

**A STUDY ON THE EFFECT OF CORPORATE
GOVERNANCE, INTELLECTUAL CAPITAL AND
PERFORMANCE OF INDIAN LISTED FIRMS**

Thesis Submitted for the Award of the Degree of

DOCTOR OF PHILOSOPHY

In

Commerce

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DECLARATION

I, hereby declare that the presented work in the thesis entitled “A Study on the Effect of Corporate Governance, Intellectual Capital and Performance of Indian Listed Firms” is in the absolute fulfilment of degree of **Doctor of Philosophy (Ph. D.)**; and is the outcome of research work carried out by me under the supervision of Dr. Nitin Gupta, currently working as a professor and head at the Mittal School of Business, Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made, all the collated work described here has been verified and corroborated on the findings of other investigators. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

10-10-2022



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CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled “A Study on the Effect of Corporate Governance, Intellectual Capital and Performance of Indian Listed Firms” has been submitted in the culmination for the reward of the degree of **Doctor of Philosophy (Ph.D.)** in the Mittal School of Business, Lovely Professional University. It is a meticulous research work carried out by Basit Ali Bhat, who under the registration Number 11816300, is a bonafide record in accordance with the requirements of his original work carried out under my supervision. No part of the thesis has been submitted for any other degree, diploma, or equivalent course

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ABSTRACT

Introduction

Corporate governance strikes an intricate yet frangible balance between the grubstaking shareholder interests and other stakeholders, including management, customers, suppliers, financiers, and government. From decision-making and internal control procedures to performance measurement and company disclosure, such is the diversity of procedures and categories secured under the aegis and parasol of Corporate Governance (CG). It is the system of processes, policies, practices, and institution that manoeuvre and administer the actions of a corporation. It helps organisations to manage and maintain their operations. Corporate governance is also responsible for monitoring, advising, and lending counsel to companies in conjunction to achieve mission and vision goals. In 1992, the Cadbury Committee listed three components of the corporate governance decision-making process. Who has the authority to make the first decision? A presidency to follow the first option by an imperative authority dictates the second point. Third, whether and how the decision-making process and its conclusions are implemented by comparable elements, including social, economic, political and legal institutions. Achieving the specified goals and managing the Board of Directors (BODs) interaction with other stakeholders are the primary responsibilities of CG. It also deals with accountability, transparency and meritocracy, thereby reducing the hindrances of principle-agent problem.

In 1996, the CII set up a special committee under the supervision of R. Bajaj to frame a code of CG for Indian corporations. In India, policy makers have formed several committees. By creating a proper Code of CG for India, this committee's primary goal was to explore CG from the viewpoints of investors and shareholders.

The relational establishment between CG and intellectual capital has been scrutinised through the pedantic eyes of copious postulations and theories. Resource dependency and stewardship theories encourage corporate governance to build intangible assets for the organization. One of the pivotal aspects and aimed grounds of corporate governance in the modern world is to amplify shareholder wealth. At the same time, intellectual capital (intangible assets) has become one of the decisive assets for this. Intellectual capital is the knowledge, prowess, virtuosity, professional know-how and information technology that gives an organization an edge and precedence over its competitors. Resource dependence theory marks that corporate governance helps organisations build physical, structural, and rational capital, which affect the market value of the organization.

In the opinion of Thomas Stewart and many others, knowledge has become the most imperative facet of human beings and businesses in modern economies and the key to ensuring a steadfast position in the global competitiveness. Individuals and organisations can promote their goals by augmenting the value of other production elements if they are abreast of the conjunctive information regarding the product. Knowledge management is a response to the much rather late epiphany that intellectual capital is the most rudimentary asset of businesses, and it should be adequately defined, protected and sheathed. From this vantage point, companies can generate and maximize a lucrative value on intellectual assets, also known as intellectual capital, by means of the growing number of tools, methods, and approaches, all of which are unavoidably backed by values.

Companies are paying attention to intangible variables in the present-day business world, which exemplify as a crucial determinant for a firm's medium and long-term value creation. The extensive consequence of intellectual capital resources has drastically increased because of the fast transition of the manufacturing-based economy toward a knowledge-based economy. The financial accounts of the corporation do not include any intellectual property. In order to evaluate the firm's performance and worth, investors and other users now require voluntary disclosure of intellectual capital resources.

Intangible resources witnessed a subsequent shift in the imperative and intrigue during the 1980s, commonly known as the information age. The transition has changed the existing economic climate from industrial capitalism, which is influenced in accordance with material and physical assets, to a knowledge economy, where knowledge resources are essential to foster value. The creation and upkeep of unwavering quality of intellectual capital, in tantamount to the production of physical assets, is the source of fiscal value in this new economy.

Literature Review

Studies reviewed by the researcher were mostly published in Scopus and ABDC journals from developed and emerging countries. The link between CG and corporate performance has been the subject of substantial worldwide research during the past 20 years. Researchers have used different methodologies and techniques to investigate the relationship's direction and magnitude. The literature from developed and developing countries does not differ to the extent where one can interpose the connection among corporate governance and business performance debatable or argumentative while distinguishing in developed and developing countries. Divergent scholars frequently disagree, however, because to the fact that CG and company performance linkages differ across a wide range of nations, cultures, and legal systems. Scholars have failed

to conclusively prove a connection between CG and Firm Performance (FP), nevertheless. The literature is criticised by academics and professionals for having prejudice, especially when it comes to the connection between corporate governance and business success. The major argument is that scholars have mostly used regression and OLS methods for analysis, ignoring the effect of unobserved heterogeneity and endogeneity bias among explanatory variables.

India has not extensively explored the connection between Intellectual Capital (IC) and FP. The unavailability of data can be the biggest reason. Most studies conducted in the Indian context have shown the positive impact of IC and FP. Where human and structural capital had been shown as the major contributor. Researchers assert that regardless of the nation, a link among IC and company performance has been established. Still, the magnitude of the relationship might differ between countries, the type of industry, and businesses.

Findings of the Literature Review

Board Size and Firm Performance:

Board size includes both internal and external directors which serves a purpose that inside directors would be useful for providing inside information and managements point of view while as outside directors are expected to use their links to access the resources and outside business information. Recent study on the relationship between CG and business success has mixed findings. Numerous researches revealed that board size has a deleterious effect on small enterprises since it raises agency expenses while having no effect on large businesses. In addition, it has been asserted that eight to 10 people make up the appropriate board size for large firms.

Board Independence and Firm Performance:

The literature on board independence also contains a mixed outcome from available studies. It has been noted that the independence of directors either has a favourable or no effect on the success of the company. The researchers have stated that during uncertain times like the financial crisis of 2008, independent directors had a negative impact. In the Indian Context, researchers have raised questions about the true independence of directors in light of several corporate failures and scams in the past two decades.

CEO-Duality and Firm Performance:

As per the agency theory, CEO-Duality offers one individual more than one authority. The CEO could decide to operate in the interests of himself rather than those of the shareholders and other stakeholders. A distinct CEO and Chairman position would centralise power from one person to several, according to studies. Furthermore, it was noted that CEO-Duality could undermine the

meritocracy of the organisation by placing his preferred personnel in various roles where they might serve his interests rather than that of the shareholders. Contrarily, most of the Indian research has demonstrated that the performance and value of the company are adversely affected by CEO duality.

Board Meeting Frequency and Firm Performance:

The inconsistent outcomes of previous research have shown that the frequency of board meetings is advantageous in some and disadvantageous in others. Additionally, studies have suggested that holding more than five meetings can increase the firm's market value by fostering an ambient atmosphere for investors.

Audit Committee and Firm Performance:

The majority of Indian research has shown no connection between the performance of listed companies and audit committees. However, when independent directors have superior financial qualifications, the effectiveness of the firm is strongly influenced by the audit committee's autonomy.

Intellectual Capital and Firm Performance:

Capital Employed Effectiveness, Human Capital Efficiency, and Structural Capital Effectiveness are the three aspects of intellectual capital discussed in literature. It may be claimed that IC has a positive impact on the success of listed organisations, particularly IT corporations, despite the dearth of research on IC and company performance in India. According to studies, structural and human capital in India positively affects firm performance. Capital Employed Efficiency affects a company's performance either antagonistically or not at all.

Intellectual Capital and Corporate Governance:

There is no indication that intellectual capital is disclosed in a company's balance sheet. Although intellectual capital can increase the performance of corporations, enhance the efficiency of the capital markets, and create value, researchers have suggested that measuring, reporting, and managing it remain challenges. The Board of Directors may be able to provide professional monitoring of intellectual capital and greater access to resources, according to additional studies. Corporates with competent board members who possess skills and competence in a variety of fields and who follow accepted corporate governance norms have a cumulative effect on instilling intellectual capital.

The study has demonstrated that the relationship between CG and company success is either fully or partially mediated by IC.

Research Methodology

Research Gap

After accurately assessing the literature on corporate governance, intellectual capital, and business performance, the following gaps have been found.

1. The biggest motivation for writers to participate is the lack of consistency in the corporate governance and business performance studies.
2. OLS regression, Fixed Effect, and correlation are the three most widely used statistical studies. The main problem with these statistical approaches is that they ignore the endogeneity that underlies the dynamic link between corporate governance and business success.
3. Despite the plethora of research in this field, few studies have examined how corporate governance and business performance relate to the leading sectors.
4. Little study has been done on the relationship between IC and company performance in India.
5. There have only been a few numbers of researches on the role intellectual capital plays in mediating the link between corporate governance and business performance.

Research Objectives:

- a) To explore the nature and extent of the development of corporate governance practices in the Indian business environment.
- b) To determine the relationship between board characteristics and performance of Indian listed firms.
- c) To determine the relationship between the audit committee and the performance of Indian listed firms.
- d) To explore the relationship between intellectual capital and performance of Indian listed firms
- e) To study the mediation effect of Intellectual Capital on the relationship between corporate governance and firm performance.
- f) To suggest recommendations for policy measures to improve corporate governance practices in India

Sampling Methods:

For the study, firms listed in BSE have been selected from 10 industries that have a major contribution to the GDP of India. For a large portion of the study, data is gathered for five years, from 1 April 2015 to 31 March 2020. From 1 April 2010 to 31 March 2015, ten years' worth of secondary data was gathered.

A proportionate stratified sampling technique has been used for this study (Adedeji et al., 2019). Firms with the highest market capitalisation have been selected from each industry based on proportionate to population size. The financial industry has not been selected because of different accounting systems, strict regulations, and the nature of business.

Table 1: - Sampling Distribution

Industry	GDP Contribution	Total Listing Firms	PPS (Proportionate to population size)	Sample Size
Agriculture	18%	98	292/1214*98	24
IT Industry	10%	124	292/1214*124	30
Automobile	7%	35	292/1214*35	9
Tourism and Hospitality	7.5%	84	84/1214*84	20
Pharmaceutical	9.8%	159	292/1214*159	39
Textile	2%	244	292/1214*244	57
Iron and Steel	2%	92	292/1214*92	22
Construction and Eng.	5%	162	292/1214*162	39
Chemical	2.99%	173	292/1214*173	41
Cement	3%	42	292/1214*42	10
TOTAL		1214		292

Source: (Authors)

Sample Size:

The sample size is determined by calculating Cochran's formula for approximate sample size (Cochran, 1940; Taheerdoost, 2017; Ajay and Michal, 2014). 95 % (5% error) confidence level and 50% proportion of population (P) are taken. The total sample size of the study is 292 out of 1214 companies from 10 industries listed in BSE.

Sources of Data:

The secondary data has been taken from various sources such as proweessIQ, capital line and company websites. The corporate governance and intellectual capital data have been collected from company balance sheets, and firm performance data has been collected from proweessIQ and capital line.

Analysis Approaches:

The analysis outlines the methods used to handle and interpret the data to meet the study's goals. Using the statistical software programme STATA 14.0, econometric methods and statistical tools were combined to analyse the data for this investigation.

Paired Sample T-test

The difference between the two sample periods was examined using a paired sample t-test. This is a useful technique to examine the mean difference among the two sample periods for the same subject divided between the time. If two sets of observations have a mean difference of zero, the dependent sample t-test is also called the paired sample t-test.

Generalised Method of Moment (GMM):

Using a Generalized Method of Movement (generalised method of moments), dynamic panel data can be estimated. A dynamic panel model benefits from the use of a generalised method of moments since it manages the endogeneity of lagged dependent variables. It is appropriate when an error term in a model or a correlation between explanatory variables and independent variables occurs. Another benefit of employing the generalised method of moments is that it controls unobserved panel heterogeneity in the data set while estimating the equation and considers the bias of the omitted variables. Additionally, it limits data measurement inaccuracies.

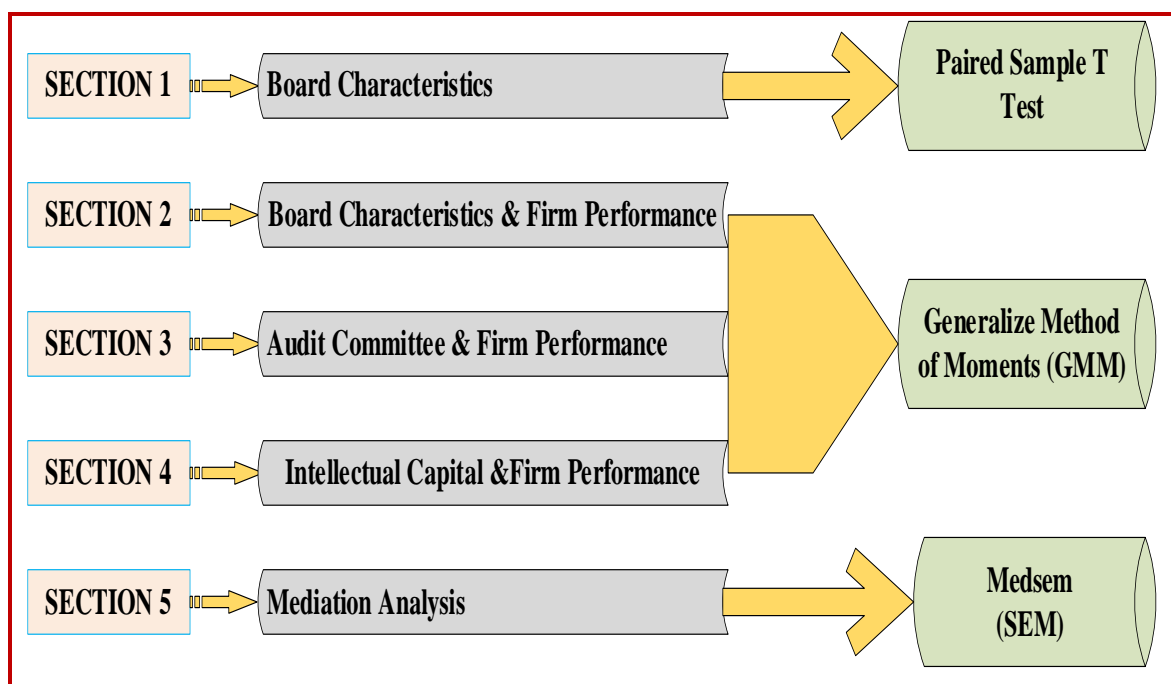
Medsem (SEM):

Structural equation modelling and the medsem command are used to investigate the mediating role of IC on FP. The post-estimation command in the medsem Stata package allows you to test mediation hypotheses using the Baron and Kenny's (1986) method, as modified by Iacobucci et al (2007). Zhao et al. (2009) offered an alternative approach after Stata's built-in sem function had been used to estimate the pertinent mediational model (2010). Medsem, as it may assist in completing a comprehensive mediational study based on extremely complex models that contain both observable and latent variables as well as numerous mediators.

Analysis Plan:

The analysis of the study has been divided into Five sections.

Fig 1: - Plan of Analysis



Source: Authors

Section 1: Corporate Governance Structure

This section presents the difference in corporate governance structure before and after the company's act 2013. The average difference in board composition, board independence, CEO duality, and audit committee was presented in this section. The ETA squared has also been calculated to check the magnitude of the difference.

Section 2: Board Composition and Firm Performance

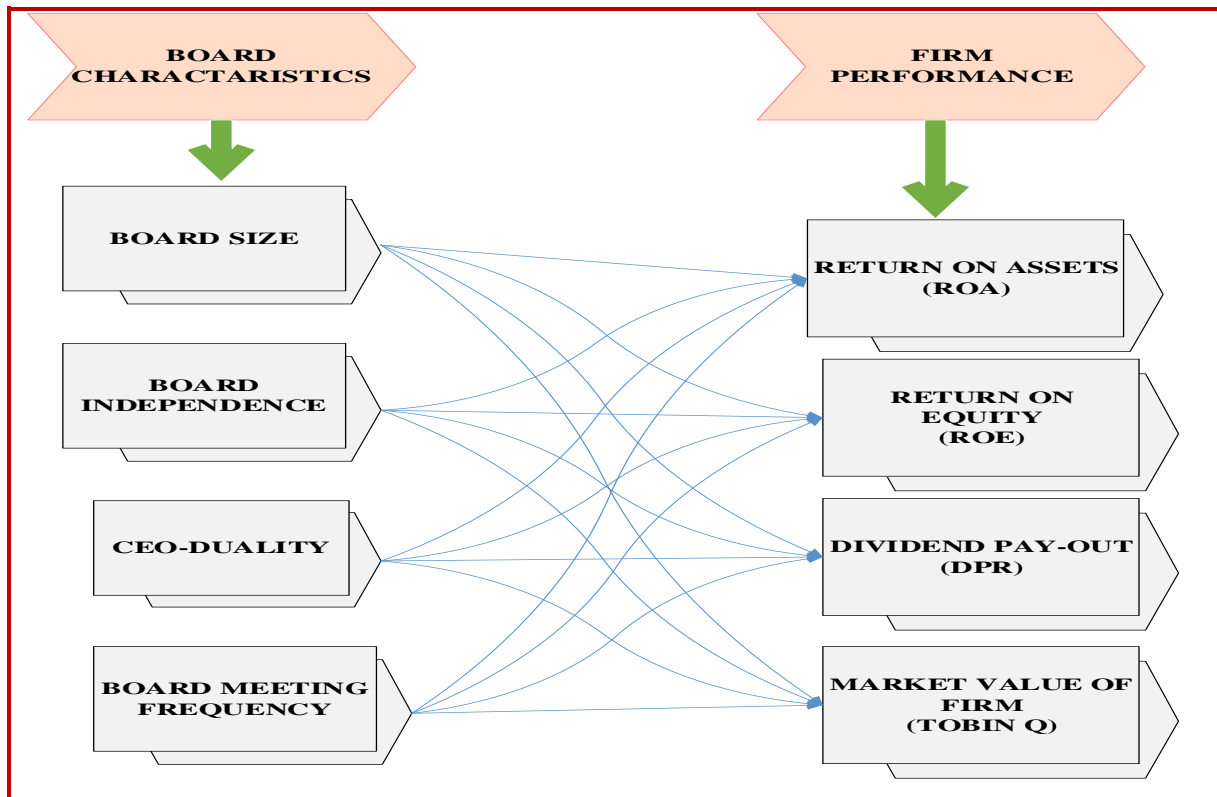
The link between board features and business success is examined in this section. Characteristics of the board were board size, board independence, CEO duality, and frequency of board meetings. The firm performance included Return on Asset (ROA), Return On Equity (ROE), Dividend Pay-Out (DPO) and Tobinq.

Model

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{Board Size}) + \beta_2 (\text{Board Independence}) + \beta_3 (\text{CEO Duality}) + \beta_4 (\text{Gender Diversity}) + \beta_5 (\text{Board Meeting Frequency}) + \beta_6 (\text{Firm Size}) + \beta_7 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon$$

Y represents the dependent variables, ϵ represents the error term, and n represents the unobserved effect.

Fig 2: - Framework of Section 2



Source: Authors

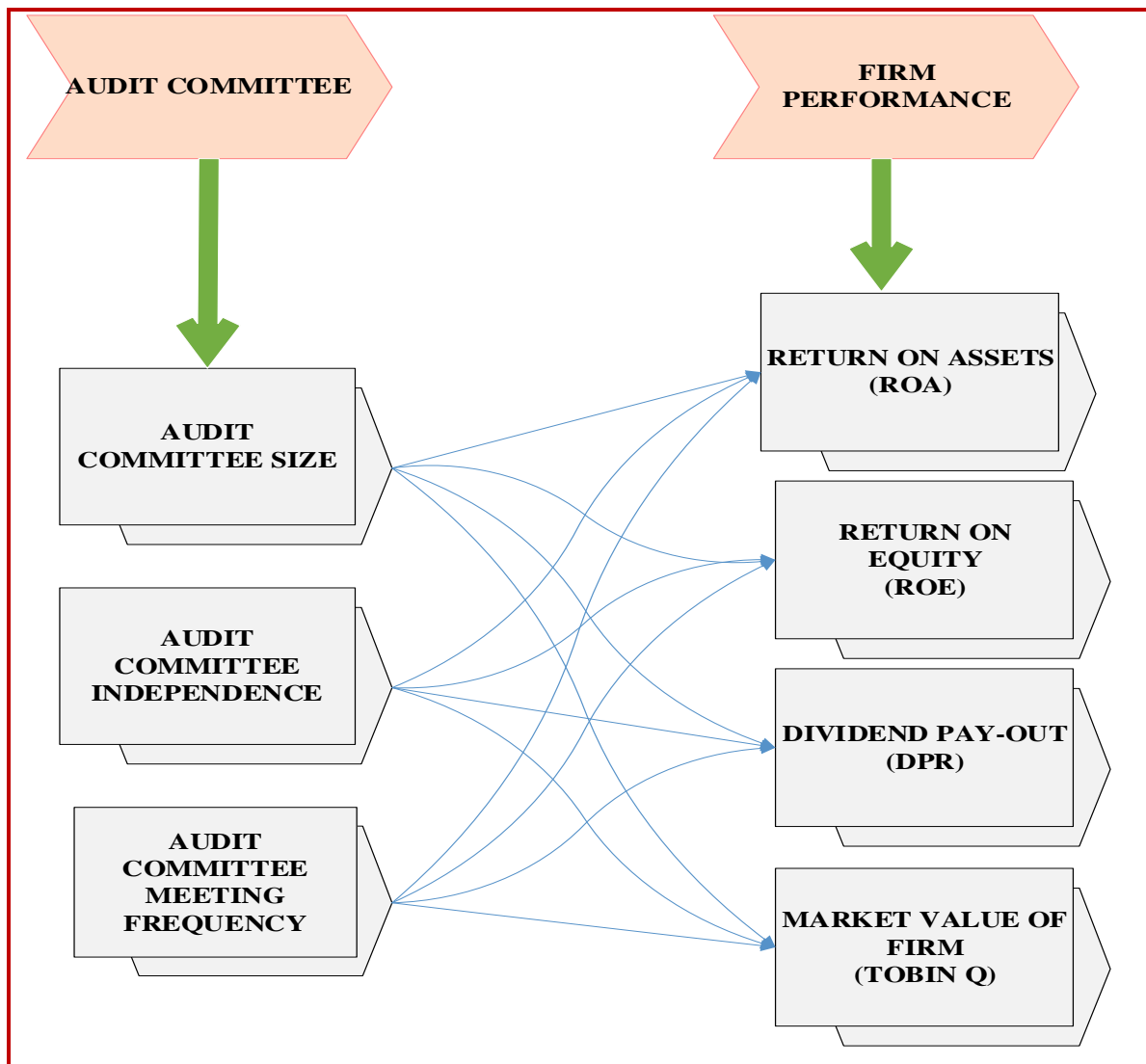
Section 3: Audit Committee and Firm Performance:

This section examines the connection between the Audit Committee and business performance. Audit Committee Meetings, Independence, and Committee Size are all aspects of the audit committee. The firm's performance was gauged using the TobinQ Ratio, ROA, and ROE.

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{Audit Committee Size}) + \beta_2 (\text{Audit Committee Independence}) + \beta_3 (\text{Audit Committee Meetings}) + \beta_4 (\text{Firm Size}) + \beta_5 (\text{Leverage}) + \beta_6 (\text{Year Dummy}) + n_i + \epsilon$$

Y represents the dependent variables, ϵ represents the error term, and n represents the unobserved effect.

Fig 3: - Framework of Section 3



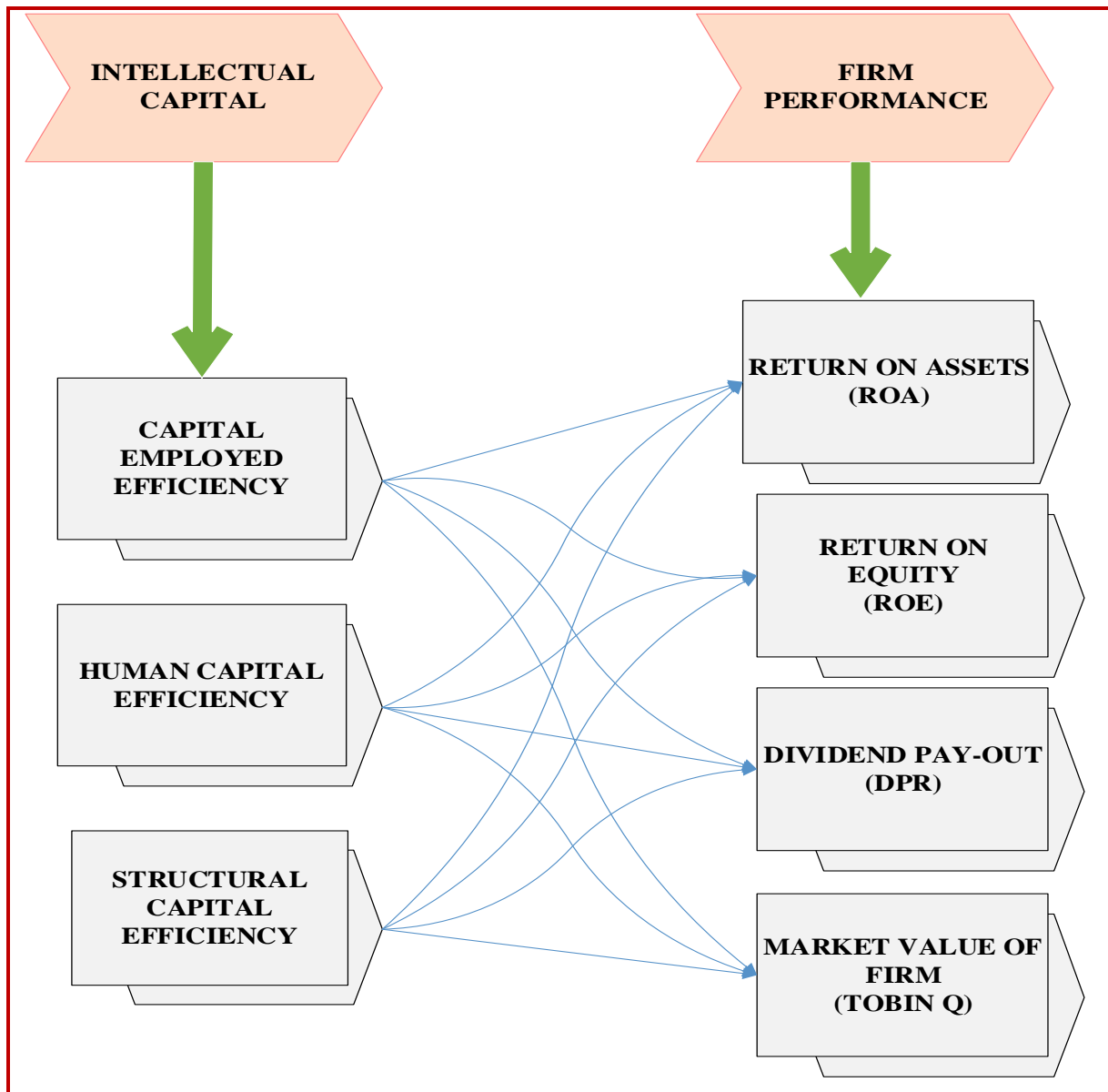
Source: Authors

Section 4: Intellectual Capital and Firm Performance:

The relationship between the Audit Committee and company performance is examined in this section. The audit committee entails the following: meetings, independence, and size of the committee. The firm's performance was gauged using the Tobinq Model, ROA, and ROE.

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{Capital Employed Efficiency}) + \beta_2 (\text{Human Capital Efficiency}) + \beta_3 (\text{Structural Capital Efficiency}) + \beta_4 (\text{firm size}) + \beta_5 (\text{Leverage}) + \beta_6 (\text{Year Dummy}) + n_i + \epsilon$$
 Y represents the dependent variables, ϵ represents the error term, and n represents the unobserved effect.

Fig 4: - Framework of Section 4

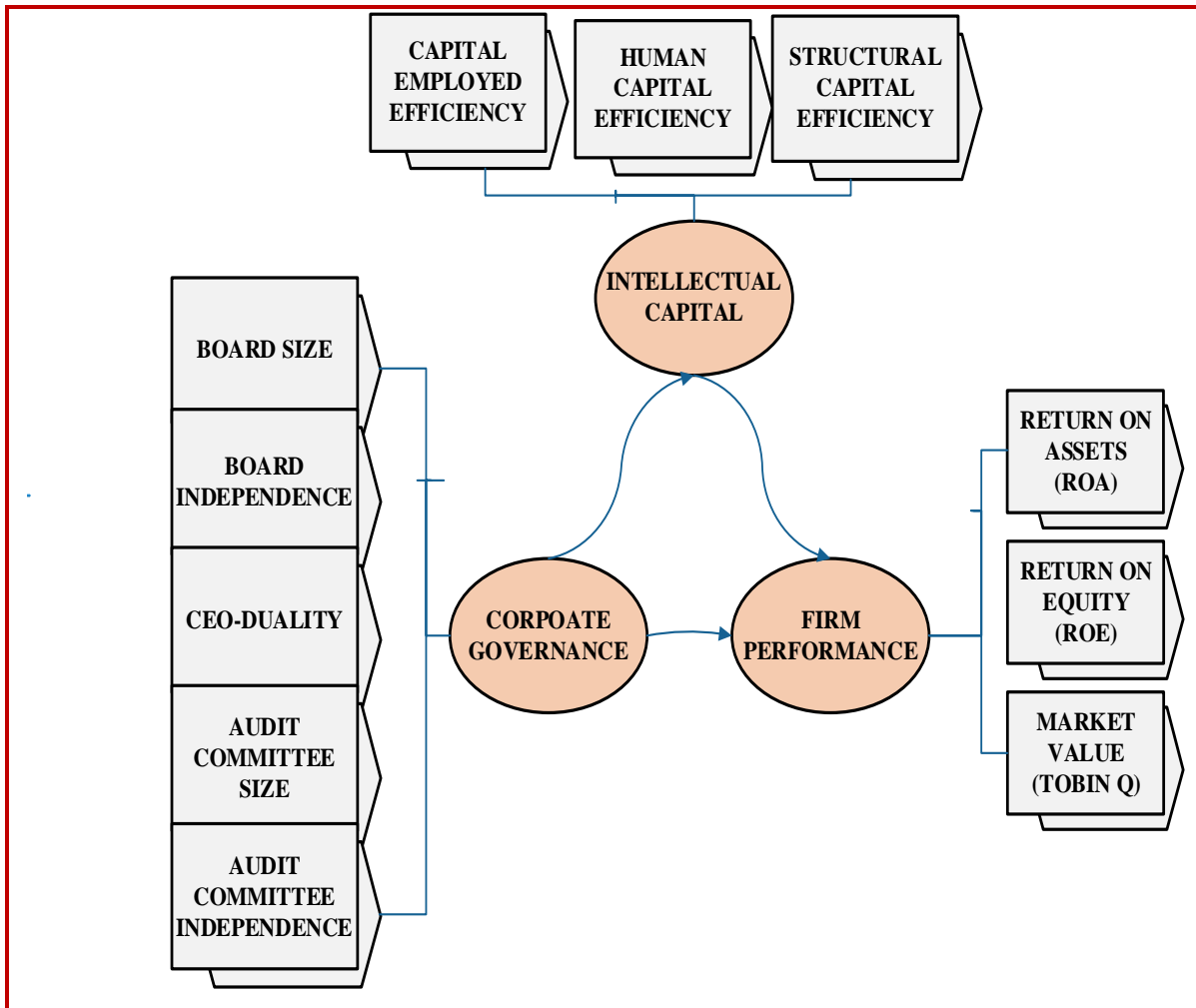


Source: Authors

Section 5: Mediation Role of Intellectual Capital

This section investigates the role of IC as a mediating factor in the relationship between CG and business performance. The MEDSEM command in STATA 14.0 has been used to do the mediation analysis. Capital Employed Efficiency, Human Capital Efficiency, and Structural Capital Efficiency are encompassed in intellectual capital (VAIC). Corporate governance entails board composition, board independence, CEO dual role, count of board meetings, and composition and independence of the audit committee. The company's ROA, ROE, and Tobinq performance were proffered.

Fig 5: - Framework for Section 5



Source: Authors

Findings:

One aspect of corporate governance that regulators, investors, shareholders, and researchers should pay the greatest attention to is board independence. The study's findings demonstrate that board independence significantly affects the market value of Indian enterprises. This finding supports the resource dependency theory's claim that corporate governance with most independent directors raises the market value of the company. The audit committee, board meetings, CEO duality, and board size, in contrast, have no bearing on how well a company performs. It implies that the country still needs to enhance its corporate governance policies despite periodic revisions since the year 2000. The global increase in openness and protection of the shareholder's interest index is evidence of the success of those changes. Therefore, one may say that the methods of CG in India are based on one of the core ideas of agency theory, which

is the notion that corporate governance protects the interests of shareholders by minimising agency concerns. On the contrary, one could assert that one of the ethos of agency theory holds that shareholders' interests are to maximise returns.

Additional research results show that the CEO-Duality has a considerable detrimental impact on the firm's market value. While agency theory condemns the CEO's utility as chairman and refers to it as CEO entrenchment, organisational theory claims that such roles can clearly demonstrate excellent leadership.

In the modern business environment, companies can survive for a long term only by acquiring new knowledge, information technology, skill development, organisation culture, competence, and intellectual property. Being an emerging economy, India has a huge potential for intellectual capital in terms of human and structural capital resources.

The results of the study demonstrate that intellectual capital, particularly human and structural capital, has a major impact on the performance of Indian listed enterprises. Higher intellectual capital allows businesses to compete in the Indian market. According to intellectual capital theory, a company's ability to compete successfully with its rivals depends on its ability to invest in human, structural, and relational capital. The research also revealed that corporate governance directly enhances IC. Thus, IC contributes to the understanding of the connection between CG and business success. The resource dependency theory states that corporate governance helps organisations to increase resource capabilities by attracting human, physical and structural capital, which has a greater impact on the market valuation and profitability of the firm. The stewardship theory stresses empowering employees by providing training, skill development, and knowledge, which leads to the creation of human capital.

Recommendations:

1. If the chairman is an executive in publicly traded companies, the board must include at least 60% independent directors. The executive chairman and controlling shareholders can influence the board and compromise the interest of minority shareholders and other stakeholders.
2. The chairman and CEO roles should be distinct since the CEO's function as chairman might create conflicts of interest in performance reviews. It can drain the CEOs' focus on strategy implementation. It can bring a conflict from the perspective of the CEO and chairman. A CEO as a Chairman can be critical of questioning and viewpoints of individuals. It can block the individual directors' viewpoint. It can bring authoritative culture to the board. It can be influential for independent directors to lay their independent perspectives.

3. There should be structured regulations for all the listed and unlisted companies to invest in intellectual capital. The investment in intellectual capital will not only increase the shareholders' wealth but also prevent the businesses' collapse due to market competition.
4. Complete intellectual capital disclosures should be made necessary for listing companies. Investors, shareholders, and other stakeholders will be able to keep track on the health of the company with the use of the intellectual capital disclosures.
5. The board of directors should take responsibility for making long-term strategies and decisions for intellectual capital generation

Limitation of Study:

The study's findings present extensive evidence about the connection among Corporate Governance, Intellectual Capital, and Firm Performance. However, the authors have acknowledged the potential limitations of the study. The first study did not include all the corporate governance parameters such as corporate governance scores, financial qualification of directors, risk management, transparency, and accountability of directors and directors' performance evaluation. Second, the time of the study was defined after the companies act 2013 was administered and did not include the financial sector firms. Thirdly, the study solely used leverage and firm size as control factors.

Future Scope:

1. Future studies should include board monitoring, minority shareholders' interest, board expertise, directors' performance evaluation, directors' tenure, remuneration, capital structure, industry type, and CSR Disclosures
2. By collecting primary data, future studies should cover the corporate governance mechanisms, such as demographic factors and stakeholders' perceptions.
3. Future studies could compare tech and non-tech companies, as tech companies need more diversified and knowledgeable directors.
4. Future studies should include more performance and control variables, e.g. debtors' turnover ratio, working capital ratio, debt to equity ratio and market capitalisation.
5. Future studies should compare two time periods, e.g. before and after reforms, before and after financial crises, and before and after corporate scandals.
6. Future researchers should study the listed financial sector solely by including NBFC and investment institutions, as their accounting system differs from the non-financial sector and has more restrictions.

7. As there are many family-owned conglomerates in India, future research might compare the corporate governance practices, transparency, efficiency, and independence between family-owned and non-family-owned businesses.
8. Future research might compare developed and developing nations as well as other Asian nations.

Conclusion:

Based on the study's findings, it can be concluded that corporate governance influences some performance attributes of the Indian listed firm. The results of the statistical study showed that, despite repeated attempts at corporate governance reform in India, the configuration and structure of the board still need to be improved to influence the financial performance of the corporation effectively and efficiently.

The empirical data show that IC has an impact on the financial performance of Indian listed businesses, but human capital is the most essential component. The outcomes of the statistical study demonstrate that the relationship between CG and company success is impacted to some extent by IC.

The theories and literature review support the thesis findings. As a result, the study advises that corporate governance and policies related to intellectual capital need to be improved. The results of the study revealed that CEO dualism had a detrimental effect on business success; as a result, the issue needs to be discussed to foster the interests of all stakeholders because agency theory forewarned that CEO duality affects board oversight and impedes decision-making independence. The study's findings also demonstrated that independent directors had a significant effect on corporate success. According to the notion of resource dependency, they have a relatively strong established connection to access the resources, increasing market valuation and profitability.

Several researches have been conducted on the relationship between CG and corporate success in both developed and developing countries. The goal of this study is to add to the knowledge that will help stakeholders understand the connection between corporate governance and business success. Although there is little research on the connection between IC and company performance in developing nations, particularly in India, this study will also assist the stakeholders by introducing new dimensions and characteristics to the subject. The policymakers should look into the matter to protect the interest of stakeholders by inducing long-term regulations based on the beliefs of relevant theories and literature review.

