypothesis because IC found no relationship with CSR that is (β= 0.062, t= 1.020 significant P> 0.10). Very few studies have been done in respect of IC and CSR disclosures directly. The results of H_4 is not consistent with the (Dumay, 2016).

5. Conclusion

In this paper we investigate the effect of CG and IC on FP and CSR disclosure in context of ASX listed companies. The annual reports of 1456 ASX listed firms for the period ended 2014 was used. Content analysis through NVIVO 10 was employed to calculate the scores of CSR as developed by the (Chan et al., 2014) for the measurement of same country CSR scores. So, there is no language and context problem in the measurement of CSR scores remain left. Results of the study show that CSR embedding in CG (Mason & Simmons, 2014). This was possible due to firm's more pressure to fulfill the requirement of CG practices hence caused for more environments, social and community oriented firms. Moreover the complete CG principles adopted by the company may lead to improve the quantity or quality of CSR disclosure. Empirical results uncover several major issues, like CG is not only become the cause of good financial performance of the company but also associated with better disclosure of CSR activities as these results are in lined with Agency and stakeholder theory as well (Kaymak & Bektas, 2017). Importance of IC reporting in financial statement is increasing day by day as for the value creation of the firm in future is based on role played by the its human and relational capital because the traditional capital of the firm is not good enough for the future value creation of the firm (de Villiers & Sharma, 2017).

5.1 Limitations of the Study

Number of limitation should be considered before interpreting the results and finding of this study. Firstly, this research is based on ASX listed firms of Australia. International Financial Reporting Standards resolve the problem of different financial reporting pattern. Secondly, only one year sample data has been used in this study. But this study considered all the sectors and industry groups in ASX. Thirdly, the research focused only on the annual reports of the companies, while ignoring the other sources of data for the evaluation of CSR like media reports, sustainability reports, environmental report and web sites. Lastly, the CSR information is derived from the content analysis. CSR scores are based on the 5 themes and 34 sub-themes (child-nodes). There is too much subjectivity involved in the content analysis method of the data collection. The CSR themes may not fully capture the CSR issues in ASX listed firms. But the pilot study on these themes has been done (Chan et al., 2014).

5.2. Future Research

The findings from this research propose number of future research avenues. First, measuring the CSR disclosures on the basis of industry groups or sectors basis would be valuable extension to this study. Second, a notable extension of this research is that Research and Development could be employed to assess the relationship with CSR. Lastly, future studies should be focused on the institutional context of European and Asian countries that will help to generalize the findings of our study. Another aspect of such extension is to increase the study period from one year to at least three or five years resulting in more sound results and to see trend over the period in respect of CSR disclosures.

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Annexure 1: Description of Dependent Variable Themes (CSR)

Environment 1- Undertaking environmental impact studies & monitoring programs/Environmental research. 2- Conducting environmental (compliance) audits. Hazard reporting. 3- Disclosure of (reportable) environmental incidents or fines. 4- Protecting/Improving the environment/climate change strategies. 5- Water consumption and management. 6- Pollution control in the manufacturing process/ Greenhouse gas emissions abatement. 7- Environmental regulations (e.g., compliance or breaches), Rehabilitation Bonds. 8- Environmental awards, commendation, certification, performance, biodiversity, ISO 14001. 9- Recycling waste materials, Waste Management, Re-use of by-products, Taking part in or sponsoring anti-litter. 10- Environmental Sustainable management.
Energy 1- Disclosure about the efforts to minimize energy usage. 2- Renewable Energy Certificates, Carbon Credits, Carbon Trading, Environmental Credits, Greenhouse Gas Abatement Certificates. 3- Proper Energy Management System. 4- Utilizing waste materials for energy production.
Employees 1- Promotion of employee well-being, health & safety (including accident statistics disclosure).

2- Health & Safety—Regulations, Breaches or fines, Injury prevention, Lost Time Injury Frequency Rate. 3- Redundancy program 4- Employee share plan, Bonuses, Employees share option 5- Detail disclosures of Remuneration & Benefits program/Rewards/Incentives 6- Improvement of mental/intangible working conditions/ environments and Importance placed on good workplace relations. 7- family or lifestyle balance/Wellbeing/Parental or Maternity Leave, long service or mandatory leave 8- Employment ,advancement of women & minorities, special interest groups (including those with disabilities) 9- Improved communication and staff participation in decision making/Employee satisfaction 10- Training & Development—Employees and providing career opportunities 11- Promoting equity and diversity (equal opportunity)
Products 1- Making products safer (Quality Control), Product improvement or development, Awards ISO 9001. 2- Product Quality Assurance , Research and development 3- Manufacturing systems improvement (e.g., to comply with international standards) Improved recycling of products 4- Environmentally responsible products
Community 1- Donations & community support (e.g., charities, arts, sporting bodies, schools, hospitals) 2- Opening company's roads, parks and forests to the public, hospital 3- work experience programs for teenagers/Supporting education & coaching & traineeship/Youth issues 4- Using local suppliers (support Australian made goods) 5- Award for Excellence in Community Partnerships, Job creation, Community Award programs

Source: Adapted from (Chan et al., 2014)