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ABBREVIATIONS

CG	:	Corporate Governance
IC	:	Intellectual Capital
FP	:	Firm Performance
BSE	:	Bombay Stock Exchange
SEBI	:	Securities Exchange Board Of India
CMIE	:	Centre For Monitoring Indian Economy
BSIZE	:	Board Size
BIND	:	Board Independence
BMEET	:	Board Meeting
CEO-DUAL	:	Ceo And Chairman (Being One Person)
ACSIZE	:	Audit Committee Size
ACIND	:	Audit Committee Independence
ACMEET	:	Audit Committee Meeting
OECD	:	Organisation For Economic Cooperation And Development
ROA	:	Return On Assets
ROE	:	Return On Equity
CEE	:	Capital Employed Efficiency
HCE	:	Human Capital Efficiency
SCE	:	Structural Capital Efficiency
HC	:	Human Capital
PC	:	Physical Capital
RC	:	Relational Capital
SC	:	Structural Capital
GMM	:	Generalize Method of Moment
OLS	:	Ordinary Least Square
CII	:	Confederation Of Indian Industry
PERDA	:	Interim Pension Fund Regulatory & Development Authority
IBBI	:	Insolvency And Bankruptcy Board of India
IRDAI	:	Insurance Regulatory and Development Authority Of India
ICSI	:	Institute Of Company Secretaries of India

CHAPTER 1

INTRODUCTION & BACKGROUND

Overview

Corporate Governance (CG) brings a delicate balancing act between stakeholders' interests, including management, customers, suppliers, financiers, government, and the public. Corporate governance encompasses almost all facets of business administration, from decision-making and internal control systems to performance evaluation and corporate transparency. One of the fundamental ideas of agency theory, removing the interest conflict among owners and managers, serves as the foundation for CG. With human beings' changing needs and wants, the concept of businesses and corporate governance also changed. The change in the concepts of profit-making to wealth maximisation and from the shareholders interest to the stakeholder's interest have increased the importance and role of CG in the business environment of capitalist economies.

In the opinion of Thomas Stewart and many others, knowledge has become the most crucial aspect of human beings and businesses in modern economies and the key to maintaining global competitiveness. Individuals and organisations can promote their goals by increasing the value of other production elements if they know what they know. Knowledge management is a response to the late realisation that intellectual capital is a basic asset of businesses and that it should be adequately defined and protected. From this vantage point, companies can generate and maximise a return on knowledge assets, also known as intellectual capital, by means of the growing number of tools, methods, and approaches, all of which are unavoidably backed by values.

This chapter includes two sections. Section one is about the introduction and theories, definitions and historical perspective of corporate governance, and section two consists of the introduction and concept of intellectual capital.

SECTION I

CORPORATE GOVERNANCE

1.1 Introduction

CG is a framework and compendium of procedures, rules, traditions, and institutions that guide and legislate how the corporation behaves. It aids in the administration and sustenance of organisations' activities. Monitoring, advising, and directing firms toward implementing their mission and vision goals are other duties of corporate governance. The Cadbury Committee outlined three elements of the company's corporate governance decision-making process in (1992). Who is in charge of making decisions first? The second consideration is who should be given priority when making a choice. Third, if and how comparable components, such as social, economic, political, and legal institutions, execute the decision-making process and its recommendations. The main principle of the governance system is to manage the connection among the BODs and other stakeholders and to accomplish the intended goals. It also deals with accountability, transparency, and meritocracy, reducing the organization's principle-agent problem (Khan, 2011). Corporate governance emerged as a most debated subject among policymakers, researchers, and academics (Saini and Singhania, 2018). The scams and collapses in early 2000 also fuelled the debate among researchers, academics, and professionals to protect the shareholders' and investors' interests (Madanoglu et al., 2018; Liu et al., 2018). A company with a weak governance structure results in accounting fraud, scams, and agency problems (Khan, 2011). However, firms with robust governance structures do not have to worry about agency issues that forbid managers from giving themselves personal rewards (Arora and Sharma, 2015).

The Satyam scam sparked strong discussions and debates about the Corporate Governance and regulatory issues facing the Indian corporate structure. Every industrialised nation on the planet now places a high priority on corporate governance. India plays a crucial role in the global economy. It cannot disregard the generally established rules, procedures, and guidelines in this field, including the laws requiring corporate governance, listing agreements, and disclosure standards.

The organisation of economic cooperation and development (OECD) has issued its best rules of CG, which are the best codes to follow (Kaur and Vij, 2018). Unlike developed economies, emerging economies typically have different governance characteristics to protect shareholder

rights (Al Farooque et al., 2019). Research intensity on corporate governance has increased and explored in developed economies over time. But in emerging countries, this area is still in the initial stage (Saini and Singhanian, 2018).

1.2 Historical Perspective of Corporate Governance:

1.2.1 United States of America (USA)

According to Moody (1904), many banks and enterprises are under the sway of powerful banking houses and a few anti-democratic families. They kept an eye on and had control over corporate governance in order to formulate company policies. But in the 1930s, things started to change. At the conclusion of World War II and throughout World War I, share ownership underwent a considerable democratisation. The diversification of American firms had started in 1917–1918, and celebrity share ownership campaigns in popular publications and media about Wall Street transferred American riches into the right stock market channels (Thompson and Davis, 1997). People associated the 1929 collapse of the big business pyramids with the Great American Depression and strong corporate control, which served as justification for a flurry of progressive changes. Regulations were altered following the Great Depression to forbid financial institutions including banks, insurance companies, mutual funds, and pension funds from having a strong influence over corporate governance (Keenan, 2004). The age of institutional investors began in the year 1970. Few institutional investors that operate as fiduciaries on behalf of people hold ownership responsibility for both private and public pension funds. 1980 saw hostile takeovers of American corporations and corporate restructuring. Due to this circumstance, American businesses now operate professionally, and the ownership and board management structures have altered. Since then, most companies have followed corporate governance (Monks, 2005).

1.2.2 United Kingdom (U.K.)

In the United Kingdom until the 20th century, the rights of shareholders were too weak, and the legal protection of shareholders permitted diffuse ownership. The corporate governance revolution began in the early 1990s as a result of a Cadbury report on the financial aspects of CG. The goal of Cadbury's study was to offer ethical corporate disclosure norms for optimal company governance (Keenan, 2004). The guidelines for best practices were sanctioned by the stock exchange as a standard for efficient and productive boardroom procedures. In 1995, further guidelines for executive director compensation were adopted by the Green-bury Committee in response to numerous well-known scandals, including the "Fat Cat" Scandal.

Based on earlier reports to create compressive corporate governance regulations, Derek Higgs was given the task of working on it in 2002. However, some major firms rejected this report,

stating it minimised the chairman's role and placed too much responsibility on non-executive directors (Liu, 2005). The Higgs report was updated and authorised on November 1, 2006, and a committee was formed by the British government to investigate it.

1.2.3 Germany

In contrast to widely held beliefs, the history of corporate governance in German banks deviates from these principles (Fohlin, 2004). Since the end of World War II, a consensus has emerged about German CG. There are various misconceptions concerning the ownership and management of German enterprises in this widely held yet erroneous opinion. Private banks, industrial corporations, and minority shareholders in Germany in the 19th century that were backed by affluent families and foreign investors did not outperform other corporations (Cromme, 2005). To safeguard minority shareholders and the general public from this era's self-serving insiders, Germany created new company legislation in 1870 (Jackson and Moerke, 2005).

Germany's economic system is currently governed by a small number of powerful individuals and corporations, and top banks frequently exercise this control indirectly (Schilling, 2001). German business houses have often been poor as a result of their restrictive corporate governance standards, since they have failed to attract investment from foreign institutional investors owing to parochial CG practises. After the global financial crisis of the 2000s, significant modifications were made to German company law and corporate governance. The main focus was enhancing corporate governance in Germany's publicly traded corporations. Below, I'll devote some space to discussing the 2002 establishment of the German CG Code. Previously simply a guideline of the German Corporate Governance Code, this Act mandates the individual disclosure of the salary of members of the managing board. The Fairness of Management Board Remuneration Act of 2009, which also addresses executive compensation, mandates that pay be tied to the business's long-term success. The Act to Modernize the Law on Private Limited Businesses and Combat Abuses of 2008, as the name implies, was primarily concerned with private limited corporations. Nonetheless, it includes changes for public limited businesses, such as improvements to the statutes governing director disqualification. There have been ongoing legislative interventions into the German law governing public limited businesses. In 2015, lawmakers ensured that supervisory boards had equal numbers of men and women by setting a goal of 30% female representation.

1.2.4 Japan

Japan's history of corporate governance is different and complicated than in other essential countries. Back in the 19th century, Japan was a highly conservative and isolated country. As a hereditary caste system, business houses in Japan were mainly owned by priests, warriors, peasants, and artisans. Intercompany shareholdings characterised the economy of Japan and intercompany dictatorship as Japan had more insider-dominated groups and a credit-based financial system (Cooke and Sawa, 1998).

By the 20th century, the trend changed from insider to market. The rapid growth of Japanese industries began with a mixture of state capitalism and family-owned pyramidal business groups (Jacoby, 2007). The pyramidal business houses like Zaibatsu and Nissan joined the country's formal economy, and all the subsidiaries were floated from these business groups. The shareholders from outside and inside the country started eagerly investing after implementing the appropriate corporate governance structure to protect the shareholders and other small firms (Jackson and Moerke, 2005).

1.2.5 China

Until 1978 most Chinese businesses were state-owned. The mechanism for running those enterprises was entirely administrative driven through which the country's government took all the enterprises' decisions (Liu, 2005). The development of CG in China was based on three phases.

From 1978 to 1984, the state-owned enterprises were decentralised. The basic rules and regulations to run the enterprises were changed, and the concept of enterprises was readjusted (Liu, 2005). By introducing decentralisation, the managers of State-Owned Enterprises got more freedom to take necessary fundamental decisions independently.

From 1984 to 1992, the management responsibility and profit distribution system was introduced in which large and medium-sized enterprises were taxed, and profit was shared between enterprise and government.

The final phase from 1993 to 2003 came with primary and essential features in which the relationship between state-owned enterprises and the government was established. Modern corporate governance regulations were adopted during this time, defining the duties of company directors and managers (Sun and Tobin, 2005).

1.2.6 India

In early 1600 East India Company was the first joint-stock Company with almost more than 3000 stockholders. The interest of these shareholders was handled by a group of 24 persons acting as

directors of the Company (Seth, 2012). This separation between ownership (shareholders) and control (management) gave birth to the agency problem, a particular field of knowledge called CG.

In 1996 CG in India was introduced and launched by the CII by creating a special committee under the supervision of R. Bajaj to develop a CG code for Indian corporations. Desirable CG code was the name of that CII code in 1998. Most of the CII recommendations were later incorporated by the K. M. Birla Committee and in the listing agreement. At the beginning of 1999, SEBI formulated a commission under the supervision of K M Birla to raise and improve the Corporate Governance standard by setting up the principles. The main purpose of this committee was to outlook CG from the perspectives of investors and shareholders by preparing a suitable code for CG in India. This committee was further divided into two different categories: mandatory and non-mandatory recommendations. Mandatory recommendations are essential, and those recommendations can be enforced through companies listing agreements as compulsory. This recommendation was only for those companies whose paid-up capital was three crores or more.

SEBI introduced a new condition in the listing agreement on February 21, 2000, named Clause 49. The applicability of these principles and practices to all the listed companies with three crores or above paid-up capital or 25 crores of net worth at any time from the incorporation of the Company. SEBI introduced six circulars on Corporate Governance and detailed Corporate Governance provisions, their applicability, reporting requirements, etc. Clause 49 was introduced under the listing agreement to improvise the CG standards in India under the supervision of Shri N Murthy (Chairman). The amendments to clause 49 were enforced according to the committee recommendations.

In 2003, the SEBI created a CG committee under the direction of Shri Narayana Murthy. The goal of this group was to assess current corporate governance procedures and policies and set new standards for them. The recommendations of this committee were based on the following criteria: independence of directors, risk management, code of conduct, ease of implementation, fairness, verifiability, and enforcement.

The SEBI overhauled Indian corporate governance practices as a result of the Satyam fraud. For a number of reasons, including the Satyam scandal, the Indian government took action in 2009 to revamp its governance procedures. Over time, the decision-makers had carried out the recommendations given by the committees.

1.3 Definitions of Corporate Governance:

The definitions of CG change with the changing context, political and cultural circumstances, and with the perspectives of scholars and professionals (Aramstrong and Sweeney, 2002). Researchers, academics, and other professionals have different schools of thought. One group comment that corporate governance maximises the shareholders' wealth (Sundaram and Inkpen, 2004). In contrast, others contend that corporate governance is required to benefit shareholders and stakeholders, whose support is critical to the organisation's success. Even though the fundamentals of corporate governance are similar, the practical implication emerges differently at the individual firm's level. The long-term objective of the public organisation is to generate long-term value, which may be done with the help of a sound corporate governance framework. Value creation and value protection are categorised as the companies' missions. Creating a long-term strategy for the company to execute sustainably can help create value. By having monitoring and accountability checks, value protection can be carried out to keep the interests of shareholders and stakeholders. The definitions that follow reflect the justifications that were made.

OECD (2001) describes corporate governance as

".... Corporate governance refers to the private and public institutions, including laws, regulations, and accepted business practices, which together govern the relationship, in a market economy, between corporate managers and entrepreneurs (corporate insiders) on the one hand and those who invest resources in corporations, on the other...."

The fundamentals of CG can be traced to (Adam Smith's, 1776) nation wealth.

".... Being the managers rather of other people's money than of their own, it cannot be expected that they should watch over it with the same anxious vigilance with which the partners in a private co-partner frequently watch over their own"

The objectives of the managers and owners cannot go along because of different self-interests and information asymmetry of the organisation. Conventional corporate governance introduced a system in which authority is handed over to the agent to maximise the organisation's wealth on behalf of the principle. (Jensen, 2001) stated that the real issue of CG is that the objectives of corporate managers many times conflict with the purposes of the owners or stakeholders. Indeed, managers and principles behave rationally to maximise shareholders' wealth, but managers sometimes act against the Company's owners because of their self-seeking behaviour (Adams, 1994). The higher freedom and more minor ability to control the agents leads to a more extensive uncertainty of principle because the agent's act has its own internal and external effect on

shareholders and the Company's value creation (Keil, 2005). From time to time, the failure of corporate governance has given researchers and practitioners opportunities to investigate the area of corporate governance further. Many studies are available worldwide to build vital insight into corporate governance, leading to proper implementations of its mechanisms.

Corporate governance is a relationship between management, chief executives, shareholders, and employees to determine the corporate direction towards wealth maximisation and value creation (Bicksler et al., 1996).

(Blair, 1995) defined CG as

".... The whole set of legal, cultural, and institutional arrangements that determine what public corporations can do, who controls them, how that control is exercised, and how the risks and return from the activities they undertake are allocated...."

(Becht et al., 2002) dispersed ownership creates a problem for the organisation by increasing conflict of interest between various stakeholders. The way to mitigate this problem is first to control it in a few hands. Second managerial interests should be aligned with investors. It is stated that a good steward should not hesitate to take the moderate risk necessary for growth. Still, past and recent corporate failures due to risk management led boards to rethink their risk management mechanisms. (Grove and Clouse, 2017) managing and controlling risk in any organisation should be the leading and top priority of the board members. (Jensen and meckling, 1976) confirmed that agency theory suggests two types of people: risk neutrals, i.e., shareholders, and risk-averse, i.e., managers, monitored by the boards. Without monitoring, managers may reject the profitable and attractive project to shareholders.

ASX council defined CG as

".... It is the system by which companies are directed and managed. It influences how the Company's objectives are set and achieved, how risk is monitored and assessed, and optimised performance. Good corporate governance structures encourage companies to create value (through entrepreneurship, innovation, development, and exploration) and provide accountability and control systems commensurate with the risks involved...."

Good corporate governance may improve the stock prices, leading to less cash flow and higher profit fractions for the investor (Jensen and meckling, 1976). Higher market value is a reflection of better corporate governance practices. However, implementing the appropriate corporate governance practices is less costly than monitoring benefits (Ammann et al., 2011). (Shleifer and Vishny, 1997) good corporate governance may lead to lower expected returns to the level that it will reduce stockholders' monitoring and auditing costs and reduce capital costs.

1.4 Models of Corporate Governance:

The models of CG are methods of governing corporations with several dimensions. No standard corporate governance model is accepted universally; therefore, it differs from country to country. There are two categories of corporate models: a single-tiered model known as the unitary board of directors and a two-tiered model.

1.4.1 Single-Tiered Model

The Anglo-Saxon or unitary board model is called the single-tiered model. The US, Canada, UK, Australia, and other commonwealth countries follow the single-tiered model. In this setup, both executive and non-executive directors serve on the same board. One person plays the role of CEO and Chairman; the position is called CEO-Duality. Because it primarily prioritises the apprehensions of shareholders while bypassing those of other stakeholders, this paradigm is also known as the shareholders' model. Through their voting privileges, shareholders appoint the board members to serve as their agents. Board members in a single-tiered board structure typically have three duties: strategy design, accountability, and management control. The unitary board model limits the participation of various unions within organisations and eliminates workers from strategic decision-making.

Fig 1.1 Anglo-Saxon model



Source: (Mostepaniuk, 2017)

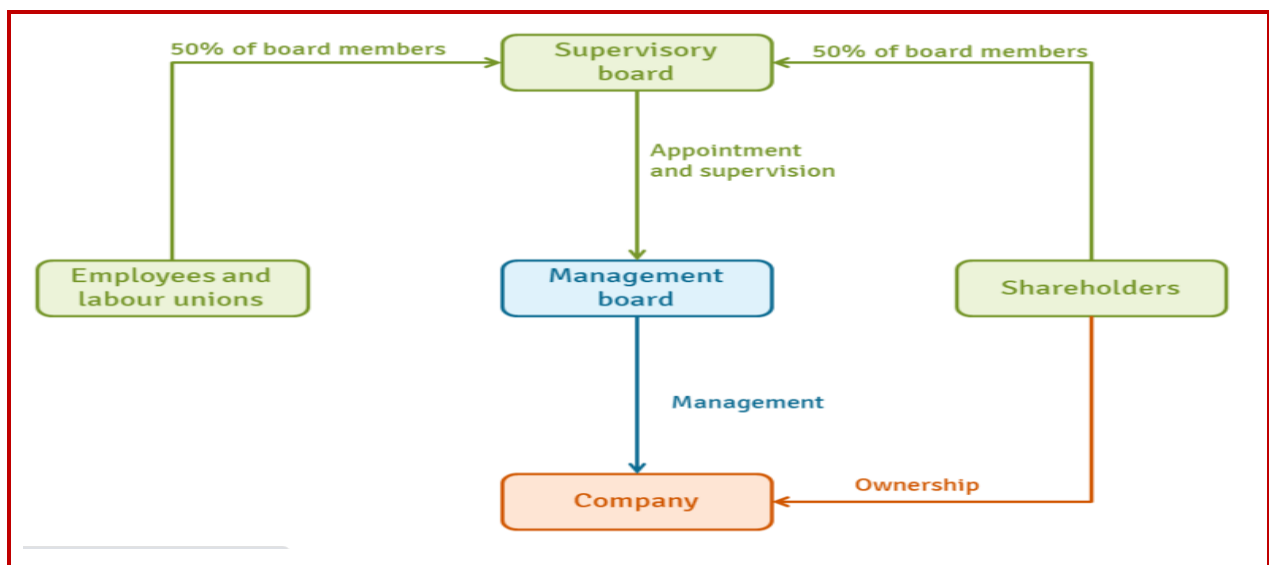
1.4.2 Two-Tiered Model

The name two-tiered board itself shows that this model consists of two panels. One board is called the supervisory board, which monitors the Company, and the other is an executive board that manages the Company. The two-tiered models are followed by France, Germany, Holland, and many European countries. Two-tiered models have two forms such as the German CG model and the Japanese CG model.

(a) German CG Model

The two-tiered approach is used to build the German CG paradigm. The continental European model is another name for the German CG model. Employees and workers can participate in decision-making under the German model. In this form, the workers and their unions elect the other half of the supervisory board, with the shareholders appointing 50% of it. Contrary to the one-tiered conceptual framework, one person cannot occupy two positions while considering the needs of all stakeholders. The executive committee is directly reported to and held liable by the supervisory board.

Fig 1.2 The German model

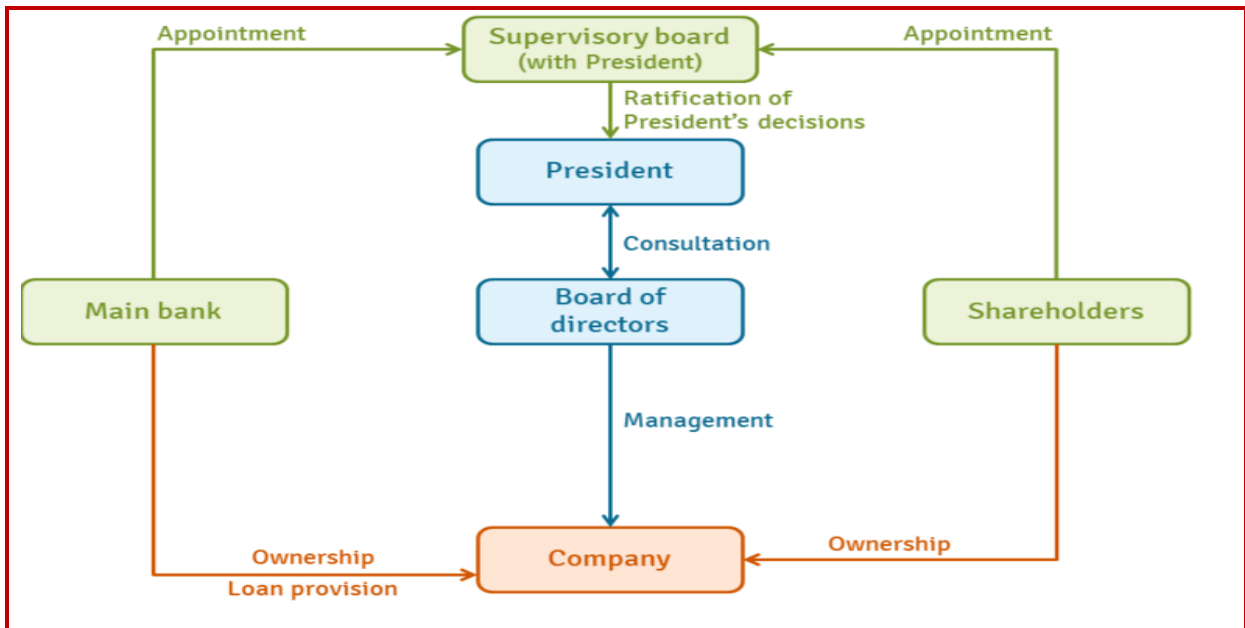


Source: (Raju, 1999)

(b) Japanese Model of CG

The Japanese CG model is also known as the network model. There are some differences between the Japanese and German models, such as board structure, employee participation, and management monitoring methods. In the Japanese corporate governance model, financial institutions play a huge role. Those financial institutions decide the board structure. Shareholders and central banks appoint the supervisory board. This model provides more opportunities for decision-making participation to the employees.

Fig1.3: -Japanese Model

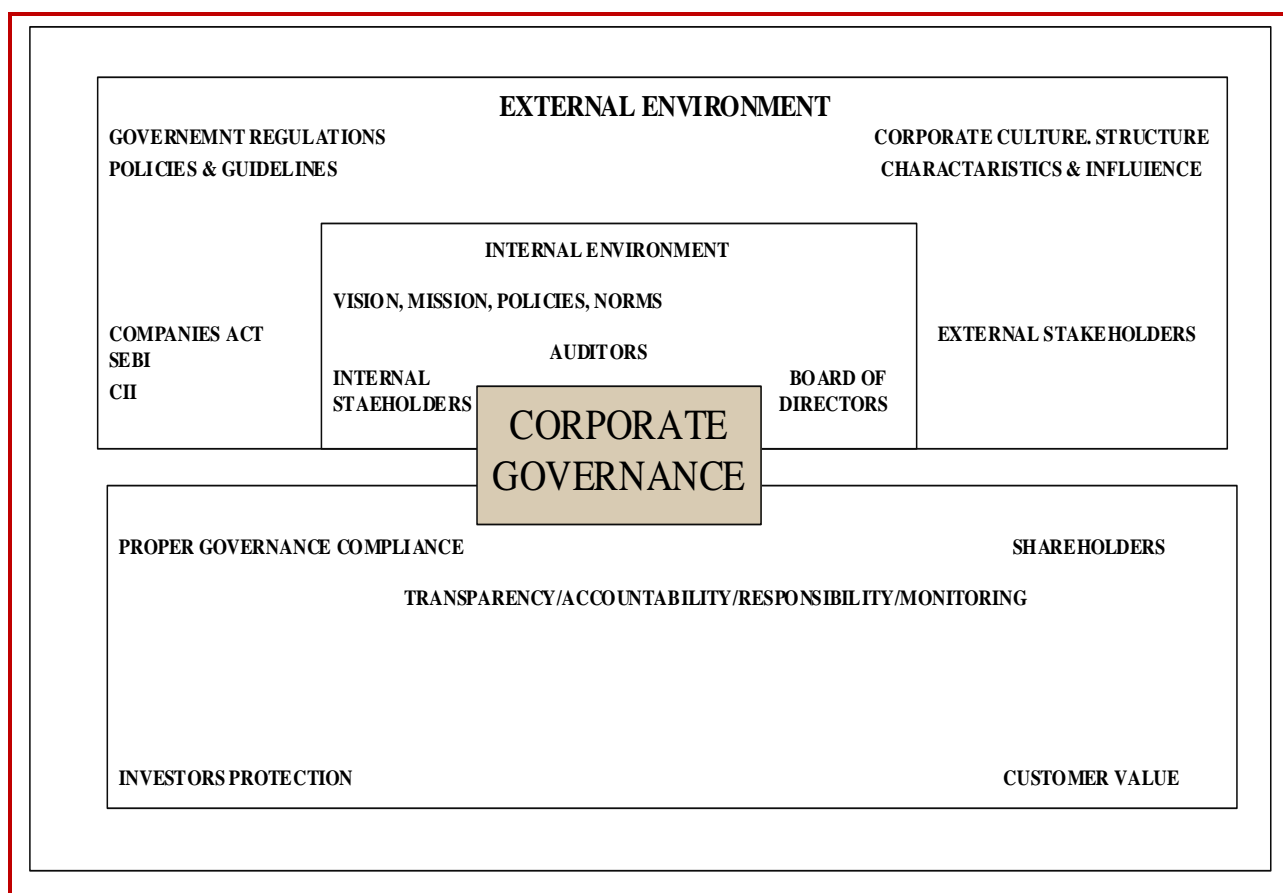


Source: (Raju, 1999)

(c) Indian CG Model

Corporate governance in India comprises both one-tiered and two-tiered models of corporate governance. In India, different companies are working, such as private companies, public companies, government firms, and financial institutions. The ownership pattern for each category of the Company working in India is different. In the case of unlisted companies, the ownership is in the hands of the promoter/family member. A state-owned business entails one in which the state or the federal government owns the enterprise. Conjointly, in the case of public businesses, the shareholders are the company's owners. Private corporations appoint their board members from within their family group using finances to maintain earnings and debt sources. In terms of CG, corporate structure, and management, India embodies the German/Japanese model in many ways, according to extant studies. However, the country is moving more and more toward embracing the Anglo-American paradigm because of recommendations from numerous committees and subsequent legislative actions. The Companies Act of 1956 and 2013 governs businesses in India.

Fig: - Indian corporate governance model



Source: (Zeenat Jabbar, 2014)

1.5 Theoretical Perspective of CG

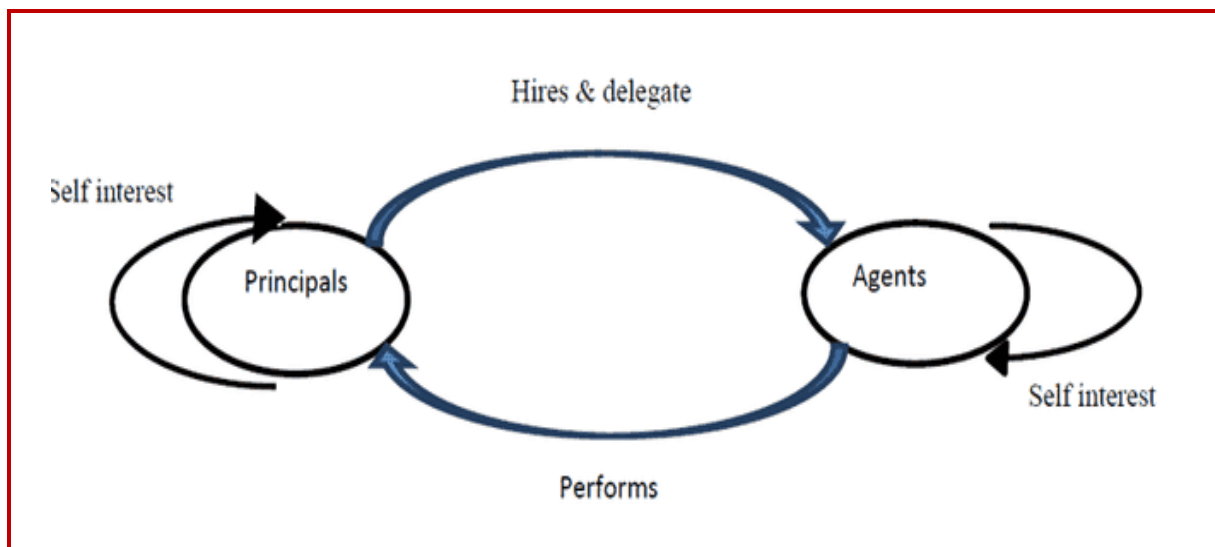
1.5.1 Agency Theory

This model has been intensely discussed in management and economics literature (Daily et al., 2003). Researchers have used agency theory in economics, accounting, political science, marketing, and finance (Ronen and Kashi, 1995; Watts and Zimmerman, 1983; Fama and Jensen, 1983). Agency problems have a history decade ago when people were doing business and tried to maximize their money. Agency problems existed in different shapes.

The agency problem and its solution revolve around the agency theories of corporate governance. The organisations had suffered in various forms, and agency problems had taken different shapes by solving the organisational conflicts and problems (Panda and Leepsa, 2017). According to the agency theory, the problem arises when the agents, known as managers, act selfishly and avoid the interest of principles known as owners. To avoid the conflict between the principles and agents, agency theory proposes corporate governance practices to act independently on their behalf (Bonazzi and Islam, 2006).

Agency theory claims that separating the tasks and responsibilities of the BODs and CEO will protect the interest of shareholders (Donaldson and Davis, 1991). This theory assumes that a larger portion of independent directors who are focused on protecting the interest of shareholders can monitor the managers and the firm performance. There has been considerable criticism of the arguments of agency theory by numerous scholars and practitioners. They state that the assumptions of agency theory are too restrictive and cannot be generally applicable. Individual actions depend upon their state of wealth and their needs and desires, which can be fulfilled by maximising their wealth. The same individual can be risk-taker, risk-averse, and risk-neutral, depending upon his choice. The contract between principles and agents is designed based on available information but doesn't consider future uncertainties and opportunities. According to some authors, agency theory paints a bleak view of human nature since it assumes people are opportunistic. Some researchers argue that the theory fails to include the ramifications of the principal's opportunism, such as the possibility that he will try to defraud the agent in terms of performance evaluation or reward.

Fig 1.4: The Agency Model



Source: (Abdullah, 2009)

1.5.2 Stewardship Theory

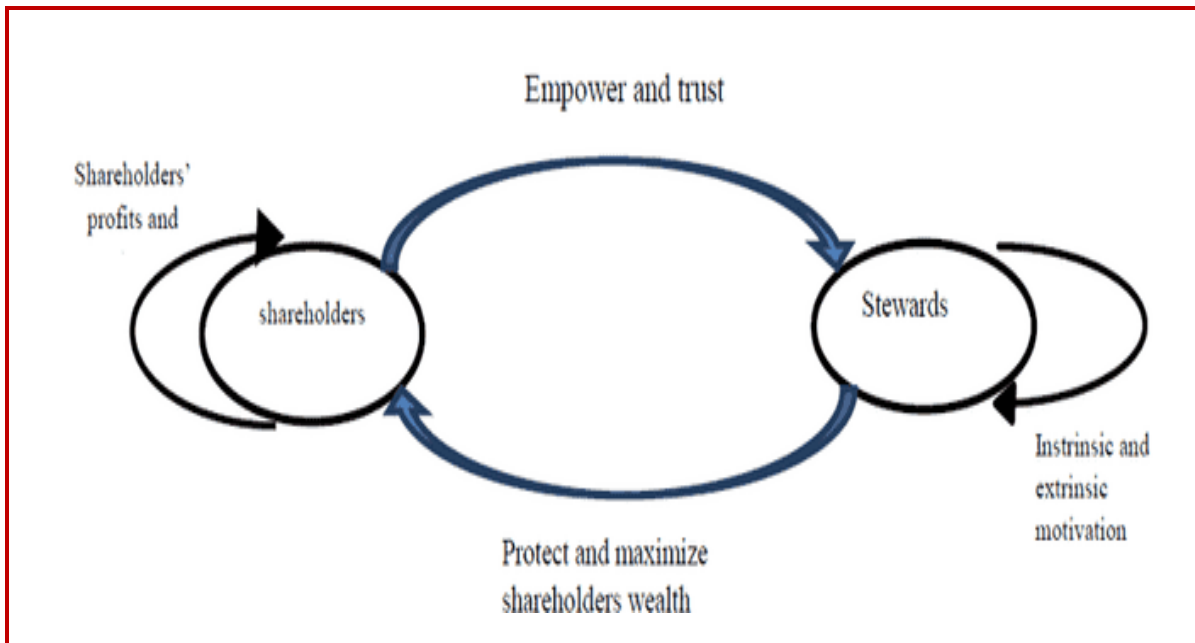
This theory is based on psychology, while sociology focuses on managerial behaviour, emphasising that managers are excellent stewards and act in the interests of the principles/shareholders (Donaldson and Davis, 1991). Stewardship theory is an alternative motivation for managers. The managers act responsibly and steward the company assets rather than searching for opportunistic shirkers (Donaldson, 1990; Barney, 1990). The steward's behaviour is always pro-organisational, and the steward's primary concern is to achieve

organisational objectives collectively (Davis et al., 1997; Qiao et al., 2017). There is a strong connection between CG and the maximisation of shareholders' wealth, and the stewards' benefits are also maximised, in which stewards have a clear mission (Smallman, 2004). Stewardship theory builds an understanding and trust between the owner/principal and manager, leading the organisation towards innovation (Zhang et al., 2017). Stewardship theory defines the relationship between organisational success and managers by maximising and protecting the shareholders' wealth through corporate performance, satisfying and serving the interest of the stakeholders in the organisation, which leads to an increase in the wealth of the organisation.

When an individual holds the role of CEO and chairman, the responsibility to make critical decisions and determine the organization's strategies falls on one hand. The focus of the stewardship theory is not on CEOs' motivation. It is mainly upon the structure which facilitates and empowers the organisation rather than controlling and managing it (Davis et al., 1997). The stewardship theory supports appointing one person for the CEO and chairman job and more executive members rather than non-executive members on the board (Clarke, 2004).

This theory is relevant to defining the role of internal audit in the organisation because this theory is all about the collective or common interest of the principal and manager (Zhang et al., 2017). The motivation of the managers in the non-profit organisation in the light of the relevance of the stewardship theory as compared to the agency theory, which explains that the factors behind the motivation of employees are because of coordination, understanding, and a friendly environment in the organisation (Kluvers and Tippett, 2011). The oneness in spirituality, financial decision-making, and stewardship is essential for the organisation's survival. The failure of organisations and economies can be traced to the absence of spirituality and stewardship (McCuddy and Pirie, 2007). In contrast, Agency theory assumes outside members are more effective in handling and managing internal control and organisational functions.

Fig 1.5: The stewardship Model



Source: (Abdullah, 2009)

1.5.3 Stakeholders Theory

The Stanford Institute of research initially introduced the term stakeholder, referring to that without the support of stakeholders, organisations would not survive. Stakeholders include shareholders, government, the public, buyers, sellers, and decision-makers.

The firm's success depends on maximising shareholders' wealth and the relationship between stakeholders and organisations in general. The idea that a company sufficiency is when it has positive relationships with its stakeholders is supported by this notion. Primary and secondary stakeholders are the two broad categories into which stakeholders can be categorised. Secondary stakeholders are the government, political groups, trade associations, and the community, in contrast to primary stakeholders: shareholders, customers, creditors, buyers, and suppliers.

According to the stakeholder hypothesis, organisations should protect the legitimate interests of those groups that are impacted by their operations (Donaldson and Preston, 1995). In the present scenario, this theory is relevant when the policymakers, researchers, social activities, and the public are interested in global warming, green economies, and health issues

1.5.4 Resource Dependency Theory

Resource dependency theory is one of the most well-known theories of organisation and strategic management. Because of the inherent limitations of the agency theory, researchers have connected the significance of the resource dependency theory to corporate governance (Daily et al., 2003). Future resource dependency theory benefit from concentrating on how directors assist

the company in acquiring important resources and serve as a source of guidance and counsel for CEOs rather than only on their willingness or capacity to control executives, since this would be a more fruitful direction to take. As per this theory, a board of directors concentrates on the outside environment to obtain resources.

The board of directors assists organisations in obtaining necessary resources from the outside environment, which has an impact on the firm's market value and profitability (Barney, 1991). To control the organization's reliance on external resources, the corporate board reduces the uncertainty and dependence linked with the external environment (Bonn and Pettigrew, 2009; Hillman et al., 2000). Enhancing the firm's credibility and public image, offering knowledge, counsel, and advice, linking the firm with significant stakeholders, easing access to resources, and developing external relationships are just a few of the board's main resource reliance characteristics.

The Board of directors also assists in formulating strategy and other important decisions for the firm, all of which depend on the board's involvement (Boyd, 1990). Offering knowledge, advice, and counsel; connecting to essential players; easing access to information and resources; and strengthening the firm's credibility and image (Hillman et al., 2000). The resources given by CG according to the resource dependency hypothesis.

1.6 Need for Corporate Governance:

Corporations of all sizes play an essential role in modern economic societies. Corporations are the backbone of the economy, producing both wealth and employment. Having good corporate governance increases the likelihood of creating sustainable, domestic or regional capital markets that are both efficient and effective at utilising resources and creating high-quality jobs. Public institutions benefit from good corporate governance as well, as more ethically run businesses are less likely to be involved in activities that could harm both corporations and general society. Good CG is critical for attracting conservative equity capital that may contribute to domestic long-term growth. According to a new McKinsey & Company poll, shareholders are ready to pay a significant premium for basic CG practises. But, the benefits of good governance extend beyond luring in foreign portfolio investors.

The collapse of national and international giants like Worldcom, Enron, AOL tycoon, and Satyam is a wake-up call for the owners, management, and shareholders to make them realize the practices and principles to save themselves from paying the corporate criminal liabilities in the future. The concept of corporate governance widened because of the growing agency problem in the organisation and rising conflict between the management and owners. Good corporate

governance practices in the corporation reduce the organisation's frauds, disputes, and negligence. The standard practice of corporate governance improves the organisation's transparency and fairness, promoting better financial reporting disclosure to the shareholders and the public.

Since 1996, corporate governance has been widely practised in India, and authorities have worked to raise the bar and procedures for it. Due to poor corporate governance, India has nonetheless seen a number of corporate frauds and scams despite the ongoing efforts of regulators. Numerous scholars and researchers concur that strong CG is necessary to safeguard shareholders' rights and increase a company's value. Good corporate governance, according to the OECD, serves as a watchdog by ensuring that a company's success pillars—transparency, accountability, meritocracy, and trust—are upheld.

This is particularly true given that businesses now operate on a worldwide scale, making it more difficult than ever for them to prosper without the support of efficient corporate governance.

SECTION II

INTELLECTUAL CAPITAL

1.7 Introduction

Intangible resources gained importance in the 1980s, commonly known as the information age. The shift has transformed the current business environment from industrial capitalism that relies on tangible and physical assets to a knowledge economy in which knowledge resources play a crucial role in creating value. In this new economy, the creation and maintenance of knowledge resources or intellectual capital, rather than the production of tangible assets, is the source of economic value. In the existing literature, the terms "intellectual capital," "intangible assets," and "knowledge assets" can be interchangeably used (Edvinsson and Malone, 1997; Wagenhofer, 2001). Although intellectual capital has no specific definition, experts agree on a few crucial terms. These include knowledge, experience, and skill.

A company's resource-based theory (RBT) gives rise to the concept of strategic resource (Penrose, 1999). Because intellectual resources have unique, idiosyncratic characteristics, they are strategically important and used to create a competitive advantage (Barney, 1986; Conner, 1991; Peteraf, 1993).

Like the argument, the OECD (1999) stated that corporations now invest significantly in employee competencies, research and developmental activities, customer relations, and computer and administration systems. This contrasts with financial and physical investments. According to this view, the knowledge economy regards investment in intellectual capital as crucial for maintaining and sustaining business growth and profitability, competitiveness, and sustainability (Bose and Oh, 2003; Kaufmann and Schneider, 2004).

Researchers have concluded that intellectual capital is the primary source of value, the driving force behind business performance, and the core of achieving a sustainable competitive edge (Edvinsson and Malone, 1997; Sveiby, 1997; Kaplan and Norton, 2004). The researchers were also interested in intellectual capital because physical assets are not the only component that can explain the market value for corporations in the new economy (Ballou et al., 2004). The 2001 study by Lev, in which the U.S. market was examined, justified this conclusion. It was found that approximately 80% of corporate market value was still unexplained in traditional financial systems. Ocean Tomo's Intangible Asset Market Value Study (2015) found that the percentage

of intangible assets in S&P 500 firms' market value, 17% in 1975, increased to 68% and 87%, respectively, in 1995 and 2015. The gap between book and market value is due to the percentage of intellectual assets not included in traditional accounting assets (Andriessen, 2004). The rise of the new economy made intellectual capital more important than ever, which made intellectual capital measurement and management a necessity.

The dominance of intellectual capital is also justified by the statement made in the Task Force Report by the Planning Commission, India (2001), in which it was declared that the "twenty-first century will be a century of knowledge" and that only those nations that understand the dynamics of knowledge will survive and succeed.

Research has shown that intellectual capital is increasingly impacting firms' market value. This was evident by evidence from Eccles and Mavrinc (Eccles et al., 2001). Investors demand information that goes beyond what is presented by accounting standards. Like the argument, many researchers acknowledge that intellectual capital disclosures can improve transparency, reduce adverse selection problems, lower capital costs, and improve relationships between organisations and their stakeholders (Gray et al., 1995; Sing et al., 2008).

Major research projects took several initiatives to make disclosing intangibles assets, such as DATI (1998) and OECD (1999). These efforts were made possible by accepting intellectual capital as a source of economic growth or, as (Sveiby, 1997) cites, the recognition of intellectual capital "new wealth" of organizations.

Certain theories can help explain the relevance of intellectual capital disclosures (ICD). Legitimacy theory, for example, states that to legitimise a company's position, societal compliance must be met. Firms can legitimise themselves by revealing information. It is also believed that disclosing intellectual capital information within annual reports signals the market. These signals can increase a firm's market value (Anam et al., 2011). Numerous times, IC is mentioned as a valuable value-creating resource in the extant literature. As a result, stakeholders can better appraise intellectual capital based on information available in annual reports, which reduces investor apprehension and mispricing of stocks (Abdol Mohammadi, 2005; Anam et al., 2011; Uyar and Kilic, 2012).

1.8 Definitions of Intellectual Capital:

The term "intellectual capital" has no universal definition. Intellectual capital has been defined differently by many schools of thought. Although organisations view intellectual capital as one of their most important resources, they struggle to define it. Existing literature indicates a wide range of definitions of intellectual capital across the disciplines.

According to (Bontis, 2000),

".... intellectual capital refers to a quality of people, knowledge, structure of organisation and relationship with the stakeholders that gives a competitive edge in a knowledge-based economy...."

According to (Marr and Schiuma, 2001),

".... intellectual capital is a group of knowledge assets attributed to an organisation and most significantly contributes to an improved competitive position of the organisation by adding value to define critical stakeholders...."

Similarly, according to (Nahapiet and Ghoshal, 1998),

".... intellectual capital can be referred to as intellectual resources that have been formalised, captured, and leveraged to create an asset of higher value...."

According to (Bontis and Nikitopoulos, 2001),

".... intellectual capital is a collection of intangible resources or non-monetary values without the physical appearance that possesses intellectual attributes that can ultimately increase an organisation's market value...."

1.9 Components of Intellectual Capital:

1.9.1 Human Capital

Human capital is an intangible capital that can be developed and trained to perform efficiently using natural or unnatural skills (or skills provided by the organisation through training and development programs). Organisations must upgrade their employees' knowledge and skills to cope with changing situations.

It plays the most crucial part in the IC building. It is considered the heart of IC. It helps the organisation build an intelligent and talented workforce by providing proper training, education, innovation, capabilities, and relevant skill set. (Bontis and Nikitopoulos, 2001) illustrated that the key to generating intellectual capital is employees' competency, attitude, and intellectual agility. Human capital consists of cost in terms of education, training, and development of employees, and its return is expected in productivity in the future. Training and education are essential for the employees because they will help polish their skills and make them critical and innovative thinkers, which is beneficial for the organisation in the long term. India is an emerging country with great potential for human capital. As per the official reports, more than sixty per

cent of the Indian population is under thirty-five, which can serve an organisation longer. Indian corporations must utilize their human resources with cheaper costs and benefits.

1.9.2 Structural Capital

Structural Capital (SC) is a way through which organisations meet their requirement capabilities. SC consists of company structure, routines, regulations, systems, culture, database, organisational charts, and strategies. SC is also known as supportive capital for human capital. Structural capital remains in the organisation even when no one exists, maybe during the night or on other holidays. The employees normally create structural capital, but it remains with the organisation, such as patents, copyrights, and computer software. (Bassi and Buren, 1999) outlined that structural capital is also known as innovative and process capital because of employees' organisational capabilities. One can create new and innovative products and services. (Saint-Onge, 1996) outlines that the SC of the enterprises consists of four significant elements: system, structure, strategy, and culture. The element of the system is how the processes and outputs of the enterprise proctored. Structure compiles more accountability and responsibilities, describing the employees' positions. A further strategy is a particular way or path an organisation seeks to achieve its goals. At the same time, culture defines the organisation's diversity, like individual opinions and values and norms of the firm.

1.9.3 Capital Employed Efficiency

Capital Employed Efficiency (CEE) is one of the three synergistic components of IC. Capital employed includes physical and financial capital. It is calculated through the value-added method (pulic, 1998). Capital employed efficiency is fully linked with the survival of an organisation. It explains the relationship between an organisation with people and other institutions, capital employed is a medium through which organisations build a relationship with their customers and other stakeholders. Employed capital converts intellectual capital into an accurate market value and improves the firm's performance.

1.10 Intellectual Capital in the Theory:

The underlying principles of intellectual capital theory are management theory and economic theory. IC (also known as intangible assets) must be disclosed in a company's financial statements because it has an impact on the firm's market value and profitability, according to the intellectual capital theory. The theory holds that value production via converting from one form to another and human, structural, and relational capital are the sources of the firm's wealth. It is believed that Taylor's 1911 book *The Principles of Scientific Management*, in which he discusses employees' knowledge, experience, and skills, is what gave rise to the idea of intellectual capital

in the 20th century. Later essays by authors like (Skinner, 1986). Additional definitions of "intellectual capital" were provided, emphasising the value of a company's abilities.

SUMMARY

This chapter offers a comprehensive exploration of corporate governance's historical evolution in the USA, Germany, UK, Japan, and India, providing valuable insights into diverse models and definitions. The focus on India's adoption of the Indo-Saxon model highlights its strategic choice in shaping its corporate governance framework. The chapter serves as a valuable resource for scholars, policymakers, and practitioners seeking to grasp corporate governance intricacies globally, laying a foundation for further studies in this vital field. India stands to benefit from the Indo-Saxon model for several reasons. By balancing Anglo-American and German models, it suits India's business environment, fostering transparency, accountability, and shareholder rights, attracting investor trust and international investment. The model aligns with shareholder theory and agency thesis, promoting shareholder value maximization and effective board oversight. Additionally, the Indo-Saxon model's separation of ownership and management, supported by the stewardship theory, encourages professional management and wider ownership distribution. Furthermore, India's adoption of this model can signal its commitment to global governance norms, promoting integration into the global economic scene and attracting multinational firms. However, India's vast intellectual capital potential, encompassing knowledge, skills, and innovation, remains underutilized due to challenges such as inadequate investment in education, limited access to quality education, and lack of innovation-focused policies. Integrating effective corporate governance can unlock this potential by creating a conducive environment for knowledge creation, innovation, and talent development. Trust and fairness fostered by robust governance practices encourage idea-sharing and collaboration among employees. Independent boards provide valuable guidance for strategic decision-making, while clear career paths and fair compensation attract and retain skilled talent. By nurturing and capitalizing on its intellectual capital, India can drive innovation and enhance its competitiveness on the global stage, solidifying its position as a leader in the business landscape.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Overview

This chapter contains extensive literature on CG, IC, and FP. This chapter will provide the understanding and endeavour of the previous work on corporate governance and intellectual capital in India and outside India.

2.1 Board Size and Firm Performance

The Board of directors usually includes independent and dependent directors appointed by the firm's shareholders by voting. Board size is essential and the primary internal control mechanism of the firm. There are ample studies on board size and Firm Performance, but those studies indicate different outcomes according to the business type, culture, and country. Additionally, it shows that there is no agreement among experts as to whether a large board of directors is better for a company's success than a smaller board. According to resource independence theory, a larger board size improves the firm's performance (Neralla, 2022). (Al-Najjar, 2014) argues that the connection among board size and FP has a significant positive influence. Still, there should not be more than 8 or 9 members on the Board, and According to (Lipton and Lorsh, 1992), if the size of the Board exceeds the limit, the benefit of having a huge Board will turn into a disadvantage. A larger Board contains diverse skills, knowledge, and expertise, leading to better corporate performance (Belkhir, 2009). (Field et al., 2013) report that a smaller Board can affect firms' decision-making and negatively affect performance as there will be fewer arguments and discussions. However, (Lipton and Lorsh, 1992) claimed that a Board with larger members is less effective in communication, coordination, and quick decision-making.

According to (Ahmed et al., 2013), board size is positively correlated with the FP, confirming the claim of the resource dependency theory that a larger Board would explore the external links to access various resources at a low cost. Large boards in smaller firms have shown a positive impact on performance because large boards can provide access to outside resources at a low cost (Dalton et al., 1999). On the contrary, (Lee and Lee, 2009) argue that a giant board creates a problem of agency cost for both small and large firms, which can negatively impact their financial position and cash flow. Similarly, (Andreou et al., 2014) argue firms with larger Boards can get underinvestment and prevention from overinvestment. (Alix et al., 2011) smaller firms need outsider experts rather than large Boards to explore the outside environment.

Family-owned businesses are a dominant force in India's corporate landscape, driving a significant portion of the country's economic activity. However, research findings indicate that having family members on boards may lead to certain challenges. Family dynamics, such as nepotism and conflicts of interest, can impede objective decision-making and hinder the adoption of best practices, potentially affecting firm performance (Miller et al., 2006; Sethi et al., 2022). These findings raise questions about the effectiveness of corporate governance practices within family-owned enterprises and highlight the need for careful consideration when appointing board members in such organizations.

India's corporate governance literature presents intriguing variations compared to studies in other countries. This could be attributed to the country's unique business culture, regulatory environment, and the prevalence of family-owned businesses. Understanding these contextual differences is essential for formulating appropriate governance mechanisms that align with India's specific business dynamics (Mishra et al., 2022).

The relationship between board size and firm performance in India has been a topic of significant interest and debate among scholars. The divergent findings can be attributed to the complex interplay of multiple factors, such as industry characteristics, firm size, ownership structure, and market conditions. For instance, Ciftci et al. (2019) and Sethi et al. (2022) found that a larger board size has a positive impact on firm performance, possibly due to the broader skill sets and expertise that a larger board can offer in complex decision-making scenarios. On the other hand, Srivastava (2015) argues that a larger board may lead to coordination and communication challenges, potentially affecting performance. It is worth noting that board effectiveness is influenced by a delicate balance between board size, board composition, and the overall governance framework. Arora and Sharma (2016) highlight the potential benefits of a larger board in improving decision-making processes, enabling a broader range of perspectives and expertise. On the contrary, Gafoor et al. (2018) and Sethi et al. (2022) emphasize that firm performance may drive the decision to expand the board, with successful firms more likely to enlarge their boards to accommodate growth needs.

The extensive research conducted on board size and firm performance in India reflects the country's proactive response to economic challenges and financial crises. The aftermath of the 2009 financial crisis prompted several studies examining how board size affects firms' abilities to weather economic downturns and adapt to changing market conditions (Sharma and Singh, 2018). These studies contribute valuable insights to corporate governance practices that enhance resilience and adaptability in times of uncertainty. Following are the proposed hypotheses.

H1: The Relationship Between Board Size and Firm Performance is significant

H1a: The Relationship Between Board Size and ROA is Significant

H1b: The Relationship Between Board Size and ROE is Significant

H1c: The Relationship Between Board Size and Tobin's Q is Significant

H1d: The Relationship Between Board Size and DPO is Significant

2.2 Board Independence and Firm Performance

The agency theory of corporate governance posits that the board has a crucial role in reducing conflicts of interest and safeguarding the interests of shareholders. Independent directors can serve as watchdogs to oversee managers or act as stewards, bringing external resources to the organization (Fama and Jensen, 1983; Ramdani and Witteloostuijn, 2010). Embracing the principles of agency and resource dependency concepts, having more independent directors is believed to enhance a company's efficiency and profitability by reducing agency costs (Shao, 2019). However, research has shown that family businesses tend to have lower board independence compared to non-family or public companies (García-Ramos and García-Olalla, 2011). In many cases, organizations appoint independent directors in response to shareholder demands (Rosenstein and Wyatt, 1990).

The relationship between outside board of directors and firm performance has been a subject of extensive research. While most studies suggest a positive association between an independent board and firm performance (Tulung and Ramdani, 2018), some researchers, such as Sharif and Rashid (2013), argue that the impact of board independence varies depending on firm characteristics like size, age, growth, and ownership structure. Shan (2019) conducted a bidirectional study and found an inverse association between an independent board and firm performance, challenging the conventional belief. These varying findings indicate that the relationship between board independence and firm performance is complex and context-specific. To comprehend the true dynamics of board independence and its impact on firm performance, it is essential to consider the diverse organizational contexts, ownership structures, and industry-specific factors that can influence the effectiveness of independent directors. Additionally, understanding the varying perspectives on the role of independent directors, i.e., whether they act as mere watchdogs or bring valuable resources to the organization, is crucial for designing effective corporate governance frameworks that align with the specific needs and objectives of each company. Further research should aim to explore these nuances to develop more nuanced and tailored governance practices that maximize the positive impact of board independence on firm performance.

In the context of corporate governance in India, board independence is governed by clause 49, which dictates the composition of independent directors based on the CEO and Chairman's insider status. Studies have shown that having a majority of independent directors, typically between 50% and 60%, can positively impact board independence (Garg, 2007; Sethi et al., 2022). However, contrasting findings have also emerged, as Haldar et al. (2018) argue that having a majority of independent directors does not significantly affect firm performance. This highlights the complexity of the relationship between board independence and firm performance, which further depends on factors such as the tenure and remuneration of independent directors, as noted by additional research.

In the Indian context, scholars have presented diverse arguments regarding the impact of independent directors on firm performance. Some studies found no significant relationship between board independence and organizational performance (Kumar and Singh, 2012; Bhatt and Bhattacharya, 2015; Neralla, 2022). Similarly, Bhatt and Bhattacharya (2017) claimed an insignificant influence of board independence on firm performance. Conversely, other studies have revealed a positive association between independent directors and enterprise success (Mishra and Kapil, 2018; Gafoor et al., 2018; Sharma and Singh, 2018). On the other hand, Palaniappan (2017) reported a negative correlation between measures like Return on Assets (ROA), Return on Equity (ROE), Tobin's Q, and independent directors. Moreover, Arora and Sharma (2015) and Haldar et al. (2018) identified independent directors as having a detrimental impact on firm performance.

The conflicting findings in the literature suggest that the relationship between independent directors and firm performance in India is intricate and context-dependent. It is essential to consider various organizational factors, industry dynamics, and the specific roles and responsibilities of independent directors in each company to draw accurate conclusions. Further research should delve into these complexities to shed more light on the nuances of board independence and its impact on the performance of Indian enterprises. Understanding these intricacies will be instrumental in devising effective corporate governance practices that optimize the potential of independent directors to positively influence firm performance.. Following are the proposed hypotheses.

H2: The Relationship Between Board Independence and FP is Significant.

H2a: The Relationship Between Board Independence and ROA is Significant.

H2b: The Relationship Between Board Independence and ROE is Significant.

H2c: The Relationship Between Board Independence and Tobinq is Significant.

H2d: The Relationship Between Board Independence and DPO is Significant.

2.3 Gender Diversity and Firm Performance

Gender diversity on the Board has gained world attention, including government, academics, social workers, and many more organisations speaking out for this (Kilic and Kuzey, 2016). On the Board, Gender diversity in the boardroom is mandatory as per laws of the land. The researchers claim that women members on the Board should be higher or equal to men (Rovers, 2011). Several arguments are supported by theory regarding the impact of Board diversification on the corporate Board and the FP. Research Scholars have given a mixed response and stated that there is no supporting evidence, either theoretical or empirical, regarding the association between gender diversity in the Board and the FP (Carter et al., 2010). Women directors on the Board give negative signs to the investors in the dominant male society. The reason may be that a woman is emotionally weak, aggressive, and risk-averse, negatively impacting firm performance. But in developed countries, the percentage of women's gender positively impacts firm performance. A greater percentage can generate more economic gains (Campbell and Mínguez-Vera, 2007). Most researchers argue that women on the Board may impact different environments or circumstances like developed and developing countries. They have found both positive impact and no impact.

Similarly, (Li and Chen, 2018) suggested that if the firm's value is not big, then the woman director on board has positively impacted Firm Performance. Moreover, evidence has shown that more than or equal to three female representations on the board positively influence organisational performance. (Brahma et al., 2020). Further findings revealed that the female member's appointment, education, and age positively impact firm performance. It has been statistically proved by (Martinez-Jimenez et al., 2020) that approximate gender proportion in the board has a significant negative association with board effectiveness. A woman director significantly influences the Board and significantly improves overall business performance, according to the study.

As a board director, one woman has been made necessary for the listing firms in revised clause 49 under the 2013 company act. In the last decade, there has been a small consensus among scholars in India on gender diversity in the boardroom. (Duppatti et al., 2019) report that gender diversification on the Board positively affects the firm's financial performance. Similarly, (Kagzi and Guha, 2018) conducted a study on demographic indices and firm performance where authors found that board diversity and tenure diversity don't influence FP. Further findings revealed that the age diversity of the female director is positively related, while education is negatively

associated with the FP (Jyothi and Mangalagiri, 2019). A woman director significantly influences the Board and significantly improves overall business performance, according to the study (Saeed et al., 2019) compared female directors' risk-taking ability in high technology firms. The findings suggested that female directors in high-tech firms are risk-takers than female directors working in other sectors. Further study showed that women's diversity on the Board has a significantly positive relationship with FP. The demographic variables of the corporate are positively correlated with the market-based ratio TOBIN-Q for standalone companies and negatively correlated with group affiliated companies by analysing stock market data (Aggarwal et al., 2019). Following are the proposed hypotheses.

H3: The Relationship Between Gender Diversity and FP is Significant

H3a: The Relationship Between Gender Diversity and ROA is Significant

H3b: The Relationship Between Gender Diversity and ROE is Significant

H3c: The Relationship Between Gender Diversity and Tobinq is Significant

H3d: The Relationship Between Gender Diversity and DPO is Significant

2.4 CEO-Duality and Firm Performance

The board chairman, also acting as the firm's CEO, is called CEO Duality. In single Duality, a leader exists and offers clear direction to the inside and outside environment (Boyd, 1995). The assumptions of agency and stewardship theories are conflicting because they explain human behaviour beliefs. Sometimes it is supported by stewardship theory and sometimes agency theory (Buallayet al., 2017). It was found that CEO Duality is positively associated with its performance, but it varies between industries and countries (Amar et al., 2011; Wijethilake and Ekanayake, 2019). however, (Tang, 2017; Hsu et al., 2021) report that CEO-Duality negatively impacts firm performance because one person holds more power than other executives, especially outside directors.

Furthermore, agency theory argues that CEO-Duality could give more power to a single person. There can be the possibility that the CEO can act for his benefit rather than for shareholders and other stakeholders. (Higgs, 2003) made a point that a separate role for CEO and Chairman will centralise power from one person to several people. He also suggests that CEO-Duality can damage the organization's meritocracy by appointing his favourite employees in different positions where they may work on his behalf rather than shareholders' behalf. (Song and Kang, 2019) argue that CEO Duality in the firm increases the chances of firm diversification. (Chang et al., 2018) suggested that CEO Duality is complimentary for the Board's independence and enhances business performance. Most researchers disagreed with the theories, and an empirical

result showed that CEO Duality has either a negative or no influence on the Firm Performance (Boyd, 1995; Duru et al., 2016). Following are the proposed hypotheses.

H4: The Relationship Between CEO-Duality and FP is Significant

H4a: The Relationship Between CEO Duality and ROA is Significant

H4b: The Relationship Between CEO Duality and ROE is Significant

H4c: The Relationship Between CEO Duality and Tobinq is Significant

H4d: The Relationship Between CEO Duality and DPO is Significant

2.5 Board Meetings and Firm Performance

How frequently the board convenes indicates how actively it engages in oversight. The board meeting is a setup where the Board of directors discuss and argue about the experience, current situation, and plans related to the firm's survival. Some scholars believe frequent board meetings are essential for management monitoring and formulating strategy strategies (Vafeas, 1999). On the other side, some argue that regular board meetings increase the firm's burden by providing travelling and other expenses and wasted management time. Further, they suggest that frequent board meetings have no relation to Firm Performance, but the quality of the meeting does (Ntim, 2012; Mohamad et al., 2020).

In contrast to the findings of Eluyela et al. (2018), several studies suggest that board meeting frequency has a significant positive association with company performance. Authors recommend holding four frequent meetings annually (Mishra and Kapil, 2018). These studies highlight the importance of regular board meetings in influencing firm success. Bennouri et al. (2018) and Abdulsamad et al. (2018), however, offer a different perspective, stating that frequent board meetings have little to no relationship with firm success. These contradictory findings emphasize the need for a deeper exploration of the impact of board meeting frequency on company performance.

In India, companies are legally required to hold four meetings annually, following clause 49 of the corporate governance rules. Studies conducted in India by Mishra and Kapil (2018) and Gurusamy (2017) claim that board meeting frequency for large and small companies has an insignificant impact on firm performance (FP). However, a more nuanced analysis reveals that board meeting frequency affects firm performance differently for small and large companies. For small businesses, the occurrence of frequent board meetings significantly influences firm performance, while for large companies, frequent board meetings positively impact Tobin's Q and have no significant impact on metrics like Return on Assets (ROA), Return on Equity (ROE), and Dividend Payout Ratio (DPO).

The positive influence of frequent board meetings on firm performance lies in the productive discussions and in-depth deliberations on current plans and future opportunities. These meetings allow for a thorough examination of strategies and decisions, leading to long-term positive effects on company performance (Arora and Bodhanwala, 2018; Kaur and Vu, 2017).

In conclusion, the relationship between board meeting frequency and firm performance is complex and context-specific. While some studies highlight the positive association between frequent meetings and company success, others suggest an insignificant relationship. Understanding the nuances of board meeting frequency and its impact on different types of companies is essential for formulating effective corporate governance practices that promote sustainable growth and enhance firm performance. Further research in this area can provide valuable insights to optimize the benefits of board meetings in driving the success of organizations. Following are the proposed hypothesis

H5: The Relationship Between Board Meeting Frequency and FP is Significant

H5a: The Relationship Between Board Meeting Frequency and ROA is Significant

H5b: The Relationship Between Board Meeting Frequency and ROE is Significant

H5c: The Relationship Between Board Meeting Frequency and Tobinq is Significant

H5d: The Relationship Between Board Meeting Frequency and DPO is Significant

2.6 Audit Committee Size and Firm Performance

It is one of the primary groups on which the BODs of a corporation depend to regulate financial reporting and disclosure. When the agency cost is larger, an audit committee must maintain efficient communication between the principal and the agent. If the audit committee size is large, the individual member can be influenced or vulnerable to pressure. (Anderson et al., 2004) Furthermore, a small-sized audit committee would promote better discussion and reduce the communication gap between audit committee members and individual members. (DeZoort and Salterio, 2001) An audit committee with prominent members will likely maintain an internal control system and facilitate constructive discussion between members. The company's success and the audit committee's size are considerably positively correlated (Sharma et al., 2009). According to research (Anderson et al., 2004), a board-member audit committee is more likely to support and advocate competent financial and accounting methodologies, which significantly enhances the performance of the company (Anderson et al., 2004). However, mistakes in financial reporting could occur just because of the audit committee's size. In 2001, Raghunandan and associates asserted that the size of the committee members won't matter till the Board has at least one financial expert and one accounting expert.

Similarly, (Asiriwa et al., 2018) stated that no more than 6 directors would be the appropriate amount for the audit committee, including individuals with knowledge in finance and accounting. According to the same rationale, an audit committee with too many or too few members lose its effectiveness (Dalton et al., 1999). Further explained that having a giant audit committee size may lose focus and become less participative. A too small-sized audit committee will be less diversified with a lack of skill and knowledge. (Aldamen et al., 2011) Experts in accounting and finance who strongly connect to the company's performance make up the audit committee board. (Salehi et al., 2018) assert that while there is no connection between the size of the audit committee and performance. The audit committee has size positive effect on non-family businesses but is negatively related to family businesses. Later, (Sarea, 2020) found that audit committee size has a significantly negative impact on ROA and a significant positive impact on EPS (Al-Okaily and Naueihed, 2019). The above literature shows minor concessions between the researchers on AC size and FP. For this, following are the proposed hypotheses.

H6; The relationship between the Audit Committee (AC) and FP is Significant

H6a: The Relationship Between AC Size and ROA is Significant

H6b: The Relationship Between AC Size and ROE is Significant

H6c: The Relationship Between AC Size and Tobinq is Significant

H6d: The Relationship Between AC Size and DPO is Significant

2.7 Audit Committee Independence and Firm Performance

It is competent when its members are independent and free of senior management pressure or interference (Jun Lin et al., 2008). Previous studies have shown how independent audit committee members are more effective than less independent committee members; since independent members are likely not to be influenced by management, it leads to better financial reporting and quality audit reports (Kallamu and Saat, 2015). High-quality financial reporting and fewer false reports are positively correlated with the audit committee being led by an independent director (Nekhili et al., 2015). However, if the CEO is involved in appointing or selecting the independent chair, then audit committee independence has no use whatsoever (Carcello et al., 2011). Independent audit members make the audit committee more powerful to monitor the management and ensure transparency in financial reporting.

Further, it reduces the agency problem between management and shareholders (Yeh et al., 2011). Separating agency problems and company ownership improves audit committee performance (Abu-Risheh and Al-Sa'eed, 2012). Studies reveal that audit committee independence significantly impacts firm performance (Alderman and Kennedy, 2019; Bansal and Sharma,

2016). An audit committee with only independent directors will lead to transparent and effective corporate financial reporting and financial fraud and failure risk. (Bansal and Sharma, 2016). The results of the empirical investigation demonstrated a positive correlation between Indian corporate financial performance and audit committee independence. The author contends that to prevent financial fraud, officials must implement checks and balances following the law. There is no relation between the performance of the firm and audit committee independence (Zhou et al., 2018). The results of studies on CG reveal varying outcomes amongst nations and industries. According to some experts, there is a link between the AC independence and business performance. (Irsyad et al., 2020). According to (Al-Okaily and Naueihed, 2019), the independence of the audit committee is strongly linked to public firms. In contrast, as in family-owned businesses, audit committee independence is ineffective and has no relationship with the FP.

Similarly, (Almoneef et al., 2019) claim no link between AC independence and FP. While as (Chijioke-Mgbame et al., 2020), the audit committee's independence in the Board is necessary to avoid any financial misreport or fraud, which negatively impacts the firm's financial position. As per the study's findings, AC independence significantly improves all types of companies' financial performance. Following are the proposed hypotheses.

H7: The relationship between AC independence and FP is Significant

H7a: The Relationship Between AC Independence and ROA is Significant

H7b: The Relationship Between AC Independence and ROE is Significant

H7c: The Relationship Between AC Independence and Tobinq is Significant

H7d: The Relationship Between AC Independence and DPO is Significant

2.8 Audit Committee Meetings and Firm Performance

The intricacy of the organization's policies and operations ultimately determines how many meetings are held annually. However, researchers suggest three to four AC meetings significantly impact performance. AC meeting frequency is highly associated with agency problem reduction and information inequalities by providing adequate and opportune information to the investors (Al-Mamun et al., 2014). Frequent audit meetings can prevent misreporting and be more careful about strengthening the investors' interest (Wu et al., 2012). Blue Ribbon Committee (1999) suggested that the directors appointed as AC members should be independent and financial experts. It would strengthen the financial reporting and hold constructive meetings timely and frequently (Bryan et al., 2004). (Velte, 2017) frequent audit committee meetings positively correlate with firm performance and earning quality.

The author further explained audit committee meeting frequency reduces the communication gap with management by sharing the information and creating future pathways to work. (Chaudhry et al., 2020) the frequent audit meeting positively links the accounting-based firm performance measures. Similarly, (Al Farooque et al., 2019) showed that audit board meetings positively correlate with market-based firm performance measures. Following are the proposed hypotheses.

H8: The Relationship Between AC Meeting Frequency and FP is Significant

H8a: The Relationship Between AC Meeting Frequency and ROA is Significant

H8b: The Relationship Between AC Meeting Frequency and ROE is Significant

H8c: The Relationship Between AC Meeting Frequency and Tobinq is Significant

H8d: The Relationship Between AC Meeting Frequency and DPO is Significant

2.9 Intellectual capital (VAIC) and firm performance

The measurement of IC has been preferably done through the VAIC method proposed by (Pulic, 1998). According to the VAIC model, CEE, Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE) are three major components that measure Intellectual Capital.

2.9.1 Capital Employed Efficiency (CEE) and Firm Performance

Investment in IC, specifically Structural Capital (SC), creates a competitive edge for companies operating in both the services and non-services sectors (Bayraktaroglu et al., 2019; Veltri et al., 2015), Human capital is important in both sectors, but it has a greater impact on the non-service sector than on the service sector. (Clarke et al., 2011), findings did

not indicate a correlation between intellectual capital and Return On Asset, a profitability indicator. CEE has a negative impact on ROA, and no statistically significant evidence was found to demonstrate a direct link between IC and company performance (Nadeem et al., 2017; Xu and Li, 2020). According to the author, this knowledge-based society necessitates the use of IC to obtain an edge over the competition. (Goswami and Maji, 2017; Tripathy et al., 2015; Tripathy et al., 2016) determined that IC (HCE, SCE, and RCE) directly impact companies' financial success. Company performance and internal control (ROA, Tobin's Q, revenue growth, and IC. Following are the proposed hypotheses.

H9 The Relationship Between CEE and FP is Significant

H9a: The relationship between CEE and ROA is Significant

H9b: The Relationship Between CEE and ROE is Significant

H9c: The Relationship Between CEE and Tobinq is Significant

H9d: The Relationship Between CEE and DPO is Significant

2.9.2 Human Capital Efficiency (HCE) and Firm Performance

The findings indicated that Human Capital (HC) is a critical component of IC in predicting future financial performance (Hussinki et al., 2017; Susanto Salim, 2019). (Peng, 2011; Scafarto et al., 2016) The profitability and market value of companies with higher HC and SC efficiency and an overall higher value are proportionally higher. IC is an additional VAIC component that has been found to have a favourable and large impact on a company's market value. CCE and HCE are the two most important value drivers, while SCE has no substantial impact on market value. HCE has a negative impact on ROA, and no statistically significant evidence was found to demonstrate a direct link between IC and company performance (Nadeem et al., 2017; Xu and Li, 2020). Regarding boosting a company's performance, India's rising knowledge-based economy focuses more on intangible assets. (Deep and Narwal, 2018) demonstrated that in international banks, human capital was the most significant element, but in public banks, financial or physical capital was the most significant component. Results showed that HCE and CEE significantly influenced profitability and productivity when employing VAIC to leverage intellectual capital Empirical evidence suggests that better IC efficiency leads to better company performance. (Nkambule et al., 2021; Rahayu, 2019; Sofia Prima Dewi, 2021)) Companies' financial performance (ROA, ROE, EBITA, and PM) are linked to HCE. Following are the proposed hypotheses.

H10: The Relationship Between HCE and FP is Significant

H10a: The Relationship between HCE and ROA is Significant

H10b: The Relationship Between HCE and ROA is Significant

H10c: The Relationship Between HCE and Tobinq is Significant

H10d: The Relationship Between HCE and DPO is Significant

2.9.3 Structural Capital Efficiency (SCE) and Firm Performance

A link between profitability and structural capital was the only one found. There is a largely beneficial influence on company profitability and a negative but significant impact on productivity from overall Intellectual capital (Dharni and Jameel, 2021). It was concluded that Intellectual Property should be included in models that link the performance of enterprises' intellectual capital to improve the model's empirical validity and management. Social capital can have a detrimental impact on the success of new businesses. (Inkinen, 2015; Martín-de Castro et al., 2019), There is a favourable correlation between profitability and the amount of Value-Added Intellectual Capital. SCE does not affect the company's profitability, whereas physical and monetary capital does. A proxy for profitability, Return on Asset is influenced significantly

and positively by VAIC, HCE, and CEE. SCE has a negative impact on ROA, and no statistically significant evidence was found to demonstrate a direct link between IC and company performance (Nadeem et al., 2017; Xu and Li, 2020). Empirical evidence suggests that better I.C. efficiency leads to better company performance. (Nkambule et al., 2021; Rahayu, 2019; Sofia Prima Dewi, 2021) Companies' financial performance (ROA, ROE, EBITA, and PM) are linked to HCE. Improved SCE results in better business performance, as do new products and services. According to the findings, there is a strong and positive link between IC and the market value of companies. Empirical evidence suggests that better I.C. efficiency leads to better company performance. Independent factors, and market valuation, were found to be statistically significant. SCE was also having a detrimental impact on all the expected factors. (Bansal and Singh, 2019) highlighted that all the IC's components had a positive and significant impact on every metric of organisational success. Following are the proposed hypotheses.

H11: The Relationship Between SEE and FP Is Significant

H11a: The Relationship between SCE and ROA is Significant

H11b: The Relationship Between SCE and ROE is Significant

H11c: The Relationship Between SCE and Tobinq is Significant

H11d: The Relationship Between SCE and DPO is Significant

2.10 Intellectual Capital and Corporate Governance

Companies are paying attention to intangibles in today's business world, which represent the critical driver for a firm's medium and long-term value creation. The importance of IC resources has drastically increased because of the fast transition of the manufacturing-based economy toward a knowledge-based economy. There is no representation of IC in the company's financial statements. The investors and other users are demanding voluntary disclosure of IC resources to judge the value and performance of the firm. Intellectual capital has been defined in different ways (Wagenhofer, 2001). Intellectual capital is a future benefit for the firm in intangibles. Whereas (Ordóñez de Pablos, 2003) defines IC as a difference between market value and its book value. Intangible assets, including IC, are positively associated with capital market efficiency (Petty and Guthrie, 2000). (Appuhami and Bhuyan, 2015) argued that although intellectual capital can improve the capital market efficiency and create value and increase the performance of the corporates, there is still a problem with measuring, reporting, and managing it. IC has been recognized as one of the main resources for company value creation, and (Widiatmoko et al., 2020) Board independence and board size are examples of corporate

governance characteristics that have a favourable impact on IC, which in turn has a positive impact on market capitalization.

Information, competitiveness, innovation, and expertise are emphasised in the knowledge economy as the major motivators for any business. Researchers and academics are increasingly interested in intellectual capital (Xia and De Beelde, 2018). Intellectual Capital is regarded as the most important capital and is a key factor in enhancing competitiveness. More dominant positions in the market are projected to be achieved by firms that can successfully manage their intellectual resources (Shahwan and Fathalla, 2020). To put it another way, the value of these assets increases due to their creation and use.

There is a smaller number of studies on the connection between CG and IC in emerging economies (Muttakin et al., 2015). As per the agency theory and resource independence theory, the Board of Directors may be able to give expert monitoring of intellectual capital and more access to resources. Corporates with standard corporate governance practices and standards containing appropriate members on the board holding skills and expertise in different areas have an aggregate impact on building intellectual capital. (Shahwan and Fathalla, 2020) CG has a significant positive impact on building IC for the firm. Disclosure of intangibles for the corporations is not legally necessary, but (Xia and De Beelde, 2018) the board of directors should do intangible disclosure like other legally financial and non-financial disclosures. (Hidalgo et al., 2010) stated that the increase in board size could lead to intellectual capital disclosures. (Rodrigues et al., 2016) observe that larger Boards and independent directors positively impact intellectual capital disclosure. (Alfraih,2018) intellectual capital positively affects board size, external directors, and state ownership. At the same time, IC has a negative impact on CEO Duality.

H12: The Between Value Added Intellectual Capital (VAIC) and CG is Significant

2.11 Linkage Between Corporate Governance, Intellectual Capital, and Firm Performance

A large amount of literature is available on CG effect on firms' FP. And the huge number of studies highlighted that the effect is depends on the agency theory (Abousamak and Shahwan, 2018). Agency theory is based on the agency problem, a conflict of interest between shareholders and managers (Principle). CG is important to reduce and overcome the agency problem. An agency's basic soul is to protect the interest of shareholders and all other stakeholders, including customers and suppliers (Ingley and McCaffrey, 2007). The agency theory also highlights that corporate governance prevents the misappropriate use of resources and builds links of the firm with the outside world (Kwakye et al., 2018).

Many studies also highlight the effect of CG on FP based on resource dependency theory and stewardship theory. Resource dependency theory states that good CG practices will build up the ability of corporations to access greater resources in the shape of human capital, physical capital, and structural capital (Hermawan, 2017). According to the (Donaldson 1990) stewardship theory, executive managers are the responsible stewards to protect the interest of their principles. IC stewardship theory focuses on empowering human resources, managers and employees. With the help of human capital, physical and SC is referred to as IC, which will help the firms achieve greater market valuation and profitability in the long run (Kamaluddin and Rahman, 2013). Studies based on resource dependency theory highlight that firms with greater IC resources have a huge market value and a competitive edge over their competitors and link the association between Intellectual Capital and competitive edge. At the same time, it has also been stated that a competitive edge mediates the relation between IC and FP (Mohammad et al., 2018). (Jardon and Susana Martos, 2012) stated that adopting good corporate governance practices based on the resource dependency theory i.e. The proportion of outside directors and the number of board members will not only defend shareholders' interests, but will also hold the company's value creation and profitability accountable. (Mohammad et al., 2018). Following are the proposed hypotheses.

H12: The Relationship between CG and FP is Significant

H13: The Relationship Between IC and CG is Significant

H14: The Relationship between IC and FP is Significant

H15: Intellectual Capital Mediates the Relationship Between CG and FP

2.12 Summary

The literature review on CG and FP has been done extensively for the past two decades worldwide. Researchers have used different methodologies and techniques to investigate the relationship's direction and magnitude. The literature from developed and developing countries does not differ to the extent where one can establish an argument that the relationship between CG and FP is established. However, numerous scholars argue that CG and FP relationships differ in different countries, cultures, and the law of the land. But collectively, scholars are yet to establish the relationship between CG and FP. By claiming bias, scholars and practitioners criticize the literature, particularly CG practices and their impact on FP. The major point highlighted in the literature is that regression, correlation, and OLS methods are widely used, ignoring the effect of unobserved heterogeneity and endogeneity among explanatory variables. Another flaw in the scholars' CG and FP literature is the inconsistency in the outcomes. To

overcome the inconsistency in literature researchers are still exploring the relationship between CG and FP through different statistical techniques which are appropriate estimators to overcome the limitations in the literature. Researchers are also investigating new facets of CG by estimating the dynamic link between corporate governance and business performance using a larger range of control variables.

Despite of limitations in methodology and estimations scholars argue that in developing countries have certain corporate governance constrains which may be causing the inconsistency in literature. For instance, independent directors in family-owned businesses may not be as independent as public limited corporations. Board of directors in companies with dual role of CEO and chairman may not be able to express themselves and point their independent opinion as non-CEO-dual corporations. Although in Indian context majority of literature on relationship between CEO Duality and FP shows uniformity.

Scholars in India have not extensively explored the relationship between IC and FP as much as CG and firm performance. The unavailability of data can be the biggest reason. Most studies conducted in the Indian context have shown the positive impact of IC and FP. Where human and structural capital had been shown as the major contributor. Researchers have claimed that the relationship between IC and FP has been established irrespective of the country. Still, the magnitude of the relationship might differ between countries, the type of industry, and businesses. The literature on the mediation effect of IC is limited. Yet, the available studies show that IC either partially or fully mediates the relationship between CG and FP. Most researchers have followed the VAIC method to calculate the intellectual data from the given information in the balance sheet.

The majority of the high-quality material in this chapter was taken from Scopus and ABDC journals. The link between CG, IC, and FP will be thoroughly explained to the readers in this chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The logical and systematic search for new knowledge on a particular area or topic is usually known as research. The research investigates solutions for scientific and social problems through proper systematic analysis, including businesses and government. Research methodology is a way to solve problems systematically. The methodology for a particular area or subject depends upon purpose, scope, sample, and availability of resources. The methodology consists of two types, qualitative and quantitative, depending upon the study's objectives. A qualitative methodology is a human-centric approach in which non-numerical data is collected and analysed, such as videos, audio, text, and observing the individual or group to understand concepts, opinions, and experience. Quantitative methodology is based upon the framework of previous literature, hypothesis development, and data collection and analysis through statistical techniques. Through quantitative methodology, researchers can generalise their findings to large samples.

This chapter explains the research methods for the study on the influence of CG, IC, and the performance of Indian listed firms. This chapter includes a statement of the problem, objectives, research design, sample selection, data collection, description of variables, analysis techniques, and tools.

3.2 Research Gap

Corporate governance has been the most debated topic among academics and researchers. The literature shows an inconsistency in the relationship among CG and FP in both developing and developed countries (Almaqtari et al., 2020; Lungu et al., 2020). The participation of independent directors on corporate boards, as well as the size of the board, can raise the value of the company (Martinez et al., 2019). However, within the Indian context, mixed results were found that a larger board size reduces value for the firm and independent directors offer a no significant advantage to the firm (Mohan and Chandramohan, 2018; Mohapatra, 2018; Vaidya, 2019). Therefore, the connection between the Board Structure and the FP is yet to be established. (Ullah et al., 2018) stated that the reason for inconsistency in corporate governance and firm performance literature might be endogeneity. Most studies have used OLS and regression methods to check the relationship between CG and FP without controlling the unobserved

heterogeneity and endogenous bias (Mohapatra, 2018; Vaidya, 2019). The research gap in the current literature arises from the identified inconsistency attributed to endogeneity bias, as highlighted by Almaqtari et al (2020) and Lungu et al (2020). This endogeneity bias may have led to ambiguous or contradictory findings in previous studies. In an effort to address this gap and enhance the robustness of the research, the present study adopts Panel Data Generalized Method of Moments (GMM) models. The utilization of GMM is considered the most suitable technique to mitigate endogeneity bias, offering an effective means to control for omitted variables and measurement errors, ultimately leading to more reliable and valid results. By employing this advanced econometric approach, the study aims to provide a more comprehensive understanding of the research problem and contribute to the advancement of knowledge in the field.

The existing literature reveals a notable research gap, as only a limited number of studies have explored diversified samples, specifically incorporating a combination of firms from different industries. Moreover, since the enactment of the Companies Act in 2013, the number of studies focusing on the post-amendment period in the listing agreement remains scarce. Additionally, there is a dearth of research on the subject of Intellectual Capital (IC) and Financial Performance (FP) in the Indian context. This gap is particularly significant as stewardship theory and resource independence theory have highlighted the pivotal role of Corporate Governance (CG) in fostering intellectual capital and its subsequent influence on the firm's financial performance. However, a crucial aspect that remains largely unexplored is the mediating role of IC in the connection between CG and FP. Addressing this gap could provide valuable insights into the mechanisms through which CG influences FP via the enhancement of intellectual capital, contributing to a deeper understanding of corporate performance dynamics in the Indian context.

3.3 Problem Statement

CG is a system for managing and directing corporations (Cadbury Committee, 1992). CG runs through the regulatory mechanism, roles, and responsibilities of the directors, management, shareholders, and stakeholders. The fundamentals of CG is to maximise wealth and protect shareholders' interests. Corporate governance ensures all the company's internal and external resources are at their optimal use. Good corporate governance takes checks and balances of management to avoid all kinds of misfortunes. Following the worldwide financial crises and the collapse of major corporation, corporate governance has drawn increasing attention. (Claessens and Fan, 2003) stated that in the East Asian financial crisis in 1997-1998, corporate governance was considered one of the main factors causing the failure.

CG has recently dominated discussions among researchers, academics, and decision-makers, particularly in emerging nations. Due to several corporate frauds and failures, corporate governance has gained the huge attention from shareholders, investors and from society.

CG in India has undergone several reforms since 1998. The improvement in corporate governance practices has been seen but not as much as expected, and there are still weaknesses and loopholes in the corporate governance system in India. Examples of weaknesses and loopholes in corporate governance are recent frauds and scams such as Punjab national bank scam, Nirav Modi Scam, and the Videocon scam.

Although corporate governance in India have improved in several areas such as transparency, rights of minority shareholders and disclosures but corporate governance structure has not shown much an improvement. The literature on CG and FP inconsistency reflects that the relationship has not yet been established. Policy makers in India have made another attempt to male board structure and composition right by revision listing agreement in 2013. In this study, we have investigated the CG structure and its effect on the performance of Indian BSE-listed firms after revised clause 49 of CG in 2013.

In the present competitive world, it is hard for businesses to survive from their rivals. However, possessing intangibles can give businesses a competitive edge over their rivals. India is one of the economies with rapid economic growth and substantial human and structural capital. There has not been enough development of intellectual capital in India regarding regulations. The research on IC has not been extensive.

According to the resource interdependence theory, corporate governance is responsible for firms' value creation. Creating human, structural, physical, and relational capital resources can lead to the firm's value creation and profitability. The stewardship theory of corporate governance believes in developing human capital, which ultimately impacts firms' value. Corporate governance makes strategic decisions for the firm, which can have a larger impact in the long run. There has not been any big effort by policymakers and shareholders to generate intellectual capital as intellectual capital disclosure should be compulsory for the companies like other financial and non-financial disclosures.

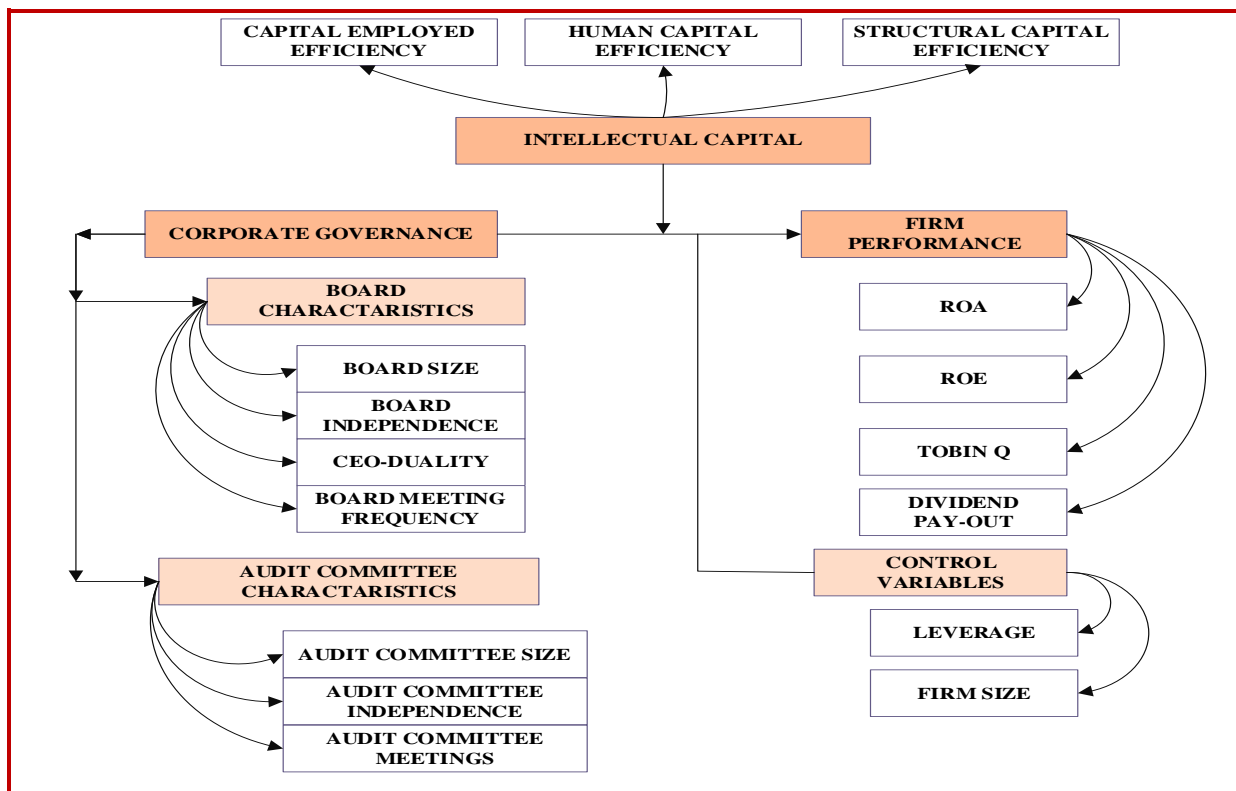
Corporate governance is expected to make sure organisation survives for a long time; it will happen if company has competitive edge over its competitors. Intellectual capital is a medium through which companies can have competitive edge in the market. However, intellectual capital disclosures are missing in the annual statements of companies.

India has an edge over many other developed nations over human and structural capital. The corporations in India are yet to know the advantages of having huge human capital and how to use it for value creation. This study will provide deep insight into the association between intellectual capital and FP and mediation effect of IC between CG and FP.

3.4 Objectives of The Study:

- g) To explore the nature and extent of the development of corporate governance practices in the Indian business environment.
- h) To determine the relationship between board characteristics and performance of Indian listed firms.
- i) To determine the relationship between the audit committee and the performance of Indian listed firms.
- j) To explore the relationship between intellectual capital and performance of Indian listed firms
- k) To study the mediation effect of Intellectual Capital on the relationship between corporate governance and firm performance.
- l) To suggest recommendations for policy measures to improve corporate governance practices in India

Fig 3.1 Model Framework



Source: (Authors)

3.5 RESEARCH DESIGN

The framework for research methods and techniques is known as research design. Research design allows researchers to choose suitable research methods for the subject matter. This study is longitudinal and quantitative, in which numerical data will be gathered and analysed with the help of statistical methods. This section discusses data sources, firms' selection, and statistical techniques to find the connection among CG structures, IC, and FP. The present study is empirical.

3.6 Sample Selection and Technique

We have selected the Bombay Stock Exchange as a sampling unit as it is the oldest stock exchange and has a larger listing than NSE. The top 10 industries that have the major contribution to the GDP of India, listed in BSE, have been selected as a sampling frame named Automobile, IT, Pharmaceuticals, Textiles, Agriculture, Tourism and Hospitality, Iron and Steel, construction and engineering, Cement and Chemical industry (table 3.1).

A proportionate stratified sampling technique has been adopted for this study (Adedeji et al., 2019). Firms with the highest market capitalisation have been selected from each industry (proportionate to population size). For example, the proportionate sample from the agriculture industry is 24 out of 98 listed firms, and these 24 firms are selected as per their market capitalization.

Table 3.1 Distribution of Sampling Proportion

Industry	GDP Contribution	Total Listing Firms	PPS (Proportionate to population size)	Sample Size
Agriculture	18%	98	$292/1214*98$	24
IT Industry	10%	124	$292/1214*124$	30
Automobile	7%	35	$292/1214*35$	9
Tourism and hospitality	7.5%	84	$292/1214*84$	20
Pharmaceutical	9.8%	159	$292/1214*159$	39
Textile	2%	244	$292/1214*244$	57
Iron and Steel	2%	92	$292/1214*92$	22
Construction and Eng.	5%	162	$292/1214*162$	39
Chemical	2.99%	173	$292/1214*173$	41
Cement	3%	42	$292/1214*42$	10
TOTAL		1214		292

Source (Authors)

3.7 Sample Size

The sample size is determined by calculating Cochran's formula for approximate sample size (Cochran, 1940; Taheerdoost, 2017; Ajay and Michal, 2014). 95 % (5% error) confidence level

and 50% proportion of population (P) are taken. The study's overall sample size is 292 out of 1214 businesses from 10 industries that are listed on the BSE.

Calculation of sample size for infinite population

$$n_o = z^2 [p] [q - 1] / e^2$$

n_o = sample size for infinity population

z^2 = table value which is equal to 1.96

p = proportion of population which is 50% (0.5)

$q = p-1$

e = margin of error, which is 0.05

$$n_o = \frac{1.96^2(0.5)(0.5)}{(0.05)^2} = 384$$

384 is random sample size for an infinity population

Calculation of sample size for a given population

$$n = \frac{n_o}{n_o-1} / 1 + N$$

n = Sample size for given population

n_o = Sample size of infinity population, which is 384

N = Total population, which is 1214 (Given in table 3.1)

$$n = \frac{384}{384-1} / (1 + 1214) = 292$$

The total sample size is 292 firms.

3.8 Data Collection

Data is gathered from secondary sources. Secondary data is gathered from a variety of sources that are already available in various formats. It is possible to get secondary data from credible databases, periodicals, books, and yearly company reports.

For this investigation, there are two sets of data. First, non-financial enterprises' secondary information was accumulated all throughout the five-year period, from 1 April 2015 to 31 March 2020. Data was gathered following the adoption of modifications to Clause 49 of corporate governance under the 2013 Company Act (listing agreement). Second, prior to the 2013 Companies Act (from 1 April 2010 to 31 March 2015), secondary data (both numerical and non-numerical) for more than five years was gathered. The Non-numeric data was collected from the website, research papers, policy brochures, books, and other authentic internet sources. And the

Numeric data is taken from ProwessIQ, the BSE website, and company websites. Corporate governance data has been extracted from CMIC (PROWESSIQ) database and company annual reports. Firms with unavailable data have been removed from sample selection, and only those firms are included with the availability of the complete five years of data.

For a variety of reasons, financial institutions and banking businesses are not included in our sample. First, according to (Shao, 2018), financial sector firms must be excluded because of higher government regulations and differences in the accounting system. Second, there is a complete difference in operational nature. Thirdly, banks and financial institutions follow typical accounting systems, which may cause a difference in calculating financial performance (Rose, 2007).

Based on the Value-Added approach developed by the public (1998), intellectual capital statistics have been manually estimated from given information in financial statements and annual reports. The best accessible techniques suggested by research academics and the literature were used to calculate the data. The VAIC approach was adopted and first used by (pulic, 1998). It also depends on the information given in the financial statements of the organisation. The information was gathered via the BSE database, capital line website, and corporate annual reports.

3.9 Description of Variables of the Study

The description of variables is given in below:

3.9.1 Measuring Corporate Governance Variables

The CG structure is divided into two major components: board composition and audit committee. The audit committee consists of Audit Committee Size, Audit Committee Independence, and Audit Committee Meeting Frequency. The Board Size and Audit Committee Size variables are measured by the natural logarithm of total members in each Board (Haider and Fang, 2016). Independent Directors and Audit Committee Independence was measured by proxy as a percentage of independent members on the Board and audit committee (Li *et al.*, 2015). Dummy variables were created for CEO DUALITY and Gender Diversity. The frequency of all meetings during the year, including board meetings and audit committee meetings, was calculated. The variables given below in table 3.2 are the main variables of corporate governance and the most studied variables worldwide. Corporate governance variables are independent variables of the study.

Table 3.2 Description of CG Variables

Variables	Sub Variables	Measurement
Board Characteristics	Board Size	The Natural Logarithm of Total Board Size
	Board Independence	Measured By Taking Proxy as A Percentage of Independent Directors from The Total Board Size
	CEO Duality	A Dummy Variable Is Used If the CEO Holds Two Positions, Then 1; Otherwise, 0
	Gender Proportion	A Dummy Variable Is If Woman Director Then 1; Otherwise, 0
	Board Meeting Frequency	Frequency Of the Total Number of Meetings in A Year
Audit Committee Characteristics	Audit Committee Independence	Measured By Taking Proxy as A Percentage of Independent Directors from The Total Audit Committee Size
	Audit Committee Size	The Natural Logarithm of Total Audit Committee Size
	Audit Committee Meeting Frequency	Frequency Of the Total Number of Meetings in A Year

Sources (Mentioned under heading 3.9.1)

3.9.2 Measuring Intellectual Capital Variables

The value-added intellectual capital method (VAIC) introduced by (Pulic 1998) was adopted to measure IC. For measuring intellectual capital, researchers have used different approaches and methods. The VAIC method was used due to the shortcomings of the IC disclosures in annual reports. It is the most adopted method by researchers around the world. The intellectual capital data obtained based on the VAIC method is a less criticized and well-recognized model (Aslam et al., 2018). In (Table 3.3) Intellectual variables are the study's independent variables and mediating variables.

Table 3.3 Description of Intellectual Capital Variables

Variables	Sub variables	Measurement
Capital employee efficiency	Value-added ÷ capital employed	Value added = I+ DP+ D+ T+ M+ R (I= interest expenses, DP= depreciation expenses, D= dividends, T= corporate taxes, M= equity of minority shareholders, R= Retaining earnings Capital Employed = Total assets – intangible assets
Structural capital efficiency	Structural capital ÷ value-added	Structural capital = value-added – human capital

Human capital efficiency	Value-added ÷ Human Capital	Human capital = salaries and wages
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Source (Mentioned under heading 3.9.2)

3.9.3 Measuring Firm Performance Variables

The present study includes market-based performance variables TobinQ and accounting-based performance such as EOA, ROE and DPO. Following prior research (El-Chaarani *et al.*, 2022; Carty and Weiss, 2012; Mohamad *et al.*, 2020; Mishra and Kapil, 2018; Mishra *et al.*, 2022). Market-based and accounting-based performance metrics such as Tobinq, ROA, ROE and DPO were used in the study. ROA is measured by using net income divided by total assets. ROE is measured by net income divided by shareholders' Equity, and DPO is calculated by dividend per share divided by earnings per share.

Table 3.4 Description of firm performance variables

<i>Variables</i>	<i>Sub variables</i>	<i>Measurement</i>
FP	ROA	As an accounting measure of performance ROA was measured by profit before dividend, interest, and tax (PBDIT) divided by the total number of assets
	ROE	The ROE ratio formula is calculated by dividing net income by shareholder's Equity.
	Tobin q	Tobin's Q is measured as the market value of equity plus the market value of total liabilities divided by the book value of total assets
	DPO	The DPO formula is measured by dividing the total dividend by Earning per share

Source (Mentioned under heading 3.9.3)

3.9.4 Control variables

To address the heterogeneity problem and assess the effects of other factors that are known to affect a company's performance, control variables are utilised. By reducing the impact of confounding and unrelated factors, we have employed two control variables in this study to improve the internal validity of the results.

Table 3.5 Description of Control Variables

Control variables		
Control variables	Leverage	Calculated By the Total Debt To The Total Assets,
	Firm size	Calculated by the natural logarithm of total assets

Source (Source (Mentioned under heading 3.9.4)

3.10 Empirical Model and Estimation Techniques

This section involves the estimation techniques to analyse the effect of CG and IC on the performance of Indian listed firms. Several estimation techniques are used in this study to achieve the objectives. First thematic content analysis, paired sample t-test, Generalize method of moment (generalised method of moments), and Medsem technique through structural equation method in STATA.

3.10.1 Content analysis

To analyse the development of CG in the Indian business environment, thematic content analysis has been done by collecting non-numeric data from research papers, policy brochures, and different authentic internet sources. The thematic content analysis has been done manually by checking the patterns of those developments with timelines since 1998.

3.10.2 Paired Sample T-Test

The disparity between the two sample periods was probed and scrutinized using a paired sample t-test. According to an analysis of the literature, several researchers have employed several indices and key performance indicators to quantify the effectiveness of corporate governance (Goal, 2018; Lim et al., 2013). There isn't a standard scale for evaluating corporate governance potency and its efficacy. Clause 49 of the listing agreement, which SEBI awhile back promulgated and amended, is used by Indian firms as a yardstick and a rubric benchmark for their corporate governance practices. Variables used for this study are Board Size, Board Independence, CEO Duality, Gender Diversity, AC Size, and AC Independence.

The paired sample t-test includes various assumptions because it is a parametric technique (a procedure that estimates unknown parameters). Even though t-tests are relatively robust, it is a good practise to investigate the degree of deviation from these hypotheses to evaluate the validity of the results. Assumptions of a paired sample t-test are based on the differences between two sets of values rather than the original data values. Some of the assumptions are:

- Dependent variables should be continuous
- Observations are independent of one another
- Normal distribution of dependent variables
- Variables should not contain outliers.

The prevalence of corporate governance mechanisms is examined using a self-developed measurement methodology to measure the dependent variables. Except for the variables related to CEO Duality and Gender Diversity, the corporate governance dimensions are all measured on a scale of 1-4. These two variables are rated from 0 to 1. Table 1 in Appendix XVII clearly

demonstrates how observations are autonomous of one another. There are a number of ways to assess the assumption of normalcy, but the simplest is to visually examine the data using a tool like a histogram (Appendix XVIII table 2). Data from the real world is hardly ever average. Therefore, if the shape appears to be symmetric and bell-shaped, this requirement might be regarded to be reasonably met. This test's data set has a normal distribution. To solve the problem of outliers, we have used the winsorization method in STATA to replace possible outliers. STATA software has been used for the T-test analysis.

3.10.3 Generalized Method of Moments (GMM)

A GMM helps estimate dynamic panel data. A dynamic panel model's lagged dependent variables' endogeneity can be controlled by utilising a generalised technique of moments. It is suitable when a correlation exists between explanatory variables, or a correlation of independent variables exists with an error term in a model. Another advantage of using the GMM is that the method considers the omitted variables' bias and controls unobserved panel heterogeneity in the data set while estimating the equation. It also controls measurement errors in the data.

It is more suitable when the data set has endogeneity or attributes of fixed effects. Furthermore, there is a chance of heteroscedasticity of autocorrelation existing within panels or groups, so it is a good idea to use the generalised method of moments technique to estimate the panel data with many groups.

However, there is a specification for using GMM as follows (Arellano and Bond, 1991):

- $N > T$, Where N is the number of cross-sections or groups, and T is the time. In our specific case, we are using 282 cross-sections, and we have a period from 2015 to 2020 i.e., T equal to 5.
- A generalised method of moments uses the instrumental variable (IV) estimation. Where the instrument's variable is a third variable, Z is used in estimation when other variables influence endogenous variables in the model.
- Where instrument variable Z must be exogenous
- The number of instruments (Z) is less than or equal to the number of groups (N).

There are two categories of instruments: internal and external (Baum et al., 2002). The difference GMM and the system GMM, both at one step and two step, are further subdivided into the GMM.

Difference Generalised Method of Moments (GMM)

It is developed by Arellano and Bond (1991). Difference generalised method of moments helps in correcting endogeneity with the help of transforming all regressors through difference and removing the fixed effect in the process (Arellano and Bond, 1991).

Model Specification

Initial model

$$\ln Y_{it} = \Phi \ln Y_{it-1} + \beta X_{it} + (\eta_i + \epsilon_{it})$$

Transformed model

$$\Delta \ln Y_{it} = \Phi \Delta \ln Y_{it-1} + \beta \Delta X_{it} + \Delta \epsilon_{it}$$

System Generalised Method of Moments

This method was proposed by Arellano and Bover (1995) and Blundell and Bond (1998).

System generalised method of moments helps correct endogeneity by introducing more instruments to dramatically increase the estimation's efficiency. Additionally, it changes the instruments while applying the fixed effect to make the explanatory variables uncorrelated (exogenous). The distinctive highlight of the system GMM is that it constructs a system from two equations: the original equation and the modified equation. The generalised method of moments system can be computed for all observations even if the data have missing values or a substantial majority of gaps in the data set. Consequently, it mitigated the impact of data loss while estimating the data (Blundell and Bond, 1998).

Model Specification

Initial model

$$\ln Y_{it} = \Phi \ln Y_{it-1} + \beta X_{it} + (\eta_i + \epsilon_{it})$$

The system generalised method of moments approach involves using a greater number of instruments. Contrarily, Monte Carlo research indicates that there are improvements in accuracy and a decrease in the tiny bias when T is short and the dependent variable is persistent. It controls heteroscedasticity and autocorrelation, and if the standard error is large in the system, GMM trends should reduce and follow the conventional approach.

3.10.4 Generalised Method of Moments Estimation Technique

Different generalised method of moments and System generalised method of moments have slightly different estimations and follow different approaches. The decision which generalised method of moments should adopt for the estimation is based on pooled OLS estimation, fixed effect estimation, and system generalised method of moments estimations. To take the final decision, four following steps need to consider:

- Step 1: Estimate by pooled OLS
- Step 2: Estimate by FE
- Step 3: Estimation by difference GMM
- Step 4: Observe the outcomes and take the decision

The pooled OLS coefficient estimation should be viewed as an upper bound estimate. On the other hand, Fixed-effect estimation ought to be regarded as a lower bound estimate.

In the third step, estimation of difference GMM helps us decide which estimation difference GMM or system GMM approach is appropriate. The difference in the GMM is downward biased due to poor instrumentation if it is close to or less than the fixed effect estimation. Therefore, as opposed to the difference between a GMM or vice versa, the system GMM estimator is chosen in this scenario. The following section tests the hypothesis one by one and follows four steps for each hypothesis.

The first section of the study explores the relationship between CG on the performance of Indian listed firms. CG includes (Board size, Board independence, CEO Duality, Gender Diversity, and meeting frequency), IC includes (CEE, HCE, and SCE), and FP includes (ROA, ROE, DPO and Tobin Q). The previous studies suggest that the relationship between CG and FP is dynamic (Harris and Raviv, 2006; Wintoki et al., 2012). To address the problem of dynamic endogeneity, this study employs dynamic panel GMM with one year lagged dependent variable (Shoa, 2018) to include previous performance in the model. The following are the econometric equations of this model.

$$Y_{it} = \alpha + \theta Y_{i,t-1} + \sum_{k=1} \beta_k X_{k,it} + \sum_{k=1} \gamma Z_{it} + \delta K_{i,t} + \eta_i + \varepsilon_{it}$$

Where

Y is the financial performance of the firm (dependent variable)

α is the constant.

β_k , γ , and δ are estimated coefficients.

$X_{k,t}$ represents the explanatory variables, including corporate board structure and IC.

Z_{it} includes "observable firm characteristics control variables," including firm Size and leverage.

K , include firm Size, year dummy variables, and industry dummy variables. In the models, they are purely exogenous.

η_i is unobserved firm fixed effects (e.g., managerial ability, employees' capacity, capital intensity);

ε_{it} is the idiosyncratic error term.

Using the aforementioned equation as a foundation, the next research will examine the link between board qualities and financial success of Indian listed companies:

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{Board Size}) + \beta_2 (\text{Board Independence}) + \beta_3 (\text{CEO Duality}) + \beta_4 (\text{Gender Diversity}) + \beta_5 (\text{Board Meeting Frequency}) + \beta_6 (\text{Firm Size}) + \beta_7 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon$$

There are four dependent variables (ROA, ROE, TOBINQ, and DPO) and five independent variables and two control variables and year dummies. The performance variables in the above model represent it.

Based on the previously stated equation, the following research will be done to determine the link between the Audit Committee and the financial performance of Indian listed companies:

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{Audit Committee Size}) + \beta_2 (\text{Audit Committee Independence}) + \beta_3 (\text{Audit Committee Meetings}) + \beta_4 (\text{Firm Size}) + \beta_5 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon$$

There are four independent variables: audit committee size, independence, audit committee meetings, and two control variables (firm Size and leverage) and year dummies.

The pooled OLS regression model has been used to investigate the relationship between IC and firm financial performance in several previous studies conducted in developed countries. (Kilmer and Rodríguez, 2016) indicates that pooled OLS regression is inappropriate for the time series data set because it does not consider heterogeneity across groups or time. There is also evidence in the literature about endogeneity in the relationship between IC and FP. A generalised method of moments estimators tests the relationship between IC and FP. Based on the following equation

$$Y_{it} = \alpha + y_{it-1} + \beta_1 (\text{CEE}) + \beta_2 (\text{HCE}) + \beta_3 (\text{SCE}) + \beta_4 (\text{Firm Size}) + \beta_5 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon$$

There are four dependent variables (ROA, ROE, TOBINQ, and DPO) and three independent variables (CCE, HCE, and SCE), and two control variables (firm Size and leverage) and year dummies.

3.10.5 MEDSEM by Using Structural Equation Modelling.

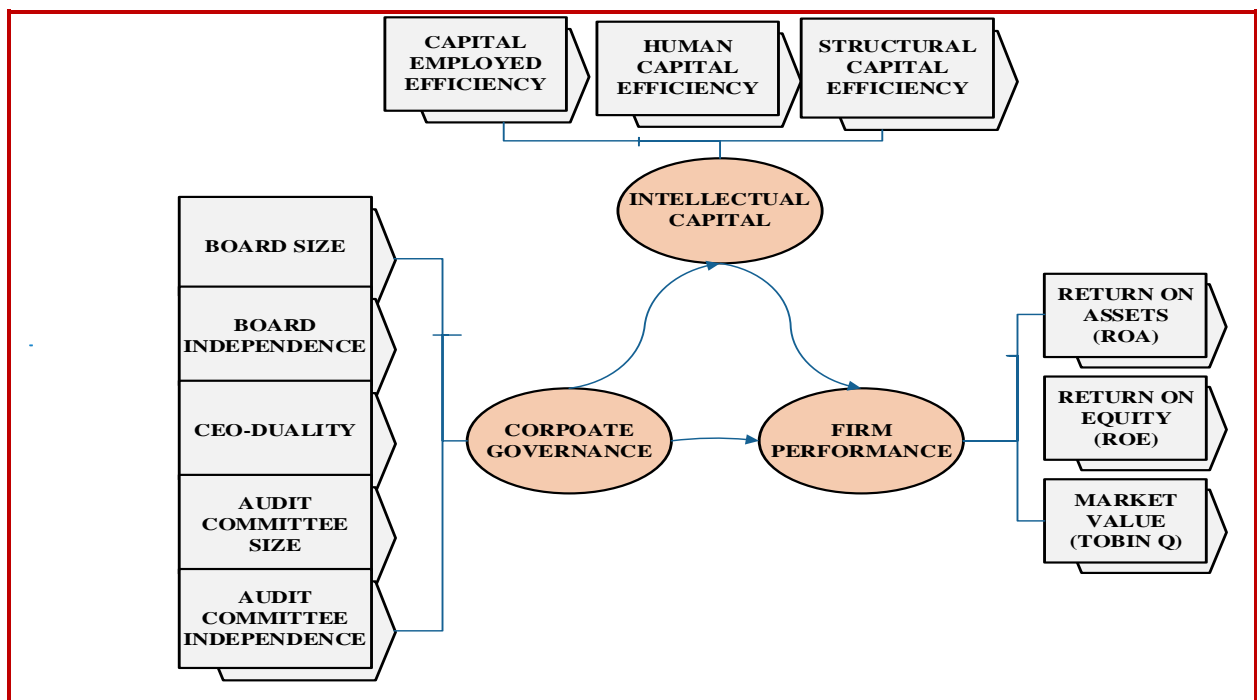
The magnitude of IC in mediating the linkage between corporate governance and FP was examined using STATA's Medsem function. The medsem Stata package includes a post-

estimation function for evaluating mediation concepts based on Baron and Kenny's (1986) technique, as updated by Iacobucci et al. (2007), and Zhao et al(2007) .'s multidisciplinary approach (2010). after estimating the required mediational model with Stata's built-in sem function (2010). Medsem because it might help with concluding a full mediational study that is based on profoundly complicated models that include many mediators, latent and observable variables, and both observable and latent variables. It is common for social scientists to use Baron and Kenny's (1986) method (known hereafter as the BK approach) to undertake a mediation analysis, as stated by Kenny (2016). There are four separate steps in the BK technique that must be completed to achieve comprehensive mediation.

- The relationship between X on Y (path c) should be statistically significant.
- The relationship between X on M (path a) should be statistically significant.
- The relationship between M on Y (path b) should be statistically significant.
- The relationship between X and Y (Path c) must be zero, after controlling for the mediator, the magnitude of route c' is decreased to zero.

It is possible to argue that M mediates the connection between X and Y if all four of the following conditions are met: It is possible to claim that M partially mediates a relationship to some extent if the first three stages are met. Partial mediation is when the mediator's portion explains the dependent variable.

Fig 3.2 SEM model framework



Source: (Authors)

The structural equation modeling in STATA through medsem command. One of the best things about medsem is that it can help you estimate mediational models in the best way possible by using the structural equation framework. It can also help to analyse better and more thoroughly than usual. Since medsem is based on estimates from Stata's sem command, its second benefit is that it can help with mediational analysis using either observed or latent variables or a mix of both.

3.11 Endogeneity

Researchers and academics are concerned about the issue of endogeneity when attempting to determine the connection between CG and FP (Wintoki, Linck, and Netter, 2012; (Nguyen, Locke, and Reddy, 2015). It occurs when independent variables are correlated with the error term, leading to biasness and inconsistency in estimates. According to (Wintoki, Linck, and Netter, 2012), endogeneity comes from three main sources when analysing the relationship between CG and FP. Unobserved heterogeneity occurs when CG variables are correlated with unnoticed factors. For example, employee skills and organizational culture may negatively or positively impact CG and FP (Roberts and Whited, 2011). Simultaneous endogeneity occurs when corporate governance and firm performance variables affect each other; inside ownership may affect corporate FP and vice versa. Dynamic endogeneity occurs when CG variables are not strictly independent variables.

3.12 Descriptive Statistics

Table 3.6 depicts the descriptive statistics, which show that the average board size of Indian listed firms ranges between 8.12 to 15, with the average value of 9.19, which shows higher variability in the sampling period. table3.6 shows that, on average, 58% of the BODs are independent out of the total board size in Indian listed firms. 65% of Indian listed firms have CEOs as board chairman. On average, more than 50% of the audit committee's members are independent directors.

Table 3.6 Descriptive statistics

Variables	OBS	MEAN	SD	MIN	MED	MAX
Board Size	1422	9.19	2.5	8.12	12.4	15
Board Independence (%)	1422	0.58	1.54	0	0.62	0.7
CEO Duality	1422	0.65	.47	0	0	1
Board Meeting Frequency	1422	5.33	1.09	4	5.58	6.00
Audit Committee Size	1422	4.17	.218	3	5.72	7

Variables	OBS	MEAN	SD	MIN	MED	MAX
Audit Committee Independence (%)	1422	0.51	2.17	0	0.56	0.60
Audit Committee Meetings	1422	5.12	8.24	4	5.98	8
Return On Asset	1422	0.25	0.15	0.000	0.122	2.68
Return On Equity	1422	0.589	1.04	-0.846	0.633	8.275
TOBINQ	1422	2.63	1.08	0.86	3.52	11.47
Dividend Pay-Out	1422	52.41	71.02	0.000	38..17	72.30
Capital Employed Efficiency	1422	0.007	1.02	0.000	0.008	0.010
Human Capital Efficiency	1422	1.62	3.68	0.011	1.83	2.225
Structural Capital Efficiency	1422	0.42	1.07	0.001	2.35	2.79
Firm Size	1422	12.45	5.12	5.68	14.08	21.23
LEVERAGE (%)	1422	0.38	3.26	0	0.49	1

Source (Authors)

3.13 Correlation matrix

Table 3.7 presents the correlation matrix of key variables for regression analysis. A correlation of 0.7 or above represents the multicollinearity among the variables except gender diversity. In table 3.7, all key variables' values are less than 0.7. it shows that there is no multicollinearity present in the model. Gender diversity has been excluded from the model

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	BFSIZE	1.000																
2	BIND	-0.133	1.000															
3	CEOD	0.187	-0.073	1.000														
4	GP	-0.796	0.813	-0.773	1.000													
5	BMEET	0.067	0.002	-0.069	0.132	1.000												
6	ACSIZE	0.116	0.085	-0.037	0.085	-0.036	1.000											
7	ACIND	0.037	0.024	-0.149	0.071	0.154	-0.001	1.000										
8	ACMEET	0.212	0.005	0.003	0.017	0.068	0.065	0.022	1.000									
9	ROA	0.016	0.134	0.024	0.004	0.157	0.137	-0.198	0.016	1.000								
10	ROE	0.353	-0.126	0.041	-0.325	0.017	0.051	0.145	-0.225	0.258	1.00							
11	TQ	-0.140	-0.215	-0.152	0.221	0.425	-0.224	0.226	-0.129	0.163	0.241	1.00						
12	DPAY	-0.022	-0.061	-0.006	-0.497	0.055	-0.113	0.564	-0.256	0.014	0.272	-0.258	1.00					
13	CEE	-0.161	0.056	-0.212	0.258	0.112	0.332	-0.662	-0.358	0.231	-0.225	0.024	0.226	1.00				
14	HCE	0.233	-0.187	0.002	0.168	-0.256	0.008	0.362	0.424	-0.532	-0.368	-0.010	-0.352	0.228	1.00			
15	SCE	0.001	0.154	-0.036	0.122	-0.006	0.001	0.227	-0.168	-0.117	0.615	0.296	-0.551	0.006	0.221	1.00		
16	FSIZE	0.112	0.121	0.010	-0.112	0.004	0.425	0.326	-0.241	0.16	-0.214	-0.223	0.005	0.362	-0.419	-0.521	1.00	
17	LEV	0.04	0.162	0.552	0.006	0.441	0.561	0.564	0.336	0.004	0.513	0.267	0.428	0.641	-0.152	0.004	0.518	1.00

Source(Authors)

CHAPTER 4

CORPORATE GOVERNANCE IN INDIA

Overview

Scholars have pointed out that the process of CG in a particular society is inevitable. A country's identity needs to have its laws, culture, economy, philosophy, and history. The concept of corporate governance is diversified because, in each country, Corporate Governance must adjust to its laws, culture, political structure, and the people of the land. At the time of liberalisation and deregulation of industries and businesses, CG entered India. After mid-1996, when Indian economic liberalization and deregulation of businesses and industries took place, CG emerged in India. The concept of corporate governance in India is a long-standing idea. It can also be called Arthshastra.

There was an earlier time when CEOs of India were subjects and kings. However, shareholders now have the power to replace them. The principles of CG in India are still the same. After independence, industrialists and people in business began to be interested in producing many necessary products. In 1950, the industries (Development and Regulation Act) and corporations Act were added. The 1960s saw the establishment of large industries and routine business operations. Between 1970 and mid-1980, cost, volume, profit, and accounting were the most important part of the cost accounting process.

The SEBI and the MCA keep an eye on the CG of listed Indian corporations. The stock exchange listing agreement with firms includes this condition. Companies that are listed are required to abide by its rules. Corporate executives, policymakers, and regulators can exchange experiences and perspectives through MCA's several appointed commissions and forums.

The company's shareholders will judge it as stronger if good corporate governance practices exist. Investors also look for companies with stronger corporate governance when investing. India's corporate governance requirements require companies to review their work culture and provide a positive outlook for shareholders. Their actions can have legal and moral consequences. The Companies Act of 2013 created new, innovative, and coherent standards. They have permitted Indian businesses to develop in consonance with foreign standards. Shareholders have a say in corporate decisions. To make sure that the interests of shareholders and the broader public are not neglected, several protections have been put in place.

Transparency within organisations is encouraged by corporate governance. It puts India in front of other growing economies around the world (Singh and Singla, 2022).

There are two parts to this chapter. The nature of CG practices and current corporate frauds are covered in the first section. The second section examines the development of CG in India with respect to the suggestions made by the numerous committees that were constituted, their implementations, and the trends of those changes.

SECTION-I

NATURE OF CORPORATE GOVERNANCE IN INDIA

4.1 Introduction

For many reasons, CG is integral to any country's economic DNA. The government ensures clean water, air, and efficient communication in civilized nations. However, international, and domestic investors trust the government to maintain a transparent and orderly business environment. Research shows overseas investors are less likely to invest in poorly managed companies in countries with weak shareholder protection or related legal institutions (Agarwal, 2012; Sharma and Sachdeva, 2011). Rather than investing in Countries with weak laws or poor implementation of laws, investors prefer to invest where corporate governance standards are more favourable unless domestic stock returns offer sufficient protection to cover poor governance risks adequately (Sharma and Sachdeva, 2011). Corporations have grown tremendously over the past century and a quarter due to their resilience and competencies, reaching a position of pre-eminence such that their assets and revenue often exceed the GDP of many countries.

A key reason to ensure good corporate governance is that large corporations invariably use other people's money to finance their operations. As shown in financial statements, equity capital and debt capital are any corporation's main funding sources (Khan and Banerji, 2016). The corporation is not private to the extent that large amounts of its funding can be traced back to other people. Trust and public confidence can automatically be raised when absentee owners or lenders infuse a large amount of money into the corporate sector. The tiniest crack in that confidence can have severe repercussions for banks and other financial institutions, as well as worrisome declines in equities markets. Ironically, the state is responsible for protecting orderly and transparent governance of the corporate sector and intervening to minimize and control damages to the economy through pre-emptive bailouts, especially in the case of banks and financing institutions, to contain the contagion effects of entity failures. Corporate governance is important at different times in a company's lifecycle or an economy's evolution. It's about issues as diverse as corporate responsibility, the constituting companies, and the standards to govern corporate behaviour.

Good corporate governance is essential for efficient corporate capital use. It also ensures that corporations consider the interests of many constituencies, including the communities in which

they operate (Singh and Singla, 2022). It creates trust and confidence, which is essential for a functioning market economy (Arora and Sharma, 2016). Even if the companies don't want to invest in international capital, consistent corporate governance principles can boost the confidence of both investors and regulators.

4.1.1 Regulatory Nature

On September 12, 2013, it was signed into law, thus abolishing the Companies Act of 1956. Corporate governance has been formalised under the Companies Act 2013 (the "Act"). For example, it creates a new standard for reporting disclosures and openness. Corporate governance codes and guidelines produced by non-regulatory organisations and different regulatory acts and recommendations have been widely adopted. The CII issued a desirable Corporate Governance code in 2009.

The subject of corporate governance for publicly traded companies gained traction when the K M Birla Committee's report (SEBI, 2000) advised including a Listing Agreement to encourage good CG practices. Following the SEBI's creation of the N Murthy Committee (2003, SEBI), the committee offered suggestions on the audit committee's duties and audit reports.

Additionally, it was advised that issues with independent directors, connected parties, risk management, pay, conduct codes, financial disclosures, and director remuneration be addressed. These suggestions were included in the significant statutory requirement known as Revised Clause 49. Clause 49 was updated by SEBI in 2013 to comply with the Companies Act.

4.1.2 Board of Directors

The idea of compensated independent directors was unanimously recognized by the CII Desirable Corporate Governance standard in 1998. A company's executive chairman should have at least two-thirds of the board be independent, with the remaining one-third being non-executive, according to the Kumar Mangalam Birla Committee (1998). Clause 49 has been modified in light of the N Murthy Committee's recommendations, which further define an Independent Director. For public corporations, the ratio of executive to non-executive directors must be equal to or higher than a predetermined threshold. The percentage of non-executives on the board must be at least 50%. According to the 2013 Act, a domicile and a woman director must be designated. CEO, MD, Manager, Company Secretary, and Full-time Director are all included in the 2013 Act's definition of "Key Managerial Personnel." New features, such as performance assessments of individual directors and the board, were included in the 2013 Act. Clause 49 was amended in 2013 to clarify that the board will determine the compensation of non-executive directors (including independent directors). The General Meeting is where

shareholders vote on whether to approve a proposal. Non-executive directors' stock options will be restricted (Arora and Sharma, 2016). The annual report of the corporation must contain this information. In addition, independent directors are expected to follow a Code of Ethics and certify that they abide by it annually.

4.1.3 Audit Committee

Oversight and delegation to other committees directly influence the audit panel's work. Internal and external audits are overseen by this organisation, which ensures openness, efficacy, and reporting of company financials. The number of directors on an audit committee must not be less than three. Independent directors must make up two-thirds of the board's members. It was proposed by the Naresh C Committee, K M Birla Committee, and N Murthy Committee. These committees also established the Audit Committee's roles, powers, and duties. An audit committee is also responsible for the organisation's compliance and ethics and monitoring the whistle-blower policy. As a result of the amendments to Clause 49, the Audit Committee now has increased responsibilities for ensuring financial reporting and disclosures are transparent and accurate, as well as the robustness and effectiveness of anti-fraud and Vigil mechanisms are reviewed and administered in connection with related party transactions.

4.1.4 Subsidiary Companies

Following Revised Clause 49, the holding company's BODs must communicate with the subsidiary's board to provide oversight and maintain an independent connection. Additionally, each subsidiary firm was required to have at least one independent board member. The audit committee of the holding company is in charge of ensuring the accuracy and integrity of the financial accounts. It is also necessary to disclose transactions that significantly impact the business. Having no conflicts of interest with the corporation is ensured by this. As a result of the Company Act 2013, the term "subsidiary" has been enlarged to encompass joint ventures and associate companies.

4.1.5 Role of Institutional Investors

International investors have taken large shares in India, a rapidly growing country. The big Indian financial institutions also have global ambitions (Yadav, 2020). It has led to significant improvements in corporate governance standards in investee companies. Recent studies have shown that shareholders who have benefited from a good corporate governance system have received high returns on their capital. To attract institutional investors, a company must improve its corporate governance practices. Adopting good corporate governance practices recommended by the OECD and other national and international institutions will improve corporate governance

standards. In India, where business ownership remains dominant, all shareholders, particularly international investors, must be treated fairly (Khan and Banerji, 2016; Yadav, 2020). Institutional investors should participate in the AGM voting process for the shares of their own portfolio businesses. Voting records must be made public, and any arguments against making them so must be disclosed. They will explain their support for or opposition to any Board Resolution in their portfolio firms on their website.

4.1.6 Stakeholders Relationship Committee

The K M Birla Committee mandated forming a board committee with a non-executive director as its chairman. This committee would look into shareholder concerns, including share transfers, missing balance sheets, and dividend payments. The committee considered that by bringing shareholder grievances to management's attention, a shareholders' grievance panel would aid management in resolving shareholder complaints. The 2013 Act and the amended Clause 49 mandate that such a committee be formed will allow the committee to have a wider remit and cover all stakeholders' concerns, not just shareholders. Companies with more than 1,000 shareholders, holders of debentures, depositors, or owners of any other security during a financial term are now required to establish a Stakeholders Relationship Committee. This committee will comprise a chairperson who will not be an executive director and additional members that the board may decide to address grievances of business security holders.

4.1.7 Risk Management

The K M Birla Committee report includes mandatory portions. The committee addresses the industry's structure, development, threats, outlook, and risk, in addition to operational and financial performance and management breakthroughs in Human Resource and Industrial Relations. Clause 49 of the management disclosures. At least one attempt at risk management was made by the N M Committee (2003) in its 2003 report. It necessitated that the corporation set up processes for informing the Board of Directors about the risk assessment and risk reduction measures that the company was doing. The executive management must examine these processes regularly to ensure that risk is managed within a clearly defined framework. The Risk Management Committee will not overlook this. Internal disclosures to the board contain this clause 49. Requirements for risk management are spelt out in Revised Clause 49 and the 2013 Act. The effectiveness of the board's risk management policies and procedures is assessed by the audit committee and independent directors.

4.1.8 Ethics

Every organisation must abide by a set of guidelines known as a code of conduct. Additionally, the N M Committee recommended that businesses have a whistle-blower to disclose unlawful, unethical, or code-violating behaviour. The Audit Committee would also be responsible for reviewing the mechanism's functioning. These suggestions were included in Clause 49, which also requires listed company directors to create a code of conduct and paste it into the website. Each year, all board members and senior management must certify that they are abiding by this code and include a statement from the CEO in their annual report. The N M Committee urges establishing an Audit Committee in Clause 49 to examine how the whistle-blower system functions. The 2013 Act is required under the modified Clause 49 to create a Whistle-blower Mechanism that will enable employees and directors to report financial and non-financial wrongdoings. Furthermore, it demands that these systems offer whistle-blowers direct access to the Chairman in extraordinary circumstances and safeguard them from retaliation.

4.1.9 Executive Remuneration

Regarding directors' remuneration, the overriding principle is openness. Shareholders have the right to receive a clear and complete statement of director benefits. Establishing a Nomination and Remuneration Committee is required by the 2013 Act and revised Clause 49. It must have three directors or more. They must have at least 50%, independent directors. The Nomination and Remuneration Committee's job is to make sure that compensation is at a level and with a composition that are reasonable and acceptable; that performance benchmarks are met, the relationship between remuneration and performance is clear; and that directors, key managers, and senior management receive a balanced mix of incentive and fixed pay to meet short- and long-term goals. The annual report section on corporate governance must contain mandatory disclosures: salary, benefits, stock options, retirement, and bonuses.

Service agreements, notice requirements, and severance costs; Information on the performance criteria, fixed component incentives, and performance-linked incentives; Details on stock options, such as whether they were granted at a discount, how long they have been accruing, and when they can be exercised.

4.1.10 Directors Responsibility Statement

According to the 2013 Act, a Director's Responsibility Statement must be included in the company's Annual Report. This declaration will encourage openness and improved disclosures.

- The yearly accounts must be created using the current accounting standards.

- The directors have chosen particular accounting standards, used them consistently, and made reasonable and responsible judgments and estimates to offer a true and fair picture of the company's financial status.
- It is essential to keep proper accounting records that comply with this Act to safeguard the company's assets and detect and prevent misconduct.
- The going-concern approach should be used to create the company's annual accounts.
- The Corporation shall follow the internal financial controls established by the directors. Internal financial controls in this situation should be adequate and effective.
- Directors have created appropriate mechanisms to guarantee adherence to all relevant legislation.

4.2 Corporate Frauds in India

The disclosure of fraudulent practices by many companies has caused irreparable damage to financial markets and created public distrust in many countries, like United States and India. Companies like Tyco, Global Crossing, Enron, and individuals such as Subhajit Ghosh or Nagesh Kini are just a few examples. These scandals and fraudulent practices have affected many people, from managers of large companies to ordinary people. Investors lost their competitiveness (Gupta, 2020). The government is concerned about the increasing incidence of financial fraud in India.

This fraud involves the manipulation of financial statements by auditors, executives, or directors of companies to deceive stock market analysts or earn credit.

Corporate fraud is the deliberate alteration and concealment of sensitive information by an individual or organisation to make themselves appear more reputable. Businesses can defraud customers using a variety of methods, including falsifying information in prospectuses and falsifying accounting records. Falsification of financial information includes, for example, misleading financial entries, dishonest trades to boost profits, disclosing price-sensitive information that constitutes insider trading, or transactions that attract more financial institutions (Gupta and Gupta, 2015). Businesses may carry out these frauds for an assortment of reasons.

In its report, the Commission on "Prevention of Corruption in India" stated that "the advancement of technological, scientific, and social progress is leading to a mass society with an extensive rank in a small controlling Elite, promoting the growth of monopolies and the rise of the managerial class and intricate institutional structures." High ethical standards must be strictly followed for the current economic, political, and social systems to operate honestly (Rajagopalan and Zhang, 2009)—table 4.1 lists all the relevant frauds in India

Table 4.1 Major Corporate Frauds in India from 1992 to 2020

NO	YEAR	Subject	Amount	Source
1	1992	Harshad Mehta	5000 crores	Indian Express
3	2009	Satyam computer scam	5400 crores	Times of India
4	2012	Kingfisher airlines	792.11 crores	Indian Express
6	2019	Jet Airways	46 crores	Economic Times
7	2018	PNB Scam	11356.84 crores	Economic times
8	2019	ILFS	1 lakh crores	Business Standard
9	2019	DHFL	31000 Crores	Business Standard
10	2019	PMC	6500 crores	Indian Express
11	2020	Yes Bank	466.51 crores	India today

*Note: the source of these frauds is listed in column 5 of the above table. *

4.2.1 Harshad Mehta Scam

An Indian stockholder originally called Harshad Shantilal was charged with 27 financial infractions, although just one of them resulted in a conviction. Mehta and his accomplices purloined money through interbank transactions by taking advantage of the numerous banking system flaws. This money was used to buy shares at a premium across several industries, which resulted in a sharp increase in the Sensex (Barua and Varma, 1993). After the bank's business modus operandi was made public, the banks demanded the money from Mehta. The Sensex lost as much value as it gained. Mehta was tried and convicted of 72 offences. Against him, more than 600 civil lawsuits were lodged. More than 600 civil action lawsuits were filed against him. Harshad Mehta's illicit ways were exposed in April 1992. The key mechanism that enabled the scam was the ready-forward (RF), essentially a secured, short-term, usually 15-day loan from one bank to the other. The lending bank sold the securities and purchased them back at the end for a slightly higher amount. The RF deal was a huge success for Mehta Associates to channel. During the settlement procedure, the brokers oversaw providing the buyer with the securities and payment. The broker was anointed as a financial conduit. The seller proffered him the securities, which he then gave to the buyer. After receiving the buyer's check, the dividends were given to the seller. Only the broker knew the names of the buyer and seller, therefore they remained unidentified throughout the settlement. Because they were market makers and had already begun trading on their accounts, Harshad Mehta and his colleagues were able to control this process. To maintain legality, they pretended that they were performing the transactions for a bank. Mehta

and his associates traded an RF deal while the seller gave the buyer a BR agreement, confirming that securities were sold. A BR is a receipt from the selling bank for money received. The seller promises to deliver the securities to the buyer, but the securities remain in the buyer's trust. Mehta used these techniques to get banks to issue bogus BRs without insuring any govt bonds. The Bank of Karad (BOK), Mumbai, and the Metropolitan Cooperative Bank were both implicated in illicit partnerships. Both banks committed to release BRs only when needed. Mehta created the bogus BRs and distributed them to other banks. Then, under the impression that they were lending against government securities, these banks disbursed the funds. Mehta utilised the funds to raise share prices on the stock exchange. (Bhasin, 2015) After the shares were sold, large profits were earned, allowing the BR to retire once the bank was ready to receive its money back. Mehta's deceptive tactics persisted, driving up stock prices sharply and fostering a favourable market climate.

After the disclosed scam, some banks found that 65 of its customers held BRs with no value. Mehta had previously stolen an incredible Rs 4,000 crore from banks.

Indian Parliament was harshly critical of the scam, and Mehta was found guilty by the judiciary in India for participating in frauds worth Rs. Mehta was sentenced to a maximum of 5000 crores by the Bombay Stock Exchange (BSE 82) and imprisoned (Gupta, 2020). Mehta was convicted in just one of 27 cases against him when he died in 2002. Nine years after Harshad Mehta's death, the Income Tax Department collected a substantial portion of their claims through the liquidated assets of Harshad Mehta.

Role of Corporate Governance

The Harshad Mehta fraud involved receiving charlatan and counterfeit bank receipts and splitting the pro-Capital Employed Efficiency with banks. The BODs violated the openness and oversight of management' conduct by failing to identify the banks engaged in the provision of contrived receipts. It was alleged that the Metropolitan Cooperative Bank and Bank of Karad directors were either complicit in the involvement of the bank and some employees or failed to disclose it. In an ideal situation, the board of directors would spot these frauds and take appropriate action. The Harshad Mehta case altered the perception of corporate governance as well as the state of the stock market and banking.

4.2.2 Satyam Computer Scam

It is often linked to the larger problem of India's family-oriented corporate environment and caste. State Farm Insurance and Merrill Lynch, now part of Bank of America, cut all relations with the group. When Credit Suisse ceased tracking Satyam's shares, they decided to discontinue

coverage of the firm. As a result of the scandal, Satyam has lost every award it has received since 2008, including the G.P. Award for CG in the Risk Management and Compliance categories. The NYSE and the NSE of India severed ties with Satyam. Ramalinga Raju (founder of Satyam) was arrested after confessing that he had manipulated the company's accounts and was charged with criminal conspiracy, breaching trust, forgery, and other charges. Satyam's shares fell to Rs. 11.50. Although the Indian Government announced its probable temporary indirect or direct liquidity support for the company, it was unclear if the employment situation would change. Satyam provided information to Price Waterhouse. Price Waterhouse Coopers' Indian division declared on 14 January 2009 that its audit reports could be inaccurate and unreliable because they relied on information from Satyam (Lal Bhasin, 2013).

However, in consonance with the Chartered Accountants Act, an auditor is responsible for the data management provided to him (enacted in 1949). The CID found that Satyam's actual figure is only 40,000, not 53,000, as had previously been stated. Raju received money as well. CID gave these fictitious workers 20 crores (\$4 million) per month in the form of US\$4 million. In a formal auction held on April 13, 2009, Tech Mahindra, a company owned by Mahindra and Mahindra, acquired 46% of Satyam's shares.

Role of Corporate Governance

The Satyam scam was a clear manipulation and misinformation of accounts. The involvement of Satyam computer auditors clearly states corporate governance's failure. The board of directors failed to meet the clause of transparency and accuracy (Lal Bhasin, 2013). The Satyam scam increased the significance of independent directors and non-executive directors who do not get influenced by the firm's promoters and chief executives.

4.2.3 Kingfisher Airlines

The Board approved a resolution in August 2009 to raise Rs 487.8 Crore through the sale of GDRS receipts. This is a substantial sum in addition to other options for raising Rs 500 Cr via right-to-issue equity shares. Since 2005, the airline has incurred a deficit each year. Following the purchase of Air Deccan, Kingfisher suffered losses for three straight years totalling more than \$1 billion. The business took out a loan to get out of its financial jams. The corporation was burdened with significant interest and debt because of these loans. The board of directors concluded that debt restructuring was required to lessen the burden of debt and interest. The company's 18 lenders, who had loaned Rs 8,000 crores, voted to reduce interest rates and turn some of their money into stock. The contract included Rs. The lenders converted 650 crores of debt into preference shares. At the same price, investors purchased GDRs, and shares were

converted into ordinary equity. In addition to the 1,400 crores of debt turned into preference shares, another 800 crores of debt was converted into redeemable shares for a period of twelve years. The company could save Rs. 450 crores by restructuring its debt. It resulted in a reduction of the interest rate to 11%. Annual interest costs of 500 crores are saved every year. To restructure the company's debt, loans totalling Rs.750.10 crore were converted into preference shares with a 7.5% mandatory conversion rate.

Loans totalling Rs. 6,648 crores were then converted into equity shares, and Rs. 553.10 crores into non-convertible cumulative redeemable preference shares that are redeemable after 12 years. Consequently, debt worth 97 crores was converted into equity shares. Additional fund-based loans totalling 768.32 crores and non-fund-based facilities totalling 444.40 crores were sanctioned by the financial institutions. The interest rate on term loans has decreased to 11.1% from 14% annually. The amount of 297.4 crores of working capital was changed into a working capital term loan (WCTL). The interest payments were paid from July 2010 to March 2011 by the banks. It certainly turned into a Rs. funded interest term loan (FITL). The amount converted into CCPS was 349.88 Crores out of the entire amount.

The losses had doubled by November 2011 to Rs 469 Crore. Mumbai International Airport Pvt. issued a notice to the airlines on December 1, 2011. Ltd. (MIAL), to clear outstanding dues of Rs90 crore. After some time, the department of service tax seized 11 accounts since the owners had failed to pay Rs 70 crores. After the past due amounts were paid in full, these accounts were subsequently unfrozen. The Income-tax department froze some accounts in February 2012. This resulted in airlines having to cancel some flights. Kingfisher Airlines was verboten by the International Air Transport Association (IATA) from using the billing and cargo payment systems. This happened because of Kingfisher Airlines' failure to make the cash deposit required to keep participating in the BSP/CASS. Over 30,000 connected travel agents have been told to stop purchasing Kingfisher tickets by the International Air Transport Association (IATA), and they have also been told to stop using the billing and cargo settlement systems. Kingfisher was able to come up with a unique plan on how to sell its tickets. Numerous pilots and other staff members missed work on March 12th, 2012, to protest the latency for their pay checks. At least thirty flights had to be rescinded as a direct result. The Department of Revenue warned airlines that it was going to pursue them through the court system for failing to pay service taxes collected from customers consistently since November and for diverting the money for various uses daily. Kingfisher chief Vijay Mallya assured the Directorate-General of Civil Aviation on March 20, 2012, that they would adhere to all safety standards and follow the schedule. The airlines were

saddled with a huge debt of Rs. 7000 crores by the end of this month, forcing them to cease operations in major cities such as Kolkata, Hyderabad, and Lucknow. The daily flight count was reduced from 400 flights a day earlier to 150. Part of the pilots went on strike on July 14, 2012. However, they were able to return to work after receiving assurances from the top management. A section of pilots struck again on August 18, 2012. This strike was triggered by the failure to pay the March salary. Seven flights were cancelled from Mumbai due to the strike.

Role of Corporate Governance

The effectiveness of a company's decision-making processes is critical to its long-term success. CG failed to protect the interests of stakeholders, resulting in the demise of a five-star airline and those associated with it. According to Alex Wilcox, the firm's promoter was running the business instead of those who were supposed to run it. The BODs failed to manage and control the risk. The poor decision-making of kingfisher states that the board of directors supported the fantasies of the promoter (Santhosh Kumar, 2014). The kingfisher failure exposed the shortcomings of CG in the Indian banking and non-banking sectors. The banks had lost a big amount of loans, especially the state bank of India.

4.2.4 Punjab National Bank

PNB filed a complaint with CBI on 29 January 2018 regarding the fraudulent transaction with Nirav Modi's firm. On February 4, 2018, the CBI issued a warning to Nirav Modi. On February 5, 2018, PNB alerted stock exchanges of the scam and its value, which was projected to be \$1.77 billion on February 14. The fraudulent transactions were "for a selected few accounts holder," but the memo did not reveal the identity of the fleeing diamond supplier. However, the media learned the name and location of the PNB branch in Mumbai where LOUs had been issued to raise the buyer's credit (Bandopadhyay, 2018). The fraudulent transactions or LOU issuance occurred at Mid Corporate Branch Brady House in Mumbai. (PTI, 2019) 54 PNB officials issued fake Letters of Undertakings. This could allow Axis bank and Allahabad bank to fund the NOSTRO account of PNB (Hongkong branch). This NOSTRO account could fund overseas parties, including Nirav Modi. Two employees used the SWIFT account of PNB. However, the FIR revealed that the two PNB employees had been issuing LOUs in an unauthorized manner for the past seven years. Following that, one of the employees resigned, and a new employee was chosen to take his place. When corporate executives asked PNB for new LOUs in January, the new PNB officer wanted collateral security. According to corporate authorities, the PNB manager had not requested this in the previous seven years. The bank signalled something was wrong, and the new officer looked into the matter. The problem cost the bank approximately

11,400 crores. The CBI and the RBI were notified about the PNB. Nirav Modi need funds to import pearls and jewels. Nirav Modi desired a foreign currency loan since his export profits were in foreign currency. He wanted to obtain money but did not have a loan account. Modi obtained a letter of credit with the PNB to obtain inexpensive buyer's credit in foreign currencies. Modi should have exported the diamonds and pearls and used the earnings to settle the LOU amount as and when required by the bank, following its standard procedure (Khan and Banerji, 2016). PNB should have repaid the loan it received from overseas banks in its NOSTRO account. He used the money for his purposes and did not pay the bank any interest. These were his activities for the last seven years. Modi paid back the principal and interest on the old LOUs by buying a new one. According to investigating agencies, the total loss taken in by Nirav Modi and Mehul Choksi was 293 crores. This was how fraud continued.

Role of Corporate Governance

As part of its primary duties, the board of directors failed to offer strategic direction and efficient managerial supervision. The Board is responsible for ensuring that all laws, rules, and standards are followed when it comes to good accounting and reporting systems, such as independent audits and good control systems. PNB Scam exposed the ineffective corporate governance system in public listed firms.

4.2.6 Corporate Governance Shortcomings in India

Agency theory, universal corporate governance practices, and laws of India make the board of directors responsible for effective management monitoring, transparency, accountability, strategic decision-making, protection of stakeholders' interests, and proper risk management (Barua and Varma, 1993). Corporate governance has gotten huge media coverage in recent years due to multiple corporate frauds and scams in India. The pattern of those corporate frauds and scams is misreporting, account manipulation, bad decision-making, and the influence of promoters. Despite the frequent corporate governance reforms, corporate fraud has continued in India (Singh, 2021). For instance, PNB occurred after implementing reforms in clause 49 of the listing agreement. The major concern for CG in India is the independence of the board and risk management (Bhasin, 2015). In recent years private equity owners and institutional investors have acquired substantial stakes and do not have voting rights or veto power like the U.S. The promoters use their power to influence board members.

The current corporate governance system in India could collapse if founders retained too much power. A company's identity in India is frequently intertwined with that of its founder, in contrast to that in more developed economies. In many businesses, the founders continue to play a

significant role in all important company decisions, regardless of their legal position, and they refuse to recognise the necessity for succession planning. It is best for governance and business continuity purposes if founders create a succession plan and put it into action. There is a reluctance to delegate authority in family-owned businesses in India. The best way to deal with this is to attract a larger number of shareholders, such as private equity firms or other institutional investors, so that the company's founders are compelled to formulate a succession plan and leave the company gracefully.

SECTION II

EVOLUTION OF CORPORATE GOVERNANCE IN INDIA

4.3 Introduction

After mid-1996, when Indian economic liberalization and deregulation of businesses and industries took place, CG emerged in India. The concept of CG in India is a long-standing idea. It can also be called Arthshastra. While CEO India was once the dominant figure, earlier subjects and kings of India were replaced by shareholders. However, principles remain the same. There was interest from businesspeople and industrialists after independence in producing many necessary products regulated and quoted at fair prices (Singh and Singla, 2022). In 1950, the industries (Development and Regulation Act and Corporations Act were added to the system (Arora and Sharma, 2016). The 1960s saw the establishment of large industries and routine business operations. Between 1970 and mid-1980, cost, volume, and profit examination were integral to cost accounting.

CG has gained international attention in recent years. Two of the most important factors contributing to rapid progress in this area are the amalgamation of financial markets and globalization. Also, there has been a steady flow of corporate scandals like Enron, World Com, and others. Recent developments have seen the rise of BRIC countries (Brazil, Russia, India, and China) as significant economic powers in the global economy. It is expected that the collective GDP of the BRIC countries is expected to be higher than that of developed countries (Agarwal, 2012). Corporate Governance is unquestionably a prominent topic in the world today. There never seems to be a day without a press conference, Corporate Governance-related news commentary, or the introduction of a new code.

The reputation of CG has suffered as a result of the recent increase in corporate scandals and concerns related to the efficiency of its present structure. The existing corporate structures may be dated back to the colonial period. However, the origins of the corporate form may be traced back to antiquity. Therefore, it is unsurprising that governance problems and the institutions that address them have distant roots. However, CG has been a major issue in developed countries since 1991, when the Indian structural reforms and liberalization began (Bhattacharyya and Vivek Rao, 2005). The Companies Act 2013 was a government initiative to improve the CG framework in India, where most businesses are concentrated and involve channelling funds and shareholding. Independent directors must ensure good governance and oversight of the Board's

operation. Indian corporations are influenced by socialist models and tend to be more Anglo-American than Japanese. Colossal and substantially massive Indian corporations have a central bank. Typically, this is a FI that is held by the government and owns both debt and equity. Because the nominee directors lacked the knowledge and authority to assess the functioning of the firms, these FIs were unable to provide effective governance. The Rahul Bajaj committee criticised the function and necessity of nominee directors for this reason.

All officials, consisting the king, are servants of the people, according to Kautilya's Arthashastra, an ancient text on Indian management. Good governance and stability go in tandem. Stability will be produced by leaders who can be reached, held accountable, and removed from office.

Kautilya discusses the fourfold duty of a King as-

- **Raksha-** meaning protection. It is analogous to the risk management aspect in a corporate setting.
- **Vridhi-** is growing. It can also be linked to value enhancement for stakeholders.
- **Palana-** is compliant. It is related to following the law in both spirit and letter.
- **Yogakshema** - which means welfare - is used in the context of a social safety system

Companies in India must follow SEBI guidelines, Kumar Mangalam Birla report. The Indian corporate governance landscape has significantly shifted since the 1990s liberalization. A lot of progress has been made in Indian economic reform since 1994. The Confederation of Indian Industries (CII) published and promoted a CG code for business and industry transparency to strengthen CG. CG is a key issue in developing countries such as India because of the price-sensitive country's economic and financial development. It has been proven that investor protection is a key factor in financial development. CG can increase employment and growth by allowing firms to access external financing.

4.4 First Phase of Development (1996-2009)

4.4.1 Recommendation of the CII Corporate Governance 1996

CII took the first Indian institution initiative in 1996 on Corporate Governance. This code of CG was developed and promoted by CII. The public's worries about the protection of investors—especially small investors—the promotion and execution of openness in business and industry, and the requirement that the corporate sector embrace worldwide standards for information disclosure gave rise to the CII project. This builds public trust in industry and business (Chakrabarti, 2005).

As Chairman, a National Task Force was established with Mr Rahul Bajaj, Past President CII, and Chairman and Managing director, Bajaj Auto Limited. It included members from industry,

academia, law, media, and the legal profession. At the CII's Annual Session and National Conference in April 1997, the Task Force presented a draught set of recommendations and the corporate governance code. The Task Force was then able to discuss the draft in workshops and seminars. Several suggestions were made. After reviewing all the suggestions and the work done in India and abroad this year, the Task Force developed the Desirable Corporate Governance code (Chakrabarti, 2005). In order to promote Indian industry and business, CII has produced this Code to give knowledge, understanding, and assistance. Initiatives in Quality, Environment, Energy, Trade Shows, Social Development, and other areas have been started by CII. As a part of its growth and increased commitment to problems important to the sector. Extensions of this work may be found in the Code of CG. There is not much difference between the April 1997 draft Code and the final Code that was published.

A two-tier board system is unnecessary, like in Germany, to ensure good CG. If a single board performs well, it can maximize long-term shareholder value and a multi-tiered or two-tiered board. There is no evidence that a single board can solve all corporate problems.

1. Listing companies with a turnover exceeding hundred-crores should have professional, competent, independent directors. They should constitute at minimum 30% of the board if the chairman is not an executive director, or at most 50% of the board if the Chairman and Managing Directors are present.
2. A single person should not be a director for more than one listed company.
3. To maximise short-term and long-term shareholder value, non-executive directors must play a pivotal role in corporate decision-making. Not mentioned are experts from other disciplines who are asked to join boards, such as science or technology.
4. Companies should pay a commission for professional inputs to ensure that non-executive directors put in more effort. If the company has managing directors, or 3% if there is none, the current commission is 1% of net profit. To connect incentives to performance, give stock options. Commissions are given as compensation for recent gains. Stock options are compensation based on potential increases in the value of the company. In order to balance short-term profits with long-term shareholder value, a non-executive director may use a combination of stock options and dividends.
5. Companies should submit the directors' attendance records so that they can be re-elected. The vote resolution should state that an absent director (absent with or sans leave) for more than 50 per cent of meetings must be noted.

4.4.2 Kumar Mangalam Birla Committee 2000

Under the auspices of Shri K M Birla, the SEBI created a committee to promote and raise the bar for CG practices. This Report was distinctive in that it discussed corporate governance in terms of all stakeholders, shareholders (Chakrabarti, 2005). This Report looks at CG from the perspectives of several parties, like shareholders and investors (Birla Committee, 2017). The configuration of proposed proposals is the main topic of the report. This acknowledges the duties and responsibilities that fall on the boards of directors and the executive branch while formulating corporate governance frameworks. Additionally, it emphasises shareholders' rights to ask for the effective application of these guidelines and standards. These suggestions practically must be followed (Birla Report, 2017, para. 1.6).

The Report assumes that shareholders should be company owners and have certain rights and obligations. Despite this, the actual control of a company is not up to shareholders. The responsibility for corporate administration, including compliance, decision-making, and other difficulties, is not expected of shareholders. The company's leadership needs to be agile enough to make sound judgments swiftly. The shareholders can't handle all their responsibilities as owners on their own, so they elect directors to handle a lot of them for them. It is then the BODs job to run the company's day-to-day business. A specialised management team typically implements this tactic. To accomplish this, the board and management must answer to the shareholders. In a well-structured corporation, there should be ample opportunity for shareholders to make a significant commitment to the company's management. But this can't get in the way of how the company runs daily. This means corporate conduct must be strictly followed (Birla Report, 2017, para. 14.1).

In addition to discussing shareholder rights, paragraphs 14.5 through 14.16 contain details about institutional shareholders. The fundamental rights of shareholders are described in paragraph 14.5. It includes exchanging and registering shares, getting pertinent information promptly, participating in shareholder meetings, and casting a vote in any Board member election. The right to information regarding significant changes, such as acquisitions, sales of assets or divisions, or adjustments to the capital structure, is granted to the shareholders. The Report recommended that companies follow the Report's recommendations. The most prominent include data such as quarterly results, investigator introductions, etc. It should be posted on the organization's website. Or sent to the Stock Exchange in the same format in which the company shares are listed. This will allow the Exchange to put the information up on its website.

Paragraph 14.11 of the Report recommends that postal ballots make key shareholder decisions. Annexure 3[11] contains a list of matters that should be subject to the postal ballot. A Board Committee should be created to address shareholder complaints such as share transfers, failure to get balance sheets, failure to receive declared dividends, etc. The Committee issued the mandatory recommendation required by paragraph 14.12 that this committee be constituted. This idea was put out because it was thought that a committee of this kind would concentrate attention on shareholder complaints and enable management to act promptly. There is an obligatory recommendation in paragraph 14.13. Share transfer authority is delegated to the registrar and the transfer agents, with the board of directors also recommending that authority be delegated to an officer or committee of the company. The formalities of a share transfer must be handled by this delegated authority at least once every two weeks.

The Report's paragraphs 14.14-14.16 discusses institutional shareholders. For example, paragraph 14.14 states that institutional shareholders have or will be majority shareholders of Indian companies' equity share capital. They also have shares in large numbers. According to the Report, shareholders should use their voting power to promote corporate governance due to the importance of their votes. The world has shown that institutional shareholders influence corporate governance (Yadav, 2020). They can make the company focus on effectively implementing the corporate governance Code to increase shareholder value. The Committee believes institutional shareholders must have much voting power (Birla Committee, 2017, para 14.16).

4.4.3 Enactment of Clause 49 2000

In 2000, SEBI inserted Clause 49 into its Listing Agreement. This clause was created to improve corporate governance for both Indian stock exchanges (NSE & BSE). To be more in line with the Sarbanes-Oxley Act, passed in the US, Clause 49 was revised in 2004. Clause 49 was included in the Listing Agreement on the advice of the K M Birla Committee on CG. This clause recommended that Indian companies practice basic corporate governance. It also made significant changes in governance and disclosures. The following requirements were made mandatory by the clause:

- Company Board should have a reasonable number of independent directors
- executive directors must be made aware of the fees they receive
- A restricted number of committees on which a director may participate.

4.4.4 Naresh Chandra Committee 2002

It was convened by the Department of Company Affairs on August 21, 2002, to investigate distinct CG-related concerns. Due to the Committee's lack of consideration for aspects of shareholder rights or related concerns, the Report it produced is only of little value in the context of the paper. Its significance derives from paragraph 2.5, which is cited in the Narayana Murthy Committee Report and served as the foundation for its later shareholder rights proposals. The subject of disclosure of contingent liabilities is covered in this sentence. It recommends that management cast out in layman language each significant contingent liability and associated risk.

Furthermore, the auditor should add worded comments to any administration views. This section should, if required, be underlined in the auditor's reports, accounting policies, and notes on accounts. Investors and shareholders should clearly understand an organization's contingent liabilities. These numbers potentially represent considerable risks that could have a negative impact on the company's financial situation in the future.

Narayan Murthy Committee 2003

N.R. Murthy, Chief Mentor at Infosys Technologies Limited (SEBI), is the head of the committee that was established to assess the present corporate governance standards and make improvements to enhance them in order to assist the growth of the broader market economy. (Sarpal, 2014). On 7 December 2002 and 7 January 2003, the Committee met three times to consider matters pertaining to corporate governance. Then, it gave SEBI a presentation of its suggestions.

The committee has dealt with the rights of shareholders under different headings. The Committee has referred to Board disclosures in Part 3.5 of its report. It also mentions Risk Management. To speak to organisations or other entities, all executives must have the same duties and liabilities (Chakrabarti, 2005). The Report states that shareholders' normal election process must be followed to appoint a nominee for the Board (sebi.gov 2003). The Report urges against selecting any candidate. Instead, investors ought to organise for a foundation to choose a board member. A nominee for an institutional executive should be subject to the same requirements as other directors and may be held equally liable.

4.4.6 Amendments in Clause 49 2004

SEBI established the Narayana Murthy Committee to examine the effectiveness of the clause. This was done to strengthen and align it with the Sarbanes Oxley Act, which was implemented in the United States after a series of CG failures. This committee was also charged with

improving the clause. The amendment to Clause 49 by SEBI included the following changes, as suggested by the committee. It became effective in January 2006.

- Clarifications and major changes to the definition of Independent Director
- The board should be the ideal size, with a third of the members being independent.
- If the chairman is a founder or promoter, then 50% of the board should be independent directors
- A minimum of three directors should be on audit committees, of which 2/3 should be independent.
- Increasing the accountability of audit committees
- Financial disclosures must be more thorough and contain information on party transactions, money received through public rights, and preferential offerings.
- The board should adopt formal codes of conduct
- Financial statements to be certified by the CEO/CFO
- Shareholder disclosures should include more detailed information

4.4.7 JJ Irani Committee, 2005

This Committee submitted a report that included various sections that outline the interests of shareholders. The transfer of the company's registered office was a topic of discussion for the Committee. The instructions of the Company Law Board must be applied to the transfer from one state as a result. It did. However, concerns have been raised over the cost and delay of this strategy. The Committee expressed concern on the process's expenses and delays. Without a Tribunal or Court, this should be sped up, made simpler, finished sooner, and with less work. This will make sure that interested parties can get in touch with the new registered location whenever they need to for legitimate action plans (JJ Irani Committee, 2017, p. 17).

It was decided that the firm should have the last word on contentious matters including the appointment, expulsion, and resignation of directors. If Directors are not legally barred from holding directorships, they should have an equal duty to disclose the truth and reasons behind their exclusion (Chakrabarti, 2005). The Government should not intervene in the appointment or removal of Directors in nongovernmental companies. The laws governing the appointment of directors in non-Government companies should be reviewed and updated. The Committee suggested that Directors' remuneration should be decided by shareholders, taking into account the current circumstances of the company, as well as its financial health. This decision-making process should be subject to strong corporate governance based on transparent and accurate disclosures. To approve a merger or acquisition plan, shareholders must have full transparency

on disclosure requirements. This is particularly valid for merger proposals made by promoters. The Act/Rules should stipulate clearly what information must be included in the plan's shareholder-facing explanatory statement.

The Committee noted the necessity for further penalties for offences under the Companies Act. It is important to act against those who disregard governance provisions and deprive shareholders of their rights. The Committee believed that any fraudulent conduct should be punished severely. This includes incomplete, incorrect, or fraudulent disclosures and actions that obstruct shareholder democracy or limit the market to corporate control. However, the Committee suggested that infringements of procedural nature that do not irreversibly damage stakeholder rights be treated differently (JJ Irani Committee, 2017, p. 85). The Committee talked about removing the corporate curtain. It was proposed that, in some situations, promoters of controlling interest could disobey the law's text while adhering to its spirit, despite the fact that the company law lays the duty on the BODs and officers. Regardless of legislative restrictions, the law should permit piercing the corporate veil when fraud has been discovered. (Chakrabarti, 2005). The law will then be able to determine who the promoters and stockholders of the corporate giant are and determine if and to what extent they are responsible. For these circumstances, the Committee recommended a set of fines and punishments. The suggestions of each of these committees substantially benefited the growth of corporate governance in India's legal sector. This transformation, however, was not limited to the recommendations made in such reports and how the government handled them, as will be shown in the following section of this article.

4.5 The Second Phase of Development (2013)

4.5.1 Amendments of Clause 49 2014

In its circulars dated 17/04/2014, the SEBI had made several amendments to Clause 49 of the Listing Agreement. These changes were made to bring the SEBI's criteria in line with the terms of the 2013 Act. They also accept best practices for corporate governance. In a circular dated 15/09/2014, the SEBI provided additional amendments to Clause 49 to address the practical issues raised by market participants. It also made it easier for listed companies to comply with revised Clause 49 while being more aligned with the 2013 Act.

Board of Directors

According to Clause 49, at least one-half of the Board of Directors must be composed of individuals who do not hold executive positions. He must ensure that at least half of the board members are independent if he is to serve as executive director. The BODs ought to get together for meetings at least once every four months and at least four times yearly. In all corporations in

which they are directors, a director may not head more than five committees or serve on more than ten committees. Annual disclosure of directorships in other businesses is required, as is notification of any changes to the company. The maximum number of chairpersons and members shall be determined only for the Audit Committee and the Shareholders Grievance Committee. The board must regularly review compliance reports for all laws that apply to the company and any actions taken to address instances of noncompliance.

Independent Directors

A director must have no other financial links or transactions than receiving compensation in order to be termed an independent director. The Board believes that this could have an impact on the director's independence.

The revised clause now have six tests a non-executive director must pass to be an Independent Director.

- He has no financial relationships or transactions with the firm or allies except from receiving the directors' compensation. The directors' independence could be impacted by this.
- The promoters and other people holding managerial roles at or below the board are not linked to the director.
- In the 3 preceding financial years, he has not been an executive at the company
- The individual is neither an executive nor a partner. Executive during the three years before of (a) the company's internal or statutory auditing firm; (b) the company's major law and consulting firms; (c) the company's major law and consulting firms having a significant affiliation with the company.
- The person is neither a client nor a provider of materials, nor is he or she a lessor or lessee of the enterprise.
- He is not a significant company shareholder but owns two per cent or more voting shares.

The revised definition has been lambasted for using terminology like "substantial pecuniary relation," "non-executive directors," and "materials" without adequate context and nuances of reference.

The "board" of directors' discretion has been abolished by the omission of certain terminology in the verdict, and it is now unclear who has the authority to determine whether a director qualifies as independent. It is also questioned for the list of independent directors to include candidate directors. It is uncertain if the nominee director designated to represent the interests of a specific institution has a definite vested interest and can therefore be regarded as independent.

Compensation to Non-Executive Directors

The revised clause 49 includes a new requirement for shareholders to approve the payment of compensation/fees to non-executive directors. The maximum stock option should be disclosed to disclose the amount of non-executive directors who can receive compensation in any given financial year.

The Companies Act states that 1956 fees paid by directors are not part of Managerial Remuneration. Therefore, shareholders do not need to approve payments to directors. Sitting fees for directors will need to be approved by shareholders of listed companies. Unless the Government changes the law to include sitting fees in Managerial Remuneration, this contradiction should not have occurred.

Code of Conduct

A code of conduct must be established by the Board. The firm website should include a posting of this code. A yearly declaration attesting to compliance by the Board and senior management must be signed by the CEO.

Audit Committee

The AC must have a minimum of three directors on it. At least two-thirds of the AC members must be independent directors. Each member of the AC must be capable financially, and at least one member must have knowledge in accounting or financial management. The AC must be led by independent directors. He will be present at annual general meetings to respond to queries from shareholders. The work of this committee is under the control of the company secretary in her capacity as secretary.

Following changes were made to the revised clause 49 regarding Audit Committee

- Two-thirds of the members of the AC must be independent directors, as opposed to the present requirement that the majority of the committee's members be independent.
- Previously, only non-executive directors were elected to serve on the audit committee.
- Instead of requiring only one AC member to have accounting and financial understanding, the new clause requires all members to be "financially competent," as defined by the clause.
- The minimum number of meetings was increased up to 4
- The AC role has been expanded to include
 - (a. Matters that must be included in Directors'
 - (b. Responsibility statement) To review the Whistle Blower mechanism functioning if it exists

The chair of the finance department in particular may be invited by the audit committee to attend meetings. It may, however, occasionally convene without any firm executives' participation or attendance. The head of internal audit, the finance director, and a representative from the statutory auditor are all permitted attendance at audit committee meetings as invited guests.

The audit committee has the authority to look into any action that falls under its purview. In order to receive outside legal and other expert assistance, it might also ask workers for information. If necessary, it can secure the attendance of experts outside the organization.

CEO/CFO Certification

The new prerequisite is the CEO/CFO certification. It is also based upon the Sarbanes Oxley Act of the USA. Non-mandatory requirements have allowed five new items, while the current item on the postal ballot has been removed. The Centre's Naresh Chandra Committee in 2002-03 also recommended the above provisions. The new clause stipulates that the CEO and CFO must declare their annual financial statements to the Board. Under the Companies Act 1956, the Board's Directors' Responsibilities Statement is based on this certification, which will be comforting to non-executive directors. For whatever reason, SEBI didn't force listed firms to incorporate this certification in their annual reports.

4.6 Amendments Incorporated

1. The first draft of amendments was introduced in 1998 based on the recommendations of the CII Guidelines. Changes in the listing agreement (clause 49) took two years in the implementation phase.
2. In 2000, a revised version of the changes was proposed in response to suggestions made by the Kumar Birla Committee. After three years (2003), all regulatory changes were completely implemented.
3. The third draft of amendments was introduced in 2004 based on N. R Murthy's recommendations. The changes introduced were implemented in the year 2008.
4. The fourth amendment draft was introduced in 2013 (companies act 2013). Based on the recommendations of CII and N.R Murthy. The implementation of clause 49 was in 2014.
5. The fifth draft of amendments, added to clause 49 of corporate governance in the listing agreement introduced by Accounting Standards Issued by the Institute of Chartered Accountants of India (ICAI), was implemented in 2015.

Table 4.2: - Pattern of Reform Agendas

Agendas	1998/2000	2003/2004	2008/2009	2013/2014	2015
Board Size	Yes	Yes	Yes	Yes	No
Board Independence	Yes	Yes	Yes	Yes	No
Chairman Of Board	Yes	Yes	Yes	Yes	Yes
Audit Committee Size	Yes	Yes	Yes	Yes	Yes
Audit Committee Independence	Yes	Yes	Yes	Yes	Yes
Board Meetings	Yes	Yes	Yes	Yes	Yes
Remuneration	Yes	Yes	Yes	Yes	No
CSR	No	No	Yes	Yes	No
Shareholders' Rights/Interests	Yes	Yes	Yes	Yes	Yes
Transparency	Yes	Yes	Yes	Yes	Yes
Conflict Of Interest	No	Yes	Yes	Yes	Yes

Source: (Authors)

The pattern of changes in Clause 49 shows that the effort to develop good corporate governance practices has been made from time to time. These changes are based on numerous corporate governance committee recommendations since 1998 and in the wake of corporate fraud.

Table 4.3 Ranking of Corporate Governance Index

Parameters	India	China	Brazil	Russia	USA	UK
Minority Investors Protection (Rank)	7	132	35	100	25	4
Disclosure Index	7	132	35	100	25	4
Conflict Of Interest Regulations (Rank 0-10)	6.7	5	5.7	5	8.3	8.3
Shareholders Rights (Rank 0-10)	9	3	7.5	7.5	5.1	8
Strengthening Governance Structure (index 0-10.5)	6	2	5.5	3	2.9	6
Transparency (index 0-10)	8.5	7	7.5	5	6.5	8
Minority Shareholders Protection (index 0-10)	7.3	4.5	6.3	5.1	6.6	7.8

Source: (Doing Business, 2021,)

Considering frequent reforms in corporate governance, India is a good position in terms of corporate governance rank. India's rank in transparency, shareholder protection, and strong governance structure is high in several developed countries such as the UK, the USA, and Brazil. It shows that frequent reforms have been fruitful for the Indian corporate governance index. These ranks should encourage investors and policymakers to continue their efforts to improve corporate governance practices.

4.7 Paired Sample T-Test

Paired sample t-test has been conducted on Corporate Governance. Two sample periods have been created from 1st April 2010 to 31st March 2015 and from 1st April 2015 to 31st March 2020. Reforms in the company's act 1956 were made in which clause 49 of the listing agreement was

also revised. The regulatory changes in the listing agreement were mainly focused on different areas of CG practices alongside structural changes. The below section will provide insights into the development of board composition in the last five years.

Table 4.4 Paired sample t-test for Board Size

	Mean	Std. Deviation	Paired Difference				T	df	Sig (2-tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					upper	lower			
Board Size 2010-2015	6.21	1.176	2.9	2.48	3.07	2.76	5.21	13.32	0.00
Board Size 2015-2020	9.11	2.412							

Source: (Authors)

Table 4.4 shows that corporate governance has progressed significantly. The mean of board size before is 6.21, Standard Deviation 1.176, and after amendments mean is 9.11, Standard Deviation 2.412, respectively. T statistics 5.21, the p-value is less than .001. There is a 2.9% rise in board size on average, with a 95% confidence interval.

Calculation of ETA Squared

$$ETA = \frac{t^2}{t^2(n_1+n_2-2)}, \quad ETA = \frac{5.21^2}{5.21^2(13.32)} = .67$$

The eta squared statistic is .67; the eta squared test indicates a large effect.

Table 4.5 Paired sample t-test for Board Independence

	Mean	Std. Dev	Paired Difference				T	df	Sig (2 Tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					Upper	Lower			
Board Independence 2010-2015	4.68	.974	0.12	1.82	2.01	0.18	2.2	7.48	.022
Board Independence 2015-2020	4.80	1.496					2		

Source: (Authors)

The mean of board independence pre amendments is 4.68, Standard Deviation .974, and after amendments mean is 4.80, Standard Deviation 1.496.

T statistics 2.229, p-value is .022. the mean increase in the board independence is 0.12 with the 95% confidence level

Calculation of ETA squared

$$ETA = \frac{t^2}{t^2 (n1+n2-2)}$$

$$ETA = \frac{2.22.^2}{2.22^2 + (7.48)} = .39$$

The eta squared statistic is .39, and the eta squared test indicates a small effect.

Table 4.6 Paired sample t-test for Gender Diversity

	Mean	Std. Dev	Paired Difference				T	df	Sig (2 Tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					Upper	Lower			
Gender Diversity 2010-2015	.21	1.25	0.79	1.72	0.218	0.18	4.08	-0.79	.001
Gender Diversity 2015-2020	1	2.56							

Source: (Authors)

To compare two periods, a paired t-test is used. The findings demonstrated substantial progress toward CG development in India. The mean of gender diversity pre amendments is .21, Standard Deviation 1.256, and after amendments mean is 1, Standard Deviation 2.562.

T statistics 4.08, the p-value is less than .001. The mean increase in gender diversity is 0.79 with the 95% confidence level.

Calculation of ETA squared

$$ETA = \frac{t^2}{t^2 (n1+n2-2)}$$

$$ETA = \frac{4.08.^2}{4.08^2 + (-0.79)} = 1$$

The ETA squared statistics is 1. The eta squared test that indicates the large effect.

Table 4.7 Paired sample t-test for CEO Duality.

	Mean	Std. Dev	Paired Difference				T	df	Sig (2 Tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					Upper	Lower			
CEO-Dual 2010-2015	.35	1.18	0.34	5.68	0.325	0.240	5.04	-0.96	.000
CEO-Dual 2015-2020	.69	2.38							

Source: (Authors)

A paired t-test is conducted to investigate the difference between the two sample periods. The result showed a significant improvement in the development of CG in India.

The mean of CEO DUALITY pre amendments is 5.86, Standard Deviation 1.18, and after amendments mean is 9.21, Standard Deviation 2.385

T statistics 5.04, the p-value is less than .001. The mean increase in the CEO-Duality is 3.35, with the 95% confidence level

Calculation of ETA squared

$$ETA = \frac{t^2}{t^2 (n1+n2-2)}$$

$$ETA = \frac{5.04.^2}{5.04^2+ (-0.96)} = .1$$

The ETA squared statistics is .1 the eta squared test indicates the large effect.

Table 4.8 Paired sample t-test for Audit Committee Size

	Mean	Std. Dev	Paired Difference				T	df	Sig (2 Tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					Upper	Lower			
Audit Committee Size 2010-2015	2.98	0.57	0.47	1.88	0.231	0.294	1.08	6.43	.00
Audit Committee Size 2015-2020	3.45	0.63							

Source: (Authors)

The result showed a significant improvement in the development of CG structure in India in the last five years.

The mean of audit committee size pre amendments is 2.98 Standard Deviation 0.57, and after amendments mean is 3.45, Standard Deviation 3.45

T statistics 1.08, the p-value is less than .000. The mean increase in the audit committee size is 0.47 with the 95% confidence level

Calculation of ETA squared

$$ETA = \frac{t^2}{t^2 (n1+n2-2)}$$

$$ETA = \frac{1.08.^2}{1.08^2 + (6.43)} = 0.15$$

The ETA squared statistics is .15 the eta squared test indicates the small effect

Table 4.9 Paired sample t-test for Audit Committee Independence

	Mean	Std. Dev	Paired Difference				T	df	Sig (2 Tailed)
			Mean	Std. Deviation	95% Confidence Interval				
					Upper	Lower			
Audit Committee independence 2010-2015	2.46	0.78	0.48	1.31	0.361	0.384	0.23	5.42	.000
Audit Committee Independence 2015-2020	2.94	1.07							

Source: (Authors)

The mean of the audit committee independence pre amendments is 2.46 Standard Deviation 0.78, and after amendments mean is 2.94, Standard Deviation 1.07

T statistics 0.23, p-value is less than .000. the mean increase in the AC independence is 0.48 with the 95% confidence level

Calculation of ETA squared

$$ETA = \frac{t^2}{t^2 (n1+n2-2)}$$

$$ETA = \frac{0.23.^2}{0.23^2 + (5.42)} = 0.00$$

The ETA squared statistics is .000. The eta squared test indicates no effect.

4.8 Discussion

According to (Guha et al., 2019), the probability of regime shift in India is 0.32, which means that there are 32% chances that companies would adopt complete rules and regulations before new rules and regulations are introduced. The average period for amendments and changes in corporate governance rules and regulations is five years, which may not be enough to conclude the effect of installed rules and regulations. However, Table 4.3 shows that corporate governance in India has a better ranking than China, the UK, and the USA. Recommendations from all the committees formed by policymakers from time to time depict a desperate need for corporate governance reforms in India. But the change in policies or existing rules and regulations often does not give companies enough time to form the right board structure (Bhandari and Arora, 2016).

The advancement of corporate board structure has drastically enhanced, as per the results of the paired sample t-test. Gender diversity in Indian businesses was extremely low prior to the Companies Act of 2013, however it is now required that every company have at least one female director. Gender diversity, according to (Duppatti et al., 2019; Jain, 2022), has an advantageous effect on corporate performance. These findings should encourage companies and shareholders to diversify their boards. The board size and independence have significantly improved since recent corporate governance reforms. If the board's chairman is an executive, clause 49 said that the percentage of independent directors shall be 50% of the total number of directors. But based on literature, companies should improve their board as most studies in India have shown that board size does not influence firm performance (Bhandari and Arora, 2016). Maybe companies are hesitating to hire more directors as it will require them to hire more independent directors.

The companies and policymakers should collectively make efforts to improve corporate governance practices in India. India is one of the fastest-growing economies, with an average of 40 companies listed since 2010. Good corporate governance practices will help those companies get foreign and domestic investors' funds (Khan and Banerji, 2016; Sarpal, 2014). Corporate governance reforms should be made for a long time so companies would get a chance of regime change and investors will not feel uncertainty in regulations (Bhattacharyya and Vivek Rao, 2005).

4.8 Summary

Corporate governance in India has witnessed several developments and changes throughout history. In the beginning, corporations were recommended to adopt corporate governance principles introduced by OECD and other international institutions. Investors were unaware of

the advocacy of board members and the importance of having quality governance in the company (Sharma and Sachdeva, 2011). In the 21st century, corporate governance has begun. Alongside the developments and reforms, corporate governance has faced huge criticism in India because of multiple scams and frauds.

Researchers have also pointed out shortcomings and loopholes in the CG system in India. Corporate scams and frauds were linked with the shortcomings of CG. The BOD failed to fulfil their responsibilities which led to huge losses to the stakeholders in India. To improve the standards of CG, several committees were formed formally and informally to evaluate and improve CG practices in India. The recommendations of those committees were mostly converted into regulations with mandatory and non-mandatory clauses.

The frequent conversion of committee recommendations into regulations has improved global corporate governance standards rankings. But the corporate frauds and scams in the Indian business environment did not stop.

According to recent corporate governance polls, many companies, such as Dr Reddys Laboratories Ltd. or Tata Power Company Ltd., rose to the top for the first time. Some remained there for years. Infosys is one such company. It defines corporate governance as the art of balancing individual and societal goals. It's about maximising shareholder value legally, ethically, and for the long term. It can be described as a policy, a method, or a tool that the legislature has created to ensure fairness for all stakeholders. It simply states that a company must adhere to certain laws, just as citizens should. A company must adhere to ethical, transparent, and accountable practices.

Institutions like SEBI and RBI, PFRDA and IBBI, IRDAI, and Intellectual Capital grew over time and expanded their responsibilities. They found and closed every loophole in every scam. SEBI grew in many dimensions to regulate the securities market and ensure fair playing, but its burden has increased. Companies take advantage of the complexity of the market and find loopholes easier because there are multiple regulators. Each time fraud is discovered, a new regulatory authority is created. Multiple regulatory authorities have been created as a result. Despite the existence of many regulatory authorities, Justice is not served promptly, and investors have lost faith. To effectively regulate and monitor market regulators, it is imperative to create an umbrella organization that the Ministry of Finance does not control.

The Indian listed companies had implemented the regulations introduced with the companies act 2013. The sequence of those regulations is board composition, transparency, risk management, minority shareholders' rights, compensation of directors, and disclosures. The higher corporate

governance standards are beneficial for the organisation and the country. Investors admire and invest in countries with better corporate governance practices. Weak corporate governance systems do not only affect investors and shareholders, but they also affect creditors, suppliers, customers, and the general public. It is in the interest of the country that good corporate governance practices are followed.

CHAPTER 5

EMPIRICAL ANALYSIS

Overview

CG has become a hot area in the past two decades due to multiple corporate failures and scams. It has sought the attention of people directly or indirectly involved in businesses, investments, and social workers. The researchers, academics and professionals have pointed out the shortcomings and weaknesses of CG in developed and developing countries. In developing countries, researchers have most debated the structure and independence of the board. The literature on CG has a major drawback as there is inconsistency in the outcomes. That inconsistency does not allow researchers, academics, and professionals to settle the arguments on the relation between CG and FP.

CG holds characteristics as it impacts decision-making in each country with a changing business environment. Likewise, the governance decisions on investment in intellectual capital building may differ from country to country. Studies claim that CG has a significant positive impact on IC. In contrast, CG does not have any influence on Intellectual Capital disclosures. Studies have provided statistical evidence on the relationship between FP and IC. The relationship has been established as IC is considered a strategic intangible asset, which has a greater impact on the firm market value and profitability. At the same time, a relationship between CG and FP is yet to establish. As time passed, many theories on corporate governance came into existence with different arguments. Resource dependency theory implies that adopting good corporate governance practices with diverse large boards and having a proportion of independent directors will attract the HC, Physical Capital (PC), SC, and Relational Capital (RC) resources, which are referred to as elements of Intellectual Capital which itself leads a firm to achieve greater market value and the profitability.

SECTION-I

BOARD CHARACTERISTICS AND FIRM PERFORMANCE

5.1 Introduction

This chapter determines the relationship between corporate board composition and Firm Performance. The purpose of CG existence has been defined differently in different theories. Agency theory believes that Corporate Governance minimises the agency problem between agents and principals. It explains the shareholder's relationship and the corporate board by which agency theory states that the corporate board will act on behalf of shareholders (owners). Resource dependency theory believes that the purpose of CG is to increase and acquire the resources for the organisation. It states that corporate governance should acquire the optimal resources to have a competitive edge over its competitors. And stewardship theory believes in the development of employees and states that managers are the real stewards of the firm. The Modern business environment is becoming increasingly complicated and relying on theories may not deliver a solution that meets the needs of managers and shareholders. OECD defines CG as an environment of trust, transparency, accountability, financial stability, and business growth, which covers the beliefs of the above-discussed theories of corporate governance. Therefore, one can draw the conclusion that corporate governance not only safeguards the interests of shareholders but also facilitates businesses to operate honestly and amplifies the lucrative factor for their owners by tenfold. According to the OECD's proposed universally accepted principles of CG, CG should make all strategic choices that can contribute to the long-term viability and sustainability of the company and serve the interests of all stakeholders, including shareholders, customers, creditors, suppliers, and society. Corporate governance's effect on company performance was studied in the 90s when corporate governance was a major factor in FP. (Gompers et al., 2003) stated that the stocks of companies with high shareholder rights outperform the risk-adjusted returns of companies. This is a serious indication that questions can be raised regarding the efficiency of market theory, as these portfolios are constructed using publicly accessible information. In policy corporate governance, proponents of the concept have frequently cited this finding as proof of how good management (as determined by GIM) can positively affect companies' performance. There are three possible methods of understanding the high returns of companies with powerful shareholder rights. The first is that these results may be specific to a particular period; therefore, companies that had

good rights for shareholders during the decade of the 2000s might not have shown higher returns. Indeed, a later study (Core et al., 2004) meticulously documented that in the current decade, share returns of companies with good shareholder rights don't beat those with weak rights to shareholders.

Additionally, the risk adjustment may not have been properly executed, or, in other words, the governance aspect could be linked to an intangible danger factor(s). Third, the relation between performance and corporate governance could endogenously be causing doubts regarding the causality of the explanation. A substantial amount of empirical and theoretical research in finance and accounting evaluates the relationship between CG and FP.

This section investigates the characteristics of corporate boards as important components of CG, including the board's independence (Weisbach and Hermalin, 2003; Bhagat and Black, 1998), board members' ownership of stock, and whether the positions of chairperson and chief executive officer are claimed by two or more people (Brickley et al., 1997). Leadership structure: the difference between the CEO from the board and the Chairman. Is it plausible for a single board characteristic to be as successful as a gauge of CG as other indices (such GIM, for example) or other multidimensional assessments of corporate charters and board characteristics? One feature can be effective as a measure of CG, despite the fact that it is ultimately a scientific topic on economic and economic grounds.

Corporate boards can take or at least be able to ratify all crucial decisions, including the decision on investment policy, compensation for manager's policies, and governance of the board itself.

5.2 Empirical Analysis and Hypothesis Testing

In this section, we test the hypothesis for the objective, "*To determine the relationship between board characteristics and performance of Indian listed firms,*" by using the Dynamic generalised method of moments estimation proposed by Blundell-Bond (1998).

5.2.1 Hypothesis Testing for Board Characteristics and Return on Asset

H1a: The Relationship Between Board Size and ROAs is Significant

H2a: The Relationship Between Board Independence and ROAs is Significant

H3a: The Relationship Between Gender Diversity and ROAs is Significant

H4a: The Relationship Between CEO Duality and ROAa is Significant

H5a: The Relationship Between Board Meeting Frequency and ROA is Significant

we use the equation (1) as follows:

$$ROA = \alpha + ROA_{t-1} + \beta_1 (BSIZE) + \beta_2 (BIND) + \beta_3 (CEODual) + \beta_4 (Gender)$$

$$+ \beta_5 (\text{BMEET}) + \beta_6 (\text{LEVERAGE}) + \beta_6 (\text{Firm Size}) + \beta_7 (\text{Year Dummy}) + \eta_i + \epsilon \dots \text{eq (1)}$$

Where;

A	= Constant Term
ROA	= Returns On Assets
ROA-1	= Lag Term of Return on Assets
BSIZE	= Board Size
BIND	= Board Independence
CEODUAL	= Ceo Duality
GENDER	= Gender Proportion
BMEET	= Board Meeting Frequency
LEVERAGE	= Leverage
B	= Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 1 (appendix-1, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is 0.4533 at a 5% significance level (appendix 1-tables-1).

Step 2 (FIXED Effect Estimation)

Second, we run the fixed effect panel regression equation 1 (Appendix-1, table-2) in the STATA. It is found that the coefficient of a lag term is 0.0851 at a 5% significance level (Appendix-1, table-2).

Step 3 (Decision)

To decide which approach difference or system generalised method of moments approach is appropriate, we need to estimate the OLS regression model, the fixed effect estimation. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. If the estimator coefficient of difference of the generalised method of moments estimate is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, the system approach is preferable if the difference in the generalised method of moments coefficients are closer or lower than the fixed effect estimator. Table 5.1 shows that there is minimal advantage to employing the distinct generalised technique of moments in this situation, where difference estimators are above the fixed effect and even higher than pooled OLS. Even if Hansen's statistics is at its highest point of 1.000, it is inferred that all coefficients are highly unimportant after measuring the difference between the GMM at one step and two steps. To determine certain important variables, we use

the two-step system generalised method of moments; Hansen statistics and AR (2) at an acceptable level.

Table 5.1: *GMM Estimation Technique with ROA as Dependent Variable*

Estimations	Lag-Coefficient
Pooled OLS	0.4533
Fixed Effect	0.0851
One-Step Difference GMM	0.7906
Two-Step Difference GMM	0.7197
One-Step System GMM	0.0145
Two-step System GMM	-0.0794

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.2 (Appendix-1, table-6). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's negligible lag term is used in the model. Leverage, board meeting length, CEO duality, board independence, and board size are independent factors. Unit values were applied to all variables. The most significant variables are CEO Duality and leverage. In other words, we are 90% confident that CEO Duality and leverage strongly influence Return on asset (ROA). Parallel to it, gender, and year 2015 and 2019 found collinearity, thus dropping the final estimation.

The overall model is robust and coherent and presents the model's increasing prevalence by using F-statistics to explain the variation. Hansen statistics and AR are the other two crucial statistics in the generalised method of moments (2). Hansen statistics help us determine whether the instrument variables are reliable. Hansen's statistics in the two-step GMM estimation is 0.03. The AR (2) number, on the other hand, shows us whether or not our model is disrupted and afflicted by autocorrelation. When AR (2) is on the lower side, the model is shown as not being hindered by either heteroscedasticity or autocorrelation.

Table 5.2: Relationship between Board Characteristics and Return on Asset

VARIABLES	POOLED OLS	Fixed Effect	GMM
Return On Asset_1	.4533***(16.46)	-0851***(2.86)	-.0794(-1.37)
BFSIZE	.2856 (1.44)	-.4736(-0.93)	.4298 (1.23)
BIND	.1701 (0.53)	1.606**(2.13)	.3636(0.16)
CEO DUALITY	-1.120**(-1.52)	-5.780 (-0.71)	-2.256***(-2.29)
BMEET	.2837 (1.10)	.4123 (1.20)	-.1629 (-0.44)
LEVERAGE	-0.003(-0.45)	-.0140*(-1.75)	-.0116***(-2.33)
CONSTANT	-.5672 (0.32)	3.502 (0.56)	2.977 (1.10)
Year dummy	Yes	Yes	Yes
Observations	1081	1081	1081
F statistics			0.00
Groups/Instruments			272/13
AR (1)			0.030
AR (2)			0.150
Hansen Statistics			0.030

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of the dependent variable as an independent variable is insignificant. Board size, board independence, and board meeting frequency have no significant relationship with ROA; hence we reject our null hypothesis (H1a, H2a, H5a). Results present in (table 5.2) show that CEO Duality has a significant negative relationship with Return on assets (ROA). If there is one unit change in the CEO Duality, then inversely return on asset changes by 0.2256 units. Hence, we accept our null hypothesis H4a. At the same time, all other things remain constant (*ceteris paribus*), as CEO Duality and Return on Asset have a negative coefficient reflecting an inverse relationship. While considering the leverage, it is noticed that a one-unit increase in the leverage would lead to a 0.0116-unit increase in the Return on the asset.

5.2.2 Hypothesis Testing for Board Characteristics and ROE

H1b: The Between Board Size and ROE is Significant

H2b: The Relationship Between Board Independence and ROE is Significant

H3b: The Relationship Between Board Gender Diversity and ROE is Significant

H4b: The Relationship Between CEO DUALITY and ROE is Significant

H5b: The Relationship Between Board Meeting Frequency and ROE is Significant

we use equation (2) as follows.

$$ROE = \alpha + ROE_{t-1} + \beta_1 (BFSIZE) + \beta_2 (BIND) + \beta_3 (CEODual) + \beta_4 (Gender) + \beta_5 (BMEET) + \beta_6 (LEVERAGE) + \beta_6 (Firm Size) + \beta_7 (year dummy) + \eta_i + \epsilon \quad \dots \text{eq (2)}$$

Where;

A	=	Constant Term
ROE	=	Returns On EQUITY
ROE-1	=	Lag Term Of Return on Equity
BSIZE	=	Board Size
BIND	=	Board Independence
CEODUAL	=	Ceo Duality
GENDER	=	Gender Proportion
BMEET	=	Board Meeting Frequency
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 2 (Appendix-II, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is 0.0382 at a 5% significance level (appendix II-tables-1).

Step 2 (Fixed Effect Estimation)

Second, in the STATA, we run the fixed effect panel regression equation 2 (Appendix-II, table-2). It is found that the coefficient of a lag term is -0.0834 at a 5% significance level (Appendix-II, table-2).

Step 3 (Decision)

To decide which approach difference approach or system generalised method of moments approach is appropriate, the OLS coefficient and fixed effect model are estimated. Where the OLS estimator of the coefficient is considered upper bound estimation and the fixed effect estimator is considered a lower bound estimation. According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients are closer or lower than the fixed effect estimator, the system generalised method of moments approach is more suitable. In table 5.3, it is found that in this case, where difference estimators are above the fixed effect and even more than pooled OLS, we have little benefit from using difference generalised method of moments. However, after estimating the difference in GMM at one step and two-step, it is found that all coefficients are highly insignificant even though Hansen statistics is 1.000 at its peak. So we move to the two-step system GMM, where we find some significant variables and Hansen statistics and AR (2) at an acceptable level

Table 5.3 GMM Estimation Technique with ROE as Dependent Variable

Estimation	Lag-coefficient
Pooled OLS	0.0384
Fixed Effect	-0.0834
One-Step Difference GMM	0.2035
Two-Step Difference GMM	1.5845
One-Step System GMM	-0.0127
Two-step System GMM	0.0708

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 4 (Appendix-II, table 6b). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term is used in the model. Size, independence, CEO duality, board meetings, and leverage are all independent variables. All variables were used in unit values. The most significant variable is leverage. In other words, we are 90% confident that leverage strongly influences the Return on equity (Return on Equity). Parallel to it, gender, and year 2015 and 2020 found collinearity, thus dropping the final estimation.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen's statistics is 0.531, which is acceptable and shows that our model is presenting the correct estimation. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is 0.799 presenting the model is not suffering from heteroscedasticity of autocorrelation.

Table 5.4 Relationship Between Board Characteristics and ROE

Variables	Pooled OLS	Fixed Effect	GMM
ROE_1	.0384**(2.02)	-.083***(-3.88)	.0777 (0.19)
BFSIZE	1.219 (1.04)	6.558*(1.75)	-8.65 (-0.57)
BIND	-.313 (-0.17)	1.583 (0.29)	-10.38 (-0.36)
CEO DUALITY	-.036 (-0.01)	-27.69 (-0.46)	-178.4 (-0.12)
BMEET	3.767 *** (2.46)	6.070 *** (2.39)	163.73 (0.87)
LEVERAGE	.6501*** (12.58)	.5917*** (10.0)	.49471* (1.67)
CONSTANT	-19.9*** (-1.92)	-73.8 (-1.59)	-595.1 (-0.36)
Year dummy	YES	YES	YES
Observations	1081	1081	1081
F statistics	0.000	0.000	0.000
Groups/Instruments			272/11
AR (1)			0.238
AR (2)			0.799
Hansen Statistics			0.531

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The dependent variable's lag term when treated as an independent variable is inconsequential (Table 5.4). At 10%, the leverage is enormous, though. In the short term, an increase in leverage of one unit will result in a return on equity rise of 0.4947 units. Return on equity is not significantly correlated with board composition, board independence, CEO DUALITY, or board meetings. As a result, we disprove our null hypotheses, H1b, H2b, H4b, and H5b. Return on Equity and board qualities don't significantly correlate.

5.2.3 Hypothesis Testing for Board Characteristics and TobinQ

H1c: The Relationship Between Board Size and Tobinq is Significant

H2c: The Relationship Between Board Independence and Tobinq is Significant

H3c: The Relationship Between Gender Diversity and Tobinq is Significant

H4c: The Relationship Between CEO Duality and Tobinq is Significant

H5c: The Relationship Between Board Meeting Frequency and Tobinq is Significant

we use equation (3) as follows:

$$TOBINQ = \alpha + TOBINQ_{t-1} + \beta_1 (BFSIZE) + \beta_2 (BIND) + \beta_3 (CEODual) + \beta_4 (Gender) + \beta_5 (BMEET) + \beta_6 (LEVERAGE) + \beta_6 (Firm Size) + \beta_7 (year dummy) + \eta_i + \epsilon \quad \dots \text{eq (3)}$$

Where;

A	=	Constant Term
TobinQ	=	Market Value Of Firm
TobinQ-1	=	Lag Term Of Tobin Q
BSIZE	=	Board Size
BIND	=	Board Independence
CEODUAL	=	Ceo Duality
GENDER	=	Gender Proportion
BMEET	=	Board Meeting Frequency
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 3 (appendix-III, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is 0.2826 at a 5% significance level (appendix III-tables-1).

Step 2 (Fixed Effect Estimation)

Second, we run the fixed effect panel regression equation 3 (Appendix-III, table-2) in the STATA. It is found that the coefficient of a lag term is -0.1069 at a 5% significance level (Appendix-III, table-2).

Step 3 (Decision)

To determine whether the difference GMM or the system GMM approach is much more suited, the OLS coefficient and fixed effect model are estimated. Where the fixed effect estimator is considered as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. According to the Blundell-Bond (1998) rule of thumb, the system GMM approach is preferable if the difference in the GMM coefficients are closer or lower than the fixed effect estimator. According to Table 5.5, the system GMM approach is preferable when the difference between the generalised method of moments coefficients is smaller or closer than the fixed effect estimator.

Table 5.5: GMM Estimation Technique with TobinQ as Dependent Variable

Estimation	Lag Coefficient
Pooled OLS	0.2876
Fixed Effect	-0.1069
One Step Difference GMM	-0.0197
Two Step Difference GMM	0.0269
One Step System GMM	-0.1215
Two-step System GMM	-0.1146

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.6 (Appendix-III, table-6). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term, which is significant at 5%, is used in the model. Size, independence, CEO duality, board meetings, and leverage are all independent variables. All variables were used in unit values. The most significant variables are the lag term of TOBIN Q, B SIZE, BIND, CEODUAL, and Y-2016 at 5%. On the other hand, constant term and leverage also show significance at the 10% level. Parallel to it, gender, and year 2015 and 2020 found collinearity, thus dropping the final estimation.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The overall model is significant at a 5% level, or we are 95% confident that the variables explain their variation. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen statistics is 0.265 is a very good value presenting those groups and instrument are correctly used in the model. AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is 0.604 presenting the model is not suffering from heteroscedasticity of autocorrelation.

Table 5.6 Relationship Between Board Characteristics and TobinQ

VARIABLES	Pooled OLS	Fixed Effect	GMM
Tobinq_1	.2876***(8.97)	-.1069***(-3.91)	-.1146**(-2.08)
BFSIZE	-2.577**(-1.98)	-.2584(-0.09)	-6.766**(-2.12)
BIND	7.804*** (3.70)	.5054 (0.12)	13.519*** (2.84)
CEO DUALITY	-12.80***(-3.33)	-2.595(-0.06)	-17.64**(-2.18)
BMEET	-.5845 (-0.34)	-.3371(-0.17)	.7483 (0.27)
LEVERAGE	-.0301 (-0.52)	-.0110 (-0.24)	-.0410 (-1.40)
CONSTANT	11.09 (0.96)	25.89 (0.73)	30.08 (1.69)
Year dummy	YES	YES	YES
Observations	1081	1081	1081
F statistics	0.000	0.05	0.000
Groups/Instruments			272/13
AR (1)			0.067
AR (2)			0.604
Hensen Statistics			0.265

*Note: t-Statistics are presented in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. *

The lag term of the dependent variable as an independent variable is significant (Table 5.6). A one-unit increase in the B SIZE will decline the 6.7665-unit market value of the firm (TobinQ). TobinQ and Board size are inversely related. If the one-unit increase in the BIND, the firm's market value (TobinQ) increases by 15.15 units as TobinQ, and BIND are positively related. If the one-unit increase in the CEODUAL, the firm's market value will decline by 17.6496 units while all other things remain constant. TobinQ and CEODUAL are inversely related. Hence, we accept our null hypotheses H1c, H2c, and H4c as there is a relationship between board characteristics and TobinQ. We reject our Hypothesis H5c as there is no significant connection among Board meetings and TobinQ.

5.2.4 Hypothesis Testing for Board Characteristics and Dividend Pay-Out

H1d: The Relationship Between Board Size and DPO is Significant

H2d: The Relationship Between Board Independence and DPO is Significant

H3d: The Relationship Between Gender Diversity and DPO is Significant

H4d: The Relationship Between CEO DUALITY and DPO is Significant

H5d: The Relationship Between Board Meeting Frequency and DPO is Significant

we use equation (4) as follows:

$$\text{DIVIDEND} = \alpha + \text{DIVIDEND}_{t-1} + \beta_1 (\text{BSIZE}) + \beta_2 (\text{BIND}) + \beta_3 (\text{CEODual}) + \beta_4 (\text{Gender}) + \beta_5 (\text{BMEET}) + \beta_6 (\text{LEVERAGE}) + \beta_6 (\text{year dummy}) + \eta_i + \epsilon \quad \dots \text{eq (4)}$$

Where;

A	=	Constant Term
DIVIDEND	=	Dividend Pay-Out Ratio
DIVIDEND-1	=	Lag Term of Dividend Pay-Out Ratio
BSIZE	=	Board Size
BIND	=	Board Independence
CEODUAL	=	Ceo Duality
GENDER	=	Gender Proportion
BMEET	=	Board Meeting Frequency
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 4 (appendix-IV, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is 0.1752 at a 5% significance level (appendix IV-tables-1).

Step 2 (Fixed Effect Estimation)

Second, we run the fixed effect panel regression equation 4 (Appendix-IV, table-2) in the STATA. It is found that the coefficient of a lag term is -0.1756 at a 5% significance level (Appendix-IV, table-2).

Step 3 (Decision)

The OLS coefficient and fixed effect model are estimated to decide which approach difference between the GMM or system GMM approach is appropriate. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system GMM approach is more suitable. Table 5.7 shows that the difference GMM coefficients is closer to or upper than the pooled OLS estimator, so the difference generalised method of moments approach is more suitable. But after a closer look, it is found that the difference in Hansen statistics is 1.000, presenting weird results. Besides this, all coefficients are also insignificant. Therefore, a two-step system GMM is preferable in this scenario.

Table 5.7: GMM Estimation Technique with Dividend pay-out as Dependent Variable

Estimation	Lag Coefficient
Pooled OLS	0.2876
Fixed Effect	-0.1069
One Step Difference GMM	-0.0197
Two Step Difference GMM	0.0269
One Step System GMM	-0.1215
Two step System GMM	-0.1146

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.8 (Appendix-IV, table-6). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's negligible lag term is used in the model. Size, independence, CEO duality, board meetings, and leverage are all independent variables. All variables were used in unit values. The most significant variables are BSIZE and Leverage Y-2016 at the 10% level. Parallel to it, gender, and year 2015 and 2018 found collinearity, thus dropping the final estimation.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The overall model is significant at a 5% level, or we are 95%

confident that the variables explain their variation. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen's statistic is 0.005 which makes us a little worried about the number of instruments. AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is 0.604 presenting the model is not suffering from heteroscedasticity of autocorrelation.

A one-unit increase in the BSIZE will increase 2.3413 units in Dividend Pay-Out at a 1 % significance level (Table 5.8). Hence, we accept our hypothesis H1d, and we reject H2d, H4d, and H5d as there is no significant relationship between board independence, CEO Duality, and board meeting frequency with dividend pay-out. If one unit increases the leverage, the DPO declines by 0.0323 units as the Dividend and leverage are inversely related in the short run while all other things assume constant.

Table 5.8: Relationship Between Board Characteristics and DPO

VARIABLES	Pooled OLS	Fixed Effect	GMM
Dividend_1	.1752***(5.76)	-.175***(-5.36)	.1809(0.87)
BSIZE	2.241***(3.43)	2.254(1.20)	2.341***(2.57)
BIND	-.685(-0.65)	-2.95(-1.07)	-.754(-0.53)
CEO DUALITY	1.907(0.99)	-15.48(-0.52)	1.492(0.67)
BMEET	.0128(0.01)	-1.611(-1.27)	.5059(0.61)
LEVERAGE	-.031(-1.10)	.0002(0.01)	-.032**(-1.83)
CONSTANT	-5.61(-0.97)	30.71(1.34)	-9.61(0.94)
Year dummy	YES	YES	YES
Observations	1081	1081	1081
F statistics	0.000	0.000	0.000
Groups/Instruments			272/13
AR (1)			0.035
AR (2)			0.290
Hansen Statistics			0.002

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

5.3 Discussion

Corporate governance is one of the important elements which helps the firms formulate the long- and short-term strategies to achieve the desired goals by achieving the firm's accounting and market performance. CG has attracted the general public's interest as it protects economic health and society. From 1 April 2015 to 31 March 2020, the association between board characteristics and company performance was evaluated in the section above.

The size of the board is frequently debated because one side contends that larger boards have stronger connections to the outside world and collective intellectual understanding (Arora and

Sharma, 2016). According to the alternative point of view, having more members causes confusion and widens the communication gap while larger boards are also said to be more expensive for businesses in terms of compensation and decision-making time (Garg, 2007). Our results show that Board size has a significant negative relationship with the firm's market value (TobinQ) at a 5% significance level and insignificant relationship with ROA and ROE. (Palaniappan, 2017; Bansal and Singh, 2021; Garg, 2007) Even though multiple committees and the 2013 Companies Act have defined the fundamental minimum criteria for the board size, the link between board size and company performance has not yet been shown. The larger boards are more likely to malfunction because more opinion means less agreement which may lead to confusion and affect firm performance (Guest, 2009). Parallel to it (Kapil and Mishra, 2019; Arora and Sharma, 2016; Diriba and Basumatary, 2019; Gulzar et al., 2020; Kalsie and Shrivastav, 2016) argued that the board size has a positive impact on firm performance. The findings of those studies might have been affected by the endogeneity. According to our research, the board's size has a deleterious effect on the firm's market value. At a 1% level of significance, our findings in Table 5.8 demonstrate a strong positive association between board size and dividend pay-out. To support the assertion that board size and dividend pay-out have an amenable association (Leng, 2008; Shukeri et al., 2012; Liao et al., 2021; Kapil and Mishra, 2019; Arora and Sharma, 2016; Diriba and Basumatary, 2019; Gulzar et al., 2020).

At a 1% level of significance, Table 5.6 demonstrates a substantial positive association between board independence and the Tobinq. We are 99% confident that independent directors positively affect the firm's market value. (Balasubramanian et al., 2010; Mohapatra, 2016) claimed that the business will create value if the board had a higher percentage of independent directors than internal directors. If directors are truly independent and are not swayed by CEOs and promoters, the company's market value will increase (Kapil and Mishra, 2019; Arora and Sharma, 2016; Diriba and Basumatary, 2019; Gulzar et al., 2020). On the other hand, there is small correlation between independent directors and the corporation's accounting-based performance. Independent directors have not been able to influence accounting-based performance measures optimistically in the Indian environment (Palaniappan, 2017; Bansal and Singh, 2021).

Two jobs and one-person model is not working for India as most of the literature is evident that in India CEO as chairman of the board either has no significant effect at all or has a significant negative effect on FP. At a 1% level of significance, Table 5.6 demonstrates a substantial inverse link between CEO Duality and the firm's market value. In contrast, it has

an insignificant relationship with ROA, ROE, and DPO. As confirmed (Sukumaran, 2013; Sanan et al., 2019; Arora and Sharma, 2016), CEOs use their power to influence the board to get their way. The agency theory states that CEO duality can be ineffective on the board. Further, our findings state that board meeting frequency has no significant relationship with ROA, ROE, Tobinq, and DPO Relationship.

SECTION II

AUDIT COMMITTEE AND FIRM PERFORMANCE

5.4 Introduction

As the significance of CG increased with time in the business environment, the role of audit committees became more prominent and relevant as the audit committee is a part of CG. Agency theory implies trust deficiency between principles and agents. This brings outsider auditors into the picture who are independent of the agents. But the external auditors are working as an agent of the principles, so it again raises the questions of trust, motives, and independence. The audit committee is independent of the directors but has a close working relationship with them, compromising their true independence. Auditors' independence is the quality that brings the attention of shareholders' interest. The audit committee is competent when its members are independent and free of senior management pressure or interference (Jun Lin et al., 2008). Previous studies have shown how independent audit committee members are more effective than less independent committee members; since independent members are likely not to be influenced by management, it leads to better financial reporting and quality audit reports

India has seen instances of financial falsification on a multitude of occasions. For instance, Satyam Computers performed various sorts of accounting book manipulation totalling 7000 crores. In the PNB instance, auditors took six years to find the wrongdoing. The integrity and trustworthiness of auditors are called into question by these frauds and flaws. The effectiveness of the audit committee has taken on increased significance in the wake of recent financial scandals. By offering information on financial reporting, auditing, and compliance with rules and regulations—scams like the Harshad Mehta scam in 1992 and the stock market scam in 2001—the audit committee intends to improve the questioning of board members. The Satyam scam of 2009 increased the importance of proper audit committee structures and independence. This section explores the relationship between audit committee and FP from year 2015-2020.

5.5 Empirical analysis and Hypothesis Technique

In this section, we test the hypothesis for the objective second, "*To determine the relationship between Audit committee and performance of Indian listed firms,*" by using Dynamic generalised method of moments estimation proposed by Blundell-Bond (1998)

5.5.1 Hypothesis Testing for Audit Committee and ROA

H6a: The Relationship Between AC Size and ROA is Significant

H7a: The Relationship Between AC Independence and ROA is Significant

H8a: The Relationship Between AC Meeting Frequency and ROA is Significant

we use equation (5) as follows:

$$ROA = \alpha + ROA-1 + \beta_1 (ACSIZE) + \beta_2 (ACIND) + \beta_3 (ACMEET) + \beta_4 + \beta_5 (\text{firm size}) + \beta_6 (\text{leverage}) + \beta_7 (\text{Firm size}) + \text{year dummy} + \eta_i + \epsilon \quad \dots \text{eq (5)}$$

Where;

A	=	Constant Term
ROA	=	Return On Assets
ROA-1	=	Lag Term Of Return On Assets
ACSIZE	=	Audit Committee Size
ACIND	=	Audit Committee Independence
ACMEET	=	Audit Committee Meeting
Leverage	=	Leverage
β 's	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 5 (Appendix-V, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of the lag term is 0.4604 at a 5% significance level (appendix V-tables-1).

Step 2 (Fixed Effect Estimation)

Second, in the STATA, we run the fixed effect panel regression equation 5 (Appendix-V, table-2). It is found that the coefficient of a lag term is 0.0860 at a 5% significance level (Appendix-V, table-2).

Step 3 (Decision)

We must estimate the OLS regression model, the fixed effect estimation, in order to determine if the difference approach or the system generalised technique of moments approach is more appropriate. If the estimator coefficient of difference of the generalised method of moments estimate is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, if the difference in the generalised method of moments coefficients is closer or lower than the fixed effect estimator, the system GMM approach is more suitable. In Table 5.9, it is found that in this case, where difference

estimators are above the fixed effect and even more than pooled OLS, we have little benefit from using difference generalised method of moments. We find some significant variables, such as ACIND and ACMEET and Hansen statistics, and AR (2) at an acceptable level. Hansen statistics is 0.244.

Table 5.9: GMM Estimation Technique with ROA as Dependent Variable

Estimation	Lag-coefficient
Pooled OLS	0.046
Fixed Effect	0.086
One Step Difference GMM	0.5731
Two Step Difference GMM	0.5083
One Step System GMM	0.0083
Two-step System GMM	-0.0893

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.10 (Appendix-V, table-4). The results were based on a two-step difference generalised method of moments with a collapse option where the number of instruments was reduced. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term is used in the model. All variables were used in unit values.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step generalised method of moments estimation, Hansen statistics is 0.244. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the model is not suffering from heteroscedasticity or autocorrelation.

In conclusion words, the independent variables are insignificant, even not a single variable. On the other hand, the overall significance and good fitness of the model statistics present that the model shows true behaviour. We thus reject the null hypothesis and come to the conclusion that the audit committee and ROA do not significantly positively relate.

Table 5.10 Relationship Between Audit Committee and Return on Asset

Variables	Pooled OLS	Fixed Effect	GMM
ROA_1	.4604***(16.64)	.0860***(2.89)	.5038(0.64)
ACSIZE	.2169(0.62)	-2.56**(-2.08)	-1.551(-0.66)
ACIND	.2241(0.58)	1.730(1.28)	-.6251(-0.07)
ACMEET	.2700(0.96)	.0465 (0.13)	.1236*(0.16)
LEVERAGE	-.002(-0.32)	-.0129*(-1.62)	2.305**(0.29)

CONSTANT	.6140(0.35)	10.51**(2.19)	2.127(0.74)
Year Dummy	YES	YES	YES
Observations	1081	1081	1081
F Statistics	0.000	0.000	0.000
Group/Instruments			272/12
AR (1)			0.919
AR (2)			0.190
Hensen Statistics			0.244

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of Return on Assets is insignificant with the positive coefficient value. It means the current year's return on assets is not influenced by the following year. Table 5.10 shows that BMEET has a significant positive relationship with Return on Asset at a 10% significance level. Further, table 10 shows no significant relationship between Return on Asset and ACSIZE, ACIND; hence we reject hypotheses H6a, H7a, and H8a. The leverage coefficient is 2.30 at a 5 % significance level if the one-unit increase in the leverage Return on assets will increase by 2.3 units.

5.5.2 Hypothesis Testing for Audit Committee Size and ROE

H6b: The Relationship Between AC Size and ROE is Significant

H7b: The Relationship Between AC Independence and ROE is Significant

H8b: The Relationship Between AC Meeting Frequency and ROE is Significant.

we use equation 6 as follows:

$$\text{ROE} = \alpha + \text{ROE-1} + \beta_1 (\text{ACSIZE}) + \beta_2 (\text{ACIND}) + \beta_3 (\text{ACMEET}) + \beta_4 + \beta_5 (\text{firm size}) + \beta_6 (\text{leverage}) + \text{year dummy} + \text{ni} + \epsilon \quad \dots \text{eq (6)}$$

Where;

- A = Constant Term
- ROE = Return On Equity
- ROE-1 = Lag Term of Return on Equity
- ACSIZE = Audit Committee Size
- ACIND = Audit Committee Independence
- ACMEET = Audit Committee Meeting
- Leverage = Leverage
- β 's = Coefficient

Step 1 (Pooled OLS Estimation)

Pooled OLS regression equation 6 estimations in the STATA with the lag term of the dependent variable presented in (appendix VI, table 1). At a 5% level of significance, it is discovered that the coefficient of the lag term is 0.0355.

Step 2 (Fixed Effect Estimation)

Fixed effect panel regression equation 6 (Appendix-VI, table-2) is estimated in the STATA. It is found that the coefficient of a lag term is -0.0878 at a 5% significance level.

Step 3 (Decision)

To decide which approach difference approach or system generalised method of moments approach is appropriate, the OLS coefficient and fixed effect model are estimated. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system generalised method of moments approach is more suitable. Table 5.11 shows that in this case, where difference estimators are closer to is reported in table 5.12.

Table 5.11: GMM Estimation Technique with ROE as Dependent Variable

Estimation technique	Lag-coefficient
Pooled OLS	0.0355
Fixed Effect	-0.0878
One Step Difference GMM	0.0108
Two Step Difference GMM	-0.0025
One Step System GMM	0.0183
Two step System GMM	0.0283

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.12 (Appendix-VI, table 6b). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term is used in the model. Size, meeting frequency, and leverage of the audit committee are independent variables that matter. All variables were used in unit values. The most significant variable is leverage. In other words, we are 90% confident that leverage strongly influences Return on equity (Return on Equity). Parallel to it, 2015 and 2020 found collinearity, thus dropping the final estimation.

The overall model is sound and presents the model's overall relevance by using F-statistics to explain the variation. Hansen statistics help us determine whether the instrument variables are

reliable. The Hansen statistics for the two-step generalised technique of moments estimation is 0.233, which is up to the mark and exemplifies that our model is providing an accurate estimation. However, the AR (2) value helps us determine whether autocorrelation is a problem in our model. Given that AR (2) is 0.519, the model does not embody heteroscedasticity.

Table 5.12: Relationship Between Audit Committee and ROE

Variables	Pooled OLS	Fixed Effect	GMM
ROE_1	.0355**(1.86)	-.087***(-4.10)	.0283(1.21)
ACSIZE	.3283(0.16)	-14.10(-1.57)	2.281(1.14)
ACIND	-1.90(-0.83)	27.6 *** (2.79)	-2.48(-0.79)
ACMEET	3.157**(1.91)	4.56**(1.80)	2.696 (1.33)
LEVERAGE	.6549*** (12.63)	.604*** (10.27)	.657*** (10.53)
CONSTANT	-4.22(-0.40)	-41.50(-1.18)	-4.96(-0.69)
Year Dummy	YES	YES	YES
Observations	1081	1081	1081
F Statistics	0.000	0.000	0.000
Group/Instruments			272/12
AR (1)			0.132
AR (2)			0.519
Hensen Statistics			0.233

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The leverage is significant at the 10% level. If one unit increases the leverage, it will lead to the 0.6572-unit increase in the Return on equity short run while all other things assume to be constant. Results shown in table 5.12 depict that there is no significant relationship between ACSIZE, ACIND, and ACMEET with Return on Equity; hence we reject hypothesis H6b H7b H8b.

5.5.3 Hypothesis Testing for Audit Committee and TobinQ

H6c: The Relationship Between AC Size and Tobinq is Significant.

H7c: The Relationship Between AC Independence and Tobinq is Significant.

H8c: The Relationship Between AC Meeting Frequency and Tobinq is Significant.

we use equation 7 as follows

$$TOBINQ = \alpha + TOBINQt-1 + \beta_1 (ACSIZE) + \beta_2 (ACIND) + \beta_3 (ACMEET) + \beta_4 + \beta_5 (\text{Firm Size}) + \beta_6 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon \quad \dots \text{eq (7)}$$

Where;

- A = Constant Term
- TobinQ = Market Value of Firm
- TobinQt-1 = Lag Term of TobinQ
- ACSIZE = Audit Committee Size
- ACIND = Audit Committee Independence
- ACMEET = Audit Committee Meeting

Leverage = Leverage
 β 's = Coefficient

Step 1 (Pooled OLS Estimation)

Pooled OLS regression equation 7 estimations in the STATA with the lag term of the dependent variable presented in (Appendix VII, table 1). It is found that the coefficient of a lag term is 0.2899 at a 5% significance level.

Step 2 (Fixed Effect Estimation)

Fixed effect panel regression equation 7 (Appendix-VII, table-2) is estimated in the STATA. It is found that the coefficient of a lag term is -0.108 at a 5% significance level.

Step 3 (Decision)

According to Blundell-Bond (1998), if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system GMM approach is more suitable. Table 5.13 shows that in this case, where difference estimators are closer to the fixed effect, we have little benefit from using the system GMM. The two-step system GMM is reported in table 5.14.

Table 5.13: GMM Estimation Technique with TobinQ as Dependent Variable

Estimation technique	Lag-coefficient
Pooled OLS	0.2899
Fixed Effect	-0.108
One Step difference GMM	-0.5417
Two Step difference GMM	-0.6267
One Step System GMM	-0.0269
Two-step System GMM	-0.0344

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.13 (Appendix-VII, table 6b). The outcomes were based on a two-step generalised technique of moments with a collapse option, which minimised the number of instruments. Therefore, there are fewer instruments than there are groups in the panel. The lag term of the dependent variable is used in the model. Leverage, audit committee meeting size, and independent factors are all important. The most significant variable is leverage. In other words, we are 90% confident that return on TOBIN Q is strongly influenced by leverage.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. Hansen statistics guide us about the validity of the instrument variables. In the two-step system, the generalised method of moments estimation Hansen statistics is 0.36, which is acceptable and shows that our model is presenting the correct estimation. On the other hand, AR (2) value guides us that whether our model is suffering from

autocorrelation or not, AR (2) is 0.29 presenting the model as not suffering from heteroscedasticity or autocorrelation.

Table 5.14: Relationship Between Audit Committee and TobinQ

Variables	Pooled OLS	Fixed Effect	GMM
TobinQ_1	.2899***(8.95)	-.1080***(-3.94)	-.0344(-1.07)
ACSIZE	1.791(0.77)	-2.878 (-0.41)	3.369(1.31)
ACIND	5.127**(2.00)	1.417 (0.18)	3.976(1.13)
ACMEET	.5606(0.30)	1.120 (0.57)	2.449(1.00)
LEVERAGE	-.0266(-0.46)	-.0105 (-0.23)	-.0146**(-2.13)
CONSTANT	-9.63(-0.82)	24.67 (0.90)	-17.05*(-1.68)
Year Dummy	YES	YES	YES
Observations	1081	1081	1081
F Statistics	0.000	0.000	0.000
Group/Instruments			272/12
AR (1)			0.634
AR (2)			0.290
Hensen Statistics			0.360

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The coefficient of leverage is -.014 at a 5% significance level, which means we are 95% confident the one unit change in leverage will inversely affect the TobinQ by -.014 units. Table 5.14 shows no significant relationship exists between ACSIZE, ACIND, ACMEET, and TobinQ as a market performance measure; hence we reject hypothesis H6c, H7c and H8c.

5.5.4 Hypothesis Testing for Audit Committee and Dividend Pay-Out

H6d: The Relationship Between AC Size and DPO is Significant

H7d: The Relationship Between AC Independence and DPO is Significant

H8d: The Relationship Between AC Meeting Frequency and DPO is Significant

we used the following equation (8):

$$\text{DIVIDEND} = \alpha + \text{DIVIDEND}_{t-1} + \beta_1 (\text{ACSIZE}) + \beta_2 (\text{ACIND}) + \beta_3 (\text{ACMEET}) + \beta_4 (\text{Firm Size}) + \beta_5 (\text{Leverage}) + \text{Year Dummy} + \eta_i + \epsilon \quad \dots \text{ eq (8)}$$

Where

- A = Constant Term
- DIVIDEND = Dividend Pay-Out Ratio
- DIVIDEND-1 = Lag Term of Dividend
- ACSIZE = Audit Committee Size
- ACIND = Audit Committee Independence
- ACMEET = Audit Committee Meeting
- Leverage = Leverage
- β 's = Coefficient

Step 1 (Pooled OLS Estimation)

Pooled OLS regression equation 8 estimations in the STATA with the lag term of the dependent variable presented in (Appendix VIII, table 1). It is found that the coefficient of a lag term is 0.1826 5% significance level.

Step 2 (Fixed Effect Estimation)

Fixed effect panel regression equation 8 (Appendix-VIII, table-2) is estimated in the STATA.

Step 3 Decision

According to Blundell-Bond (1998), the system GMM approach is preferable if the difference GMM coefficients are closer or lower than the fixed effect estimator. Table 5.15 demonstrates that there is minimal advantage to utilising the system GMM technique of moments in this situation, when difference estimators are closer to the fixed effect. Table 5.16 reports the two-step system GMM.

Table 5.15: GMM Estimation Technique with Dividend pay-out as Dependent Variable

Estimation technique	Lag coefficient
Pooled OLS	0.1826
Fixed Effect	-0.1713
One Step Difference GMM	-0.7131
Two Step Difference GMM	-0.7135
One Step System GMM	-0.0665
Two step System GMM	-0.0867

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 5.16 (Appendix-VIII, table 6b). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term is used in the model. Audit committee meeting and committee size are independent factors and significant leverage, along with a two-year dummy 2016, 2018, and constant. All variables were used in unit values. Parallel to it, 2015 and 2020 found collinearity, thus dropping the final estimation.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. Hansen statistics guide us about the validity of the instrument variables. In the two-step system, the generalised method of moments estimation Hansen statistics is 0.06 in a few weeks; on the other hand, the difference in the generalised method of moments Hansen values is 1.000, raising the question of the model's overall correctness. So, we accepted the Hansen 0.06 value and assumed that model is at an acceptable level. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation

or not, AR (2) is 0.746 presenting the model is a little bit suffering from heteroscedasticity or autocorrelation.

Table 5.16: Relationship Between Audit Committee and DPO

Variables	Pooled OLS	Fixed Effect	GMM
Dividend _1	.1826***(6.01)	-.1713***(-5.27)	-.0867**(-1.97)
ACSIZE	2.451**(2.12)	14.35***(3.20)	1.674(0.82)
ACIND	3.085***(1.275)	3.738(0.76)	4.075***(2.47)
ACMEET	-2.395***(-2.60)	-1.703(-1.36)	-3.643***(-2.61)
LEVERAGE	-.0263(-0.91)	.0013 (0.05)	-.0311***(-2.23)
CONSTANT	3.826(0.66)	-42.61**(-2.46)	16.53**(2.02)
Year Dummy	YES	YES	YES
Observations	1081	1081	1081
F Statistics	0.000	0.000	0.000
Group/Instruments			272/12
AR (1)			0.015
AR (2)			0.745
Hensen Statistics			0.090

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

At the 1% level, the lag of the dependent variable as an independent variable is considerable. This implies that dividend payouts in prior years have a detrimental impact on DPOs in subsequent years. The coefficient of audit committee independence is 4.075 if one unit change in audit committee independence will positively affect 4.075 units in DPO. We accept our hypotheses H6d, H7d, and H8d as a significant relationship between the AC and DPO.

5.6 Discussion

Section II of this chapter examines the relationship between the AC and FP. The results presented in Table-5.10, Table-5.12, and Table-5.14) show that there is no significant relationship between the AC (ACSIZE, ACIND, ACMEET) and FP (ROA, ROE, and TobinQ). The relationship between the audit committee and firm performance depends upon the nature of the firm and measures taken to measure the performance (Sarpal, 2017). The independent directors in the AC oversee the quality and authenticity of financial disclosures. Still, the audit committee will only have a significant effect if independent directors are in the majority (Al-ahdal and Hashim, 2021). However, for Indian listed firms one third of audit committee members are required to be independent and still AC independence is insignificant. It might be claimed that the qualifications and diversity of the audit committee members fall short of what is necessary to significantly affect the performance of the company.

The AC role in India has become more significant after several scams and frauds in the past two decades. Although there have been significant advancements, it has not yet been determined how the audit committee's performance affects that of the company (Kaur and Singh, 2018; Al-ahdal and Hashim, 2021; Saha and Chandra Kabra, 2019) The audit committee had a favourable effect on accounting-based performance, but not significantly or to a satisfactory level, it was further claimed. Public limited corporations must comply to the minimal criteria of the audit committee under the 2013 Businesses Act (Kumari, 2020). The coefficient lag term of dividend pay-out has a large detrimental effect, as shown in Table 5.18 in Section II. The dividend pay-outs from prior years have a major negative influence on the next year, according to this statement. between audit committee independence and business DPO. (Kallamu and Saat, 2015) have shown how independent audit committee members are more effective than less independent committee members; since independent members are likely not to be influenced by management, it leads to better financial reporting and quality audit reports. Fair and transparent reporting shows the true picture of company financials and non-financials which may have consequential impact on dividend pay-outs. The audit committee impact on firm performance also depends upon other corporate governance constrains such as CEO-dual. (Carcello et al., 2011) if the CEO is involved in appointing or selecting the independent chair, then audit committee may not be effective or influential for company performance.

SECTION-III

INTELLECTUAL CAPITAL AND FIRM PERFORMANCE

5.7 Introduction

Companies have been forced to rethink or rebuild their products and services due to rapid technological advancement, deregulation, rising demand, and international markets. Companies must develop new ways to compete with their competitors in a rapidly changing and intensely competitive world. Instead of depending on the financial results, firms should focus more on the hidden variables that contribute to achieving these financial results. IC is very crucial for organisations. In most cases, the intangible assets are the underlying factors. Enterprises can get an advantage in the market by developing a consistent performance measurement system correlated with the evolution of the IC and its constituents. Indeed, the level and type of IC provide a framework for firms to gauge themselves concerning the level of management accounting standards required for maintaining and enhancing these intellectual assets. A large sum of studies has concluded the association between IC and FP, emphasising the strong influence of IC on FP in developed and developing countries.

Compared to international research, India has produced a very modest number of studies on the topic of the connection between IC and FP. Intellectual Capital's success can be examined in India, a country with a large supply of HC and SC. HC has been studied and evaluated by researchers in India. Individuals (humans) create new designs and ideas, not companies. The company owns leased resources. SC also provides employees with the facilities they need to do their jobs. As a result, Intellectual Capital has long piqued the curiosity of academics and researchers alike. However, it is still in its infancy in India. IC has been valued for accounting, reporting, and transparency purposes by Indian scholars. The effectiveness of Intellectual Capital for Indian businesses has not been thoroughly studied. This section of the chapter has thoroughly examined the relationship between IC and FP in India by controlling unobserved heterogeneity and unresolved endogeneity issue by introducing balanced Panel data generalised method of moments estimations. The findings of this section will provide greater oversight which will be useful for the corporate boards, companies, managers, and policymakers.

5.8 Empirical Analysis and Hypothesis Testing

In this section, we test the hypothesis for the objective, "To determine the relationship between Intellectual Capital and performance of Indian listed firms," by using the Dynamic generalised method of moments estimation proposed by Blundell-Bond (1998).

5.8.1 Hypothesis Testing for Intellectual Capital and ROA

H9a: The Relationship Between CCE and ROA is Significant

H10a: The Relationship Between HCE and ROA is Significant

H11a: The Relationship Between SCE and ROA is Significant

We use the equation (1) as follows:

$$ROA = \alpha + ROA_{t-1} + \beta_1 (CEE) + \beta_2 (HCE) + \beta_3 (SCE) + \beta_4 (LEVERAGE) + \beta_5 (FSIZE) + \beta_6 (\text{Year Dummy}) + \eta_i + \epsilon \quad \dots\text{eq (1)}$$

Where;

A	=	Constant Term
ROA	=	Returns On Assets
ROAt-1	=	Lag Term of Return on Assets
CEE	=	Capital Employed Efficiency
HCE	=	Human Capital Efficiency
SCE	=	Structural Capital Efficiency
FSIZE	=	Size Of the Firm
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 1 (appendix-IX-, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is .345 at a 1% significance level (Appendix-IX-table1).

Step 2 (FIXED Effect Estimation)

Second, we run the fixed effect panel regression equation 1 (Appendix-IX, table-2) in the STATA. It is found that the coefficient of a lag term is -.001 at the insignificance level (Appendix-IX, table-2).

Step 3 (Decision)

To decide which approach difference or system generalised method of moments approach is appropriate, we need to estimate the OLS regression model, the fixed effect estimation. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. If the generalised technique of moments estimate's

estimator coefficient of difference is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system generalised method of moments approach is more suitable. In Table 6.1, it is found that in this case, where difference estimators are above the fixed effect, we benefit from using a two-step difference GMM. However, the F statistics model is not good, so we moved to Two-Step-System generalised method of moments (appendix-IX Table6), where we find some significant variables and Hansen statistics and AR (2) at an acceptable level.

Table 6.1: GMM Estimation Technique with ROA as Dependent Variable.

Estimates	Lag coefficient
Pooled OLS	.3457
Fixed Effect	-.0019
One-Step Difference GMM	.0882
Two-Step Difference GMM	.1269
One-Step System GMM	.2344
Two-Step System GMM	.3303

Source: Blundell-Bond (1998)

The final estimated GMM model is given in table 6.2 (Appendix-IX, table-6). The outcomes were based on a generalised moments approach with a two-step difference and a collapse option that minimised the number of instruments. As a result, there are fewer instruments than groups in the panel. The dependent variable's negligible lag term is used in the model. Independent variables are CEE, HCE, SCE, and the control variables are leverage and firm size. All variables were used in unit values. The most significant variables are Capital Employed Efficiency and Human Capital Efficiency at a 1% significance level. In other words, we are 99% confident that CEE and HCE are strongly influenced by return on asset (ROA). Parallel to it. SCE is insignificant.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen's statistics is 0.2. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the model as not suffering from heteroscedasticity or autocorrelation.

Table 6.2: Relationship between IC and ROA

VARIABLES	POOLED OLS	FIXED EFFECT	GMM
ROA_1	.3457***(15.4)	-.0019(-0.08)	.3303***(3.76)
CEE	2.943***(12.44)	5.692***(11.29)	-.6952(-0.44)
HCE	-0.136(-0.83)	-.1759***(-4.95)	.2631***(2.61)
SCE	.9404(0.53)	-3.299*(-1.71)	.8833(0.20)
LEVERAGE	-1.05***(-3.31)	-8357**(1.83)	-7.910(-1.33)
FSIZE	1.35***(8.06)	.0217(0.65)	9.116**(1.93)
CONSTANT	-3.81***(-2.89)	-4.01***(-2.58)	3.488(0.59)
Observations	1422	1422	1422
F statistics	0.000	0.000	0.000
Groups/Instruments			285/9
AR (1)			0.000
AR (2)			0.350
Hensen Statistics			0.22

Note: t-Statistics are presented in parentheses; *,** and *indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of the dependent variable as an independent variable is significant at a 1% confidence level. (Table 6.2) HCE is significant at the 1% level, which explains if there is one unit change in the HCE, then the return on asset changes by 0.2631 units (table2). Hence, we accept the hypothesis H10a and reject the H9a and H11a as CCE and SCE are insignificant.

5.8.2 Hypothesis Testing for Intellectual Capital and Return on Equity

H9b: The Relationship Between CEE and ROE is Significant

H10b: The Relationship Between HCE and ROE is Significant

H11b: The Relationship Between SCE and ROE is Significant

We use the equation (2) as follows:

$$ROE = \alpha + ROE_{t-1} + \beta_1 (CEE) + \beta_2 (HCE) + \beta_3 (SCE) + \beta_4 (LEVERAGE) + \beta_5 (FSIZE) \beta_6 (Year Dummy) + \eta_i + \epsilon \quad \dots \text{eq (2)}$$

Where;

A	=	Constant Term
ROE	=	Returns On Equity
ROE-1	=	Lag Term of Return on Equity
CEE	=	Capital Employed Efficiency
HCE	=	Human Capital Efficiency
SCE	=	Structural Capital Efficiency
FSIZE	=	Size Of the Firm
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 2 (Appendix-X, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is .3335 at a 1% significance level (appendix X-tables-1).

Step 2 (FIXED Effect Estimation)

Second, in the STATA, we run the fixed effect panel regression equation 2 (Appendix-X, table-2). It is found that the coefficient of a lag term is -.0390 at a 5% significance level (Appendix-X, table-2).

Step 3 (Decision)

To decide which approach difference or system generalised method of moments approach is appropriate, we need to estimate the OLS regression model, the fixed effect estimation. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. If the estimator coefficient of difference of the generalised method of moments estimate is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system GMM approach is more suitable. In Table 6.3, it is found that in this case, where difference estimators are lower than fixed effect and even than pooled OLS, so we move to the two-step system GMM (appendix X table6), where we find some significant variables and Hansen statistics and AR (2) at an acceptable level.

Table 6.3: Relationship between Intellectual Capital and ROE

Estimates	Lag coefficient
Pooled OLS	.3333
Fixed Effect	-.0390
One-Step Difference GMM	-.0171
Two-Step Difference GMM	-.0036
One-Step System GMM	.2293
Two-Step System GMM	.2147

Source: Blundell-Bond (1998)

The final estimated GMM model is given in table 6.4 (Appendix-X, table-6). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variable's lag term, which is significant at the 5% level, is used in the model. CEE,

HCE, and SCE are independent variables, whereas leverage and firm size are the control factors. All variables were used in unit values. The most significant variables are HCE and SCE at 1% and 10% significance, respectively (table 6.4). In other words, we are confident that Capital HCE and SCE are strongly influenced by return on asset (ROA). Parallel to it. Capital SCE is insignificant.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen's statistics is 0.26. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the model is not suffering from heteroscedasticity or autocorrelation.

Table 6.4: Relationship between IC and ROE

VARIABLES	POOLED OLS	Fixed Effect	GMM
ROE_1	.3335***(16.33)	-.0390**(-2.28)	.2147**(1.99)
CEE	5.230***(20.40)	11.47***(26.41)	.5352(0.27)
HCE	-.0015(-0.09)	-.2669***(-8.71)	.3574***(2.55)
SCE	9.498***(5.00)	8.887***(5.35)	9.765*(1.78)
LEVERAGE	-.8787***(-2.60)	-.3066(-0.78)	-6.021(-0.88)
FSIZE	.0213(0.59)	.0144(0.50)	13.08***(2.58)
CONSTANT	-13.10***(-9.23)	-21.04***(-15.61)	-5.364(-0.72)
Observations	1422	1422	1422
F statistics	0.000	0.000	0.000
Groups/Instruments			285/9
AR (1)			0.000
AR (2)			0.801
Hensen Statistics			.26

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of the dependent variable as an independent variable is significant at the 5% level (Table 6.4). HCE and SCE are significant at 1% and 10%, respectively. Hence, we accept hypotheses H10b. HCE and SCE have a significant relationship with ROE. If there is one unit change in the HCE, then the return on Equity changes by .3574 units (table 6.4). Similarly, we are 90% confident that If there is one unit change in the SCE, the ROE changes by 9.765 units. While considering the firm size, it is noticed that a one-unit increase in the firm size would lead to a 13.08-unit increase in the return on the equity.

5.8.3 Hypothesis Testing for Intellectual Capital and TobinQ

H9C: The Relationship Between CEE and Tobinq is Significant

H10c: The Relationship Between HCE and Tobinq is Significant

H11c: The Relationship Between SCE and Tobinq is Significant

We use the equation (3) as follows:

$$\text{TobinQ} = \alpha + \text{TobinQ}_{t-1} + \beta_1 (\text{CEE}) + \beta_2 (\text{HCE}) + \beta_3 (\text{SCE}) + \beta_4 (\text{LEVERAGE}) + \beta_5 (\text{FSIZE}) + \beta_6 (\text{Year Dummy}) + \eta_i + \epsilon \quad \dots \text{eq (3)}$$

Where;

A	=	Constant Term
TobinQ	=	Market Value of Firm
TobinQ-1	=	Lag Term of Tobin Q
CEE	=	Capital Employed Efficiency
HCE	=	Human Capital Efficiency
SCE	=	Structural Capital Efficiency
FSIZE	=	Size Of the Firm
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 3 (Appendix-XI, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is .5711 at a 1% significance level (appendix XI-tables-1).

Step 2 (FIXED Effect Estimation)

Second, we run the fixed effect panel regression equation 3 (Appendix-XI table-2) in the STATA. It is found that the coefficient of a lag term is .0122 at the insignificance level (Appendix-XI, table-2).

Step 3 Decision

To decide which approach difference or system generalised method of moments approach is appropriate, we need to estimate the OLS regression model, the fixed effect estimation. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. If the estimator coefficient of difference of the generalised method of moments estimate is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system generalised method of moments approach is more suitable. Table 6.5 shows that difference estimators are Higher than the fixed effect in this case, so we move to the difference generalised method of moments. However, (appendix-XI table4) Hansen statistics is higher than its level, so we moved to the Two-step system GMM, where we find some significant variables and Hansen statistics and AR (2) at an acceptable level.

Table 6.5: GMM Estimation Technique with TobinQ as Dependent Variable

Estimates	Lag coefficient
Pooled OLS	.5711
Fixed Effect	.0122
One-Step Difference GMM	.1032
Two Step Difference GMM	.1036
One-Step System GMM	.2497
Two-Step System GMM	.1410

Source: (Blundell Bond)

The final estimated generalised method of moments model is given in table 6.6 (Appendix-XI, table-6). The results were based on a two-step system GMM with a collapse option where the number of instruments was reduced. As a result, there are fewer instruments than groups in the panel. The dependent variable's negligible lag term is used in the model. CCE, HCE, and SCE are independent variables, whereas leverage and firm size are control factors. All variables were used in unit values. The most significant variables are CEE and SCE at 5% and 1% significance, respectively. In other words, we are confident that CEE and HCE are strongly influenced by the market value of the firm (TobinQ). SCE is insignificant.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step generalised method of moments estimation, Hansen's statistics is 0.50. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the model is not suffering from heteroscedasticity or autocorrelation.

Table 6.6: Relationship between Intellectual Capital and Tobinq

VARIABLES	POOLED OLS	Fixed Effect	GMM
TobinQ_1	.5711***(27.67)	.0122(0.63)	.1410(1.48)
CEE	3.58***(27.72)	4.876***(5.89)	-6.372**(-2.06)
HCE	-.1234***(-3.74)	-.1720***(-2.95)	.7552***(2.96)
SCE	2.511(0.71)	.7025(0.22)	-1.673(-0.13)
LEVERAGE	-3.040****(-4.80)	-1.587**(-2.1)	-35.40**(-2.04)
FSIZE	.1934*** (2.87)	.0429(0.78)	23.1*** (32.88)
CONSTANT	-1.506(-0.57)	5.377** (2.10)	33.72** (1.99)
Observations	1422	1422	1422
F statistics	0.000	0.000	0.000
Groups/Instruments			285/9
AR (1)			0.000
AR (2)			0.112
Hensen Statistics			0.50

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of the dependent variable as an independent variable is insignificant (Table 6.6). It means the previous year's market value does not affect the following year's market value. CEE and HCE are significant at 5% and 1%, respectively. Hence, we accept hypotheses H9c and H10c. (table6) HCE and SCE have a significant relationship with the firm's market value (TobinQ). If there is one unit change in the CEE, then TobinQ inversely changes by 6.372 units. Similarly, for one unit change in the HCE, TobinQ changes by .7552 units which means we are 99% confident that If there is one unit change in the HCE, then the market value of the firm changes by .7552 units. While considering the firm size, it is noticed that a one-unit increase in the firm size would lead to a 23.1-unit increase in the firm's Market Value.

5.8.4 Hypothesis Testing for Intellectual Capital and Dividend Pay-Out

H9C: The Relationship Between CEE and DPO is Significant

H10c: The Relationship Between HCE and DPO is Significant

H11c: The Relationship Between SCE and DPO is Significant

We use equation (4) as follows:

$$\text{Dividend} = \alpha + \text{Dividend}_{t-1} + \beta_1 (\text{CEE}) + \beta_2 (\text{HCE}) + \beta_3 (\text{SCE}) + \beta_4 (\text{LEVERAGE}) + \beta_5 (\text{FSIZE}) + \eta_i + \epsilon \quad \dots \dots \text{eq (4)}$$

Where;

- A = Constant Term
- DIVIDEND = Dividend Pay-Out
- DIVIDEND-1 = Lag Term of Dividend
- CEE = Capital Employed Efficiency

HCE	=	Human Capital Efficiency
SCE	=	Structural Capital Efficiency
FSIZE	=	Size Of the Firm
LEVERAGE	=	Leverage
B	=	Coefficient

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equation 4 (Appendix-XII, tables-1) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag term is .1412 at a 1% significance level (appendix XII-tables-1).

Step 2 (FIXED Effect Estimation)

Second, we run the fixed effect panel regression equation 4 (Appendix-XII table-2) in the STATA. It is found that the coefficient of a lag term is -.0702 at the insignificance level (Appendix-XII, table-2).

Step 3 (Decision)

We must estimate the OLS regression model, the fixed effect estimation, in order to determine whether the difference or system GMM approach is appropriate. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. The GMM estimator should be chosen if the estimator coefficient of difference is closed or lower than the fixed effect estimator coefficient because the estimator is going downward and displaying weak instruments. According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system generalised method of moments approach is more suitable. In Table 6.7, it is found that in this case, difference estimators are Higher than the fixed effect, so we move to the difference generalised method of moments. However, (appendix-XII table4) Hansen statistics is higher than its level, and F statistics were insignificant, so we moved to the Two-step system GMM where we find some significant variables and Hansen statistics are still higher, but we found some variables significant and AR (2) at an acceptable level.

Table 6.7: GMM Estimation Technique with Dividend pay-out as Dependent Variable

Estimates	Lag coefficient
Pooled OLS	.1412
Fixed Effect	-.0702
One-Step Difference GMM	.0454
Two Step Difference GMM	.0458
One-Step System GMM	.0067
Two-Step System GMM	-.0118

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 6.7 (Appendix-XII, table-6). The outcomes were based on a two-step system generalised GMM with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The model uses the lag term of the dependent variable, which is insignificant. Independent variables are CEE, HCE, SCE, and the control variables are leverage and firm size. All variables were used in unit values. The most significant variables are FISIZE at a 10% significance level (table 6.8). In other words, we are 90% confident that Firm size is strongly influenced by DPO. Parallel to it, all other variables are highly insignificant.

The overall model is good and explains the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the GMM are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step GMM estimation, Hansen's statistics is 0.9, which is not good. On the other hand, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the model is not suffering from heteroscedasticity or autocorrelation.

Table 6.8: Relationship between Intellectual Capital and Dividend Pay-Out

VARIABLES	Pooled OLS	Fixed Effect	GMM
DIVIDEND_1	.1412(3.74)	-.0702(-1.52)	-.0118(-0.14)
CEE	2.141(2.52)	-1.874(-0.95)	.8261(0.39)
HCE	-.0398(-0.66)	.0587(0.42)	-.0516(-0.32)
SCE	6.172(0.95)	3.992(0.53)	12.64(1.08)
LEVERAGE	-5.810(-5.02)	.4986(0.28)	12.17(0.74)
FSIZE	.0711(0.58)	.0266(0.20)	14.85(1.75)
CONSTANT	6.070(1.25)	16.19(2.65)	-5.639(-0.38)
Observations	1422	1422	1422
F statistics	0.000	0.000	0.000
Groups/Instruments			285/9
AR (1)			0.009
AR (2)			0.862
Hansen Statistics			0.9

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag term of the dependent variable as an independent variable is insignificant (table 8). CEE, HCE, and SCE are highly insignificant. Hence, we reject hypotheses H9d, H10d and H11d. (table 6.8) shows that CEE, HCE, and SCE have no impact on DPO.

5.8.5 Overall Effect of (Value Added Intellectual Capital) VAIC on Firm Performance

In this segment of Section-I, we have examined the effect of VAIC on FP. VAIC is the Sum of CEE + HCE + SCE, the standard method introduced by the public in 1998

$$ROA = \alpha + ROA_{t-1} + \beta_1(VAIC) + \beta_2(LEVERAGE) + \beta_3(FSIZE) + \eta_i + \epsilon \quad \text{eq (1)}$$

$$ROE = \alpha + ROE_{t-1} + \beta_1(VAIC) + \beta_2(LEVERAGE) + \beta_3(FSIZE) + \eta_i + \epsilon \quad \text{eq (2)}$$

$$\text{TobinQ} = \alpha + \text{TobinQ}_{t-1} + \beta_1(VAIC) + \beta_2(LEVERAGE) + \beta_3(FSIZE) + \eta_i + \epsilon \quad \text{eq (3)}$$

$$\text{DIVIDEND} = \alpha + \text{DIVIDEND}_{t-1} + \beta_1(VAIC) + \beta_2(LEVERAGE) + \beta_3(FSIZE) + \eta_i + \epsilon \quad \text{eq (4)}$$

Step 1 (Pooled OLS Estimation)

First, we run pooled OLS regression equations 1, 2, 3, and 4 (Appendix- XIII, XIV, XV) in the STATA with the lag term of the dependent variable. It is found that the coefficient of a lag terms.

Step 2 (FIXED Effect Estimation)

Second, in the STATA, we run the fixed effect panel regression equation 1, 2, 3, 4 (Appendix- , XIII, XIV, XV). It is found that the coefficient of a lag terms

Step 3 (Decision)

To decide which approach difference or system generalised method of moments approach is appropriate, The fixed effect estimates for the OLS regression model is required. Where the fixed effect estimator is regarded as a lower bound estimate and the OLS estimator of the coefficient as an upper bound estimate. If the estimator coefficient of difference of the generalised method of moments estimate is closed or below the fixed effect estimator coefficient, then, in that case, the generalised method of moments estimator should be preferred as the estimator is trending downward and showing weak instruments.

According to the Blundell-Bond (1998) rule of thumb, if the difference in the GMM coefficients is closer or lower than the fixed effect estimator, the system GMM approach is more suitable. We found a two-step system generalised method of moments suitable for equations 1, 2, 3, and 4 where F-statistics is significant, explains the model is good, AR (2) is at an acceptable level, and Hensen statistics is also at its acceptable level

Table 6.9: GMM estimation techniques for Lag of ROA. ROE, TobinQ and Dividend Pay-Out as dependent variables

Variables	ROA_1	ROE_1	TobinQ_1	DIVIDEND_1
Estimates	Lag coefficient	Lag coefficient	Lag coefficient	Lag coefficient
Pooled OLS	.4086	.4478	.5790	.2241
Fixed Effect	-.0070	-.0420	.0149	-.1356
One-Step Difference GMM	.0443	.0303	.0745	.1808
Two Step Difference GMM	.0818	.0165	.0735	.2061
One-Step System GMM	.2273	.2376	.1014	.1501
Two-Step System GMM	.3266	.2258	.1118	.1382

Source: Blundell-Bond (1998)

The final estimated generalised method of moments model is given in table 6.10 (Appendix-XIII, XIV, XV table-6's). The outcomes were based on a two-step system generalised technique of moments with an instrument number collapse option. As a result, there are fewer instruments than groups in the panel. The dependent variables' lag term is considered important in the model. Independent variables are VAIC and the control variable leverage. All variables were used in unit values.

The overall models are good and explain the variation as F-statistics, presenting the overall significance of the model. The other two important statistics in the generalised method of moments are Hansen statistics and AR (2). Hansen statistics guide us about the validity of the instrument variables. In the two-step generalised method of moments estimation, AR (2) value guides us that whether our model is suffering from autocorrelation or not, AR (2) is at the lower side, presenting the models are not suffering from heteroscedasticity of autocorrelation.

Table 6.10: Relationship Between VAIC and Firm Performance

Variables	GMM	GMM	GMM	GMM
ROA-1	.3266***(3.74)	.	.	.
ROE-1		.2258**(2.14)		
Tobin Q-1			11189(1.34)	
Dividend-1				1382***(7.42)
VAIC	.2327***(4.20)	.3916***(4.61)	.5001***(3.11)	.4579*(1.74)
LEVERAGE	-8.011(1.30)	-5.820(-0.85)	-34.84**(-2.14)	-42.18(-1.44)
FSIZE	8.589***(3.91)	14.24***(2.82)	20.68***(2.79)	6.817(0.99)
Constant	2.280(0.65)	1.148(0.30)	19.20***(2.25)	26.10**(2.06)
Observations	1422	1422	1422	1422
Group/Ins	7/285	285/7	285/7	0.000
F Statistics	0.000	0.000	0.000	0.002
AR (1)	0.000	0.000	0.000	0.684
AR (2)	0.427	0.736	0.105	0.960
HENSEN test	0.21	0.25	0.49	0.160

Note: t-Statistics are presented in parentheses; *, ** and * indicate significance at the 1%, 5% and 10% levels, respectively**

The lag variables of ROA, ROE, and dividend are significant at 1%, 5%, and 1% significance levels, respectively. It means the previous year's performance on equity, return on assets, and dividend pay-out influences the following year's performance at a highly significant level. Results given in table 6.11 show that IC has a significant positive relationship with FP. The coefficients of Value-added Intellectual Capital (VAIC) explain that if there is a .2, .3, .5, .4 units change in ROA, ROE, TOBINQ, and dividend, The VAIC will change by one unit at 1% and 10% significance level respectively (table 6.11).

5.9 Discussion

IC and FP for Indian listed businesses have been empirically examined. The study aims to determine the scope and effect of IC, its components, and its connection to FP. ROA, ROE, Tobin's Q, and DPO are dependent variables for secondary analysis, as they are employed as proxies for performance. CEE, HCE, and SCE are independent variables for value-added IC. The VAIC standard model has also been used as the independent model, which is the sum of CEE Plus HCE Plus SCE. In addition, the firm's size and leverage are used as two of the control factors that help manage their impact on performance. Endogeneity can be overcome using the panel data generalised method of moments approach, as stated by (Nadeem et al., 2017; Nadeem et al., 2016).

The results reported in the preceding tables indicate that there is a link between IC components and FP. Results in table 6.2, table 6.4, and table 6.6 show that HCE has a significant association with the ROA, ROE, and Tobinq (market value of the firm) at a 1% significance level. Human

capital efficiency is an important component of IC. (Hussinki et al., 2017; Susanto Salim, 2019) They stated that human capital is a critical component of IC when predicting future financial performance. Table 6.6 shows that human capital significantly impacts the firm's market performance to corroborate (Peng, 2011; Scafarto et al., 2016). The profitability and market value of companies with higher human and SCE and an overall higher value are proportionally higher. IC is an additional VAIC component that has been found to have a favourable and large impact on a company's market value. While Capital Employed Efficiency given in table 6.6 shows a significant negative impact on the firm's market value at 5% significance. (Nadeem et al., 2017; Xu and Li, 2020) Indicated that CEE has a negative impact on ROE, and no statistically significant evidence was found to demonstrate a direct link between IC and FP. SCE has a positive relationship with the ROE at a 10% significance level. Sofia Prima Dewi, 2021). Companies' financial performance (ROA, ROE, EBITA, and PM) are linked to Human Capital Efficiency. Improved SCE results in better business performance, as do new products and services. According to the findings, there is a strong and positive link between Intellectual Capital and the market value of companies.

(Table 6.11) depicts that intellectual capital is positively influenced by performance at a significant level. It shows that companies that focus on intangibles have better firm performance. IC is one the most important performance factors in today's technological world, which gives them a competitive edge in the market. (Muttakin et al., 2015) elaborates that companies with better intellectual capital scores are doing better in the market and have a better market valuation than those with low intellectual capital scores. The above-given results show that HCE has a major contribution to intellectual capital compared to SCE and CEE. The findings given above can be very helpful for the companies, managers, and policymakers to focus on creating intellectual capital and formulate regulations for its standards and should be necessary to make intellectual capital disclosures like financial disclosures.

SECTION IV

MEDIATION ROLE OF INTELLECTUAL CAPITAL

5.10 Intellectual Capital as a Mediator

There is no consensus on the intellectual capital definition. Still, scholars have defined it as knowledge creation and strategic intangible assets available for setting up firms with human and non-human repositories. Intellectual capital is knowledge, expertise, professional skills, and information technology that gives the organisation a competitive edge over its competitors (Solitander and Tidström, 2010). Many studies claim that companies with better intellectual capital resources have greater market valuation and profitability. Resource dependency theory and stewardship theory link IC resources in terms of PC, HC, SC, and RC with CG. Resource dependency theory implies that the BODs is responsible for building intellectual capital, leading to a better market valuation and profitability (Kamaluddin and Rahman, 2013). The stewardship theory of corporate governance has a link with building human capital. (Peng, 2011; Scafarto et al., 2016; Nadeem et al., 2017; Xu and Li, 2020) Human capital has a positive influence on FP. So, we argue that some portion of intellectual capital might be explaining the relationship between CG and FP.

The relationship between IC and FP has been established as scholars have thoroughly studied it in developed and developing countries (Shahwan and Fathalla, 2020; Mohammad et al., 2018; Goswami and Maji, 2017; Smriti and Das, 2018). While (Saravia, 2015; Michelberger, 2021; Gwala and Mashau, 2022), in their systematic literature review, pointed out that there is an inconsistency in literature on the relationship between CG and FP. Studies highlighting the significant positive influence of CG on FP support the argument that the portion of IC might be explaining the relationship between CG and FP.

According to (Shahwan and Fathalla, 2020; Saeed et al., 2015; Hatane et al., 2019; Aslam and Haron, 2020; Adegbayibi, 2021) published in high-impact journals with a considerable number of citations stated that intellectual capital fully or partially mediates the relationship between CG and FP. The Indian context (Goswami and Maji, 2017) highlighted the partial mediation effect of IC on FP. So, based on the above arguments, intellectual capital qualifies as a mediator to be examined.

5.11 Empirical Analysis and Hypothesis Testing

This segment tests the hypothesis for the objective, "To determine the mediation effect of corporate governance on relationship between Intellectual Capital and performance of Indian listed firms," using the structural equation modelling in STATA through medsem command. One of the best things about medsem is that it can help you estimate mediational models in the best way possible by using the structural equation framework. It can also help to analyse better and more thoroughly than usual. Since medsem is based on estimates from Stata's sem command, its second benefit is that it can help with mediational analysis using either observed or latent variables or a mix of both.

5.11.1 Hypothesis testing

H12: The Relationship Between CG and FP is Significant

H12 evaluates whether CG significantly affects FP (Appendix XVII table1). The results revealed that CG has a significant effect on FP ($\beta = 0.586$, $z = 7.53$, $p = 0.00$) hence accepted.

H13: The Relationship Between CG and IC is Significant

H13 evaluates whether CG significantly affects IC (Appendix VII table1). The results revealed that CG has a significant effect on IC ($\beta = 0.321$, $z = 6.94$, $p = 0.000$) hence accepted.

H14: The Relationship Between IC and FP is Significant

H14 evaluates whether IC significantly affects FP (Appendix XVII table1). The results revealed that IC has a significant effect on FP ($\beta = 0.216$, $z = 1.88$, $p = 0.000$) hence accepted

Table 6.11: Direct Relationship Results

	beta coefficient	Std. Err	z statistics	t value
H12: CG->FP	0.586	0.04	7.53	0.001
H13: CG-> IC	0.321	0.11	6.94	0.000
H14: IC->FP	0.216	0.11	1.88	0.000

Note: CG is corporate governance, IC is intellectual capital, and FP is firm performance

5.11.2 Following Baron and Kenny's (1986) criteria:

1. Independent variables predicting dependent variable in first regression equation:

$$Y = \beta_0 + Cx + \varepsilon$$

$$FP = \beta_0 + x (CG) + \varepsilon$$

CG is an independent variable and FP is a dependent variable, β is a coefficient and ε is an error term.

In above given table 6.12 corporate governance (CG) has a significant relationship with firm performance (FP) at 1% significance level ($\beta = 0.586$, $z = 7.53$, $p = 0.001$) Criteria first have met

2. Independent variable predicting mediator in second regression equation:

$$Y = \beta_0 + ax + \varepsilon$$

$$IC = \beta_0 + x (CG) + \varepsilon$$

CG is an independent variable and IC is a dependent variable, β is a coefficient and ε is an error term.

In above-given table 6.12, corporate governance (CG) has a significant relationship with intellectual capital (IC) at 1% significance level ($\beta = 0.321$, $z = 6.94$, $p = 0.000$). Criteria second have met

3. Mediator variable predicting the dependent variable in third regression equation:

$$Y = \beta_0 + bx + \varepsilon$$

$$FP = \beta_0 + x (IC) + \varepsilon$$

In above given table 6.12 intellectual capital (IC) has a significant relationship with firm performance (FP) at 1% significance level ($\beta = 0.216$, $z = 1.88$, $p = 0.000$). criteria third has met

According to Baron and Kenny, if all the above three criteria are full filled, we can move towards mediation analysis.

5.11.3 Mediation analysis

Mediation analysis was performed by using the "medsem" command in STATA (Appendix XVII table 1,2) to assess the mediating role of IC on the linkage between CG and FP. The results (Table 6.12) revealed that the direct effect of CG on FP is significant ($\beta = 0.516$, $z=7.53$, $p=0.000$). with the inclusion of IC, the indirect effect of CG on FP remained significant but with less magnitude ($\beta = 0.130$, $z=0.040$, $p=0.000$); hence intellectual capital (IC) partially mediates (whether the mediation is partial or full or no mediation, medsem command in STATA provides itself in output Appendix XVII table2)) the relationship between CG and FP we accept null hypothesis H15.

Table 6.12: Significance Testing of The Indirect Effect

Estimations	Baron And Kenny	Sobel	Monte Carle
Indirect Effect	0.130	0.130	0.130
Standard Error	0.040	0.038	0.040
z-value	12.144	12.147	12.146
p-value	0.000	0.000	0.000
Coefficient Interval	0.331, 0.242	0.328, 0.331	0.331, 0.311

Note: Baron and Kenny's approach to testing a mediation is given in column 2

5.11.4 The ratio of indirect effect to total effect (RIT)

RIT = (indirect effect/total effect)

Indirect effect = 0.130

Direct effect = 0.586

Total effect = direct effect + indirect effect

$$0.130 + 0.586 = 0.716$$

RIT = (indirect effect/total effect)

$$(0.130/0.716) = \mathbf{0.118 (18\%)}$$

According to the indirect effect to total effect ratio, the intellectual capital can account for 18% of the impact of CG on business performance. CG itself, using IC as a mediator, explains the remaining impact it has on business performance.

5.11.5 The ratio of indirect effect to direct effect (RID)

Indirect effect = 0.130

Direct effect = 0.586

RID = (indirect effect/direct effect)

$$(0.130/0.586) = 0.221 (0.2 \text{ times})$$

The ratio of indirect effect to direct effect means that the mediation effect of intellectual capital is about 0.2 times as large as the direct effect of CG on FP.

Table 6.13: Path Coefficients

Path	Direct Effect	Indirect Effect	Total Effect	RIT	RID
CG<- VAIC<- FP	0.586 (0.000)	0.130 (0.000)	0.716 (0.000)	18%	0.2 times

5.12 Discussion

In addition to Baron and Kenny's (1986) approach, updated by (Iacobucci et al., 2007) as well as an option developed by (Zhao et al., 2010), Stata's built-in sem command provides a post-estimation tool for evaluating mediational hypotheses. Because of the simultaneous estimation capacity of SEM, medsem can provide a clear and comprehensive mediation analysis even on the most complicated models (containing observable and latent variables and numerous mediators). IC was measured through the VAIC model introduced by (Pulic,1998) with the three elements HCE, SCE and CEE. HCE consists of human resources skills, knowledge, and competence to build up value creation for the firm. SCE consists of the culture, Information technology, and intellectual property to support the firm's capabilities for value creation. CEE consists of financial and physical resources. Tables 6.12 and 6.13 show that IC partially mediates the relationship between CG and FP. With the inclusion of IC, the magnitude of the relationship between CG and FP is reduced. In the context of India, our results corroborate with (Goswami and Maji, 2017) that India is an emerging market with a huge number of human and structural capital, so IC does have a mediation influence on FP. The investment in Intellectual capital in Developing countries has risen in recent years (Chen et al., 2020; Kong and Kong, 2016) stated that HC and SC have a relationship between HRD practices.

Our results depict that IC mediates the relationship between CG and FP. The relationship between IC and FP is also significant. It should bring the attention of corporate boards and managers to make long-term strategies for building up intangible assets known as IC. Our results support the interest of shareholders and other stakeholders in improving CG performance by adopting strategies for creating IC for the firms.

5.13 SUMMARY

This chapter examines the relationship between CG and the FP of firms listed on the BSE . Agency theory states that CG is a system through which companies are governed by setting up long-term strategies and smart decision-making. It helps the corporates access resources such as investment and credit to expand their business operations and protect the interests of shareholders and other stakeholders. Investors and loan providers always consider engaging with firms with standard corporate governance practices. The investors and loan providers became more cautious after several corporate scams and failures in India. The deeper reason behind those scams was the shortcomings of CG. For example, Harshad Mehta scam in 2009, Harshad Mehta embezzled money via bank forward agreements. Under the ready-forward agreement, banks bought and sold securities for 16 days through brokers. The buying bank transfers money to the broker's account to buy securities. Harshad Mehta temporarily moved these monies to the capital market to manipulate the pricing of select securities, then sold them when their prices rose. The bank also received a share of the profit. CG has also been blamed for causing the financial crisis in 2008 for mishandling the risk factors.

The relevance of CG with firm performance has been studied globally, and the relationship of CG with FP characteristics (financial and non-financial performance) has been established, especially in developed countries. In India, the relationship between CG and FP is yet to be established because of two different arguments in the literature. Some researchers argue that there is no relationship between CG and FP; others argue differently. Mostly the studies in India have ignored the dynamic nature of CG and FP as OLS regression and fixed effect approach has been widely used. (Akbar et al., 2016) stated that the presence of endogeneity compromises the outcomes as it does not take care of omitted unobserved variables. OLS regression and fixed effect are inappropriate techniques to minimize the endogeneity effect. To avoid the endogeneity issue GMM approach has been used to determine the dynamic relationship between CG and FP.

The average number of board members in Indian firms is more than nine, which is considered a large board size. Our results in the above-given tables show that board size has an insignificant relationship with accounting performance (ROA and ROE) while having a significant inverse relationship with the firm's market performance. It means that having less than ten members on the board has an insignificant and negative impact on a firm financial performance. The reason might be larger boards have ineffective communication and delay in decision-making. (Alabdullah et al., 2018) stated that smaller boards are effective in emerging markets as smaller boards have less communication gap and less agency cost. Independent

directors on the board have an insignificant relationship with accounting performance while a significant positive relationship with the firm's market value. In India, 65% of firms have their CEOs as chairman of the board. The above tables show that CEO Duality has either a negative or no relationship with firm performance. IC is an essential factor for value creation and the performance of firms. Intellectual capital provides a competitive edge to the firms over its rivals in the market. According to the intellectual capital theory, the corporates' wealth depends upon HC, SC, and RC in a competitive business environment. The intellectual theory believes that companies have a competitive edge and value creation is only with acquiring new knowledge, skill development, competence, information technology, organisational culture, and intellectual property. It further states that disclosing intangibles is crucial for the firm's operations.

Along with the intellectual theory, resource dependency theory also focuses on value creation through intangibles which can give a competitive edge to the firms in the market. Resource dependency theory focuses on resource capabilities and their connection with competitiveness. The firm's strategic focus should be on resource capabilities to compete with an external environment.

Our results support the arguments of IC theory and resource independency theory. The findings of this chapter reveal that IC has a significant positive impact on accounting-based performance and market value. It means that companies with higher intellectual capital are competitive in the market. In table 6.11, value-added intellectual capital positively correlates with a firm performance at a 1% significance level. Further, the findings of this chapter reveal that IC explains the portion of the relationship between CG and FP. Our results point out that HC and SC are highly significant to the financial performance of firms. Our findings should encourage policymakers and companies to focus on human and structural capital by investing in acquiring knowledge, Information technology, and skills and creating intellectual properties and competence of human resources. These findings also require the attention of corporate boards to set long-term strategies for creating intellectual capital.

CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

6.1 Introduction

As stated in many sections of the study, this thesis aims to investigate the relationship between CG and IC with the performance of the Indian listed firms. Furthermore, to investigate the mediation effect of IC on the relationship between CG and FP. The motivation of this study is inconsistent literature (Almaqtari et al., 2020; Hermuningsih et al., 2020; Lungu et al., 2020; Ullah et al., 2018) on the relationship between CG and FP in developing countries. And the ongoing debate in India on the effectiveness of CG after several corporate failures and scams. CG is among the most debated topics in business and finance research. Researchers and academics have yet to conclude the relationship between CG and FP (Goel, 2022). The debate on corporate governance and intellectual capital disclosures which has a consequent effect on FP, has attracted the interest of investors, shareholders, and other stakeholders. This study attempts to contribute to the literature by taking 292 BSE-listed firms from 2015 to 2020. The time period of the study was deliberately taken after the corporate governance reforms in 2013. A dynamic balanced panel data was analysed through a GMM estimators. The presence of endogeneity in the dynamic relationship between CG and FP may have caused inconsistency in the literature outcomes. To overcome the endogeneity issues, the Arellano and Bond method was followed.

A wide range of variables were covered to test the relationship: board size, board independence, CEO Duality, board meetings, AC size and AC independence and meetings. The performance variables were accounting, and market based, such as ROA, ROE, Tobinq and DPO. The Value-Added Method was followed to cover the intellectual capital variables.

6.2 Review of Study

Chapter 1 of the Study covered the background of CG and IC. It includes the purpose, definitions, models and theories.

Chapter 2 covered CG's relevant thematic literature review (Board Characteristics and AC) and FP. Previous studies showed inconsistent CG and FP relations across developed and developing countries. Chapter 2 also covered the literature on intellectual capital, which shows that companies that invest in intellectual capital are more likely to have higher market valuation and profitability than those who do not invest or invest less.

Chapter 3 covered the methodology of the study. It includes the research gap, problem of the statement, variable descriptions, sample and data collection and empirical models.

Chapter 4 covered the development of CG in India. It includes the reforms and changes in CG practices since 1998, when CII recommended the first corporate governance codes.

Chapter 5 presents the results of CG and FP of Indian listed businesses from 2015 to 2020. The results of this chapter were mixed where it rejected and confirmed the results of previous studies conducted on Indian listed firms. Chapter 5 also presented the relationship between IC and FP and the mediation effect of IC on the relationship between CG and FP. The results of this chapter confirmed the findings of previous studies.

The outcomes of this thesis can be helpful for several stakeholders. The empirically tested hypothesis can provide insights to the policymakers, shareholders, and companies to make future regulations and suggestions.

6.3 Summary of Major Findings

Among the parameters of corporate governance, board independence sought the major attention of policymakers, investors, shareholders, and researchers. The study's findings reveal that board independence significantly influences the market value of the firms in India, which reflects the belief of resource

dependency theory that corporate governance with the majority of independent directors increases the firm's market value. At the same time, the board size, CEO Duality, board meetings, and audit committee do not influence the firm performance. It portrays that despite frequent reforms since early 2000, India still needs to improve corporate governance practices. The reward of Those reforms is reflected in the global improvement in transparency and protection of the shareholder's interest index. So, one can claim that the CG practices in India are based on one of the basic principles of agency theory which is the belief that CG protects the interest of shareholders by reducing agency problems. On the contrary, one can also claim that the interest of shareholders is to maximise the returns, which is also one of the beliefs of agency theory.

Further findings from the study depict that the unification of the CEO and Chairman of the Board (CEO-DUALITY) significantly negatively influences the firm's market value. According to the organisational theory, such roles can reflect strong leadership, but agency theory opposes the role of the CEO as a chairman and calls it CEO entrenchment.

In the modern business environment, companies can survive for the long term only by acquiring new knowledge, information technology, skill development, organisation culture, competence, and intellectual property. Being an emerging economy, India has a huge potential for intellectual

capital in terms of human and structural capital resources. The study's findings show that IC significantly influences the performance of Indian listed firms, especially Human and structural capital. Companies with higher IC are competitive in the Indian market. The intellectual capital theory believes that corporations' wealth depends upon HC, structural capital, and relational capital, which can provide a competitive edge to the companies over their rivals.

Further, the study found that CG has a direct positive effect on IC. Therefore, IC partially explains the relationship between CG and FP. The resource dependency theory states that CG helps organisations to increase resource capabilities by attracting human, physical and structural capital, which has a greater impact on the market valuation and profitability of the firm. The stewardship theory stresses empowering employees by providing training, skill development, and knowledge, which leads to the creation of human capital.

6.4 Implications

The World Bank's larger definition of CG captures its significance for societal stability and equity. "Corporate governance is concerned with balancing the interests of the company with those of its shareholders and stakeholders," Using the governance framework, we may both encourage and mandate efficient use of resources, as well as hold people in charge of those resources accountable for their actions. The objective is to as closely synchronise the interests of people, corporations, and society as feasible. The connection between CG and firms' financial success is of interest to practitioners, academics, and policymakers.

6.4.1 For investors:

All shareholders, stakeholders, employees, and customers have recognised the corporate governance practices, which directly influence the company's credibility. In either direction, the quality of corporate governance practices will impact the company's valuation. This research shows that some aspects of corporate governance affect how well a company performs. The study's outcomes should help investors invest in companies with higher board independence. It should encourage investors to invest in companies with higher intellectual capital resources.

6.4.2 For Policy Makers:

Despite the frequent efforts in corporate governance reforms, the Board's composition has yet to impact firm performance. Policymakers should make further efforts to make regulations to set the right composition of the Board by appointing a high-level committee that should include the members representing all stakeholders. Based on study findings, Policymakers should regulate the separation of the CEO and Chairman roles. Policymakers should regularise the intellectual capital disclosures that encourage domestic and foreign investors.

6.4.3 For Companies

Companies should experiment with Different board compositions to select the right Board (appropriate board size and audit committee) according to their business type and size with respect to the law. Further, companies should divert a fair portion of their funds to invest in intellectual capital resources.

6.5 RECOMMENDATIONS

ISSUE	Regulatory Reforms
	<p><u>Regulations</u> Since 1998, India's corporate governance regulations have changed on average every five years.</p> <p><u>Findings</u> Regulatory reforms in corporate governance in India have improved the corporate governance global index (board strength, shareholders' rights, transparency, and conflict of interest).</p> <p><u>Recommendation</u> Policymakers should propose long-term reforms in corporate governance by considering all the previous events such as financial distresses, corporate scams, and present challenges. The long-term policy change will allow organisations to voluntarily experiment and adopt universally accepted practices and different combinations of board structures concerning the law. The long-term reforms will help in the regime change in the Indian business environment.</p>
ISSUE	Regulatory Authorities
	<p>Current Regulatory Issue India's present regulatory framework consists of several regulatory authorities such as SEBI, RBI, MCA, PFRDA, IBBI, IRDAI, and ICAI.</p> <p>Findings Companies take advantage of the complexity of the market and find loopholes easier because there are multiple regulators. Each time fraud is discovered, a new regulatory authority is created.</p> <p>Recommendation</p>

	To effectively regulate and monitor corporations and markets, it is imperative to create an umbrella organization that the Ministry of Finance does not control.
ISSUE	Board Size, Education, Non-Executive Directors, and performance evaluation.
	<p>Regulations</p> <p>The firm should have more than 50% non-executive directors on the Board. SEBI guidelines for evaluation 2017</p> <p>Findings</p> <p>The average board size of sample firms is about nine directors. Board size containing both executive and non-executive directors have no relationship with accounting-based performance measures except dividend pay-out and a significant negative relationship with the market performance of firms.</p> <p>Recommendation</p> <p>There should be a minimum 70% limit on the non-executive directors with different educational backgrounds for the listed companies, except for newly listed firms. Non-executive directors could bring outside information and expertise.</p> <p>There should be a diversification in the Board with different skill sets, technical knowledge, concerned business knowledge, and expertise. A fully diversified board can bring all the perspectives related to business, market, and technology.</p> <p>There should be minimum board size requirements for firms with different sectors. Sectors like technology, pharmaceutical, automobile, telecommunication, and E-Commerce needs a high quality of innovation and resources.</p> <p>The performance evaluation of directors should be disclosed to achieve the desired goal from performance evaluation.</p>
ISSUE	Board Independence, CEO-Duality
	<p>Current Regulations</p> <p>If the chairman of the Board is executive, then 50 % board should comprise independent directors; otherwise, one-third (1/3)</p> <p>Findings</p> <p>On average, 48% of directors are independent in public listed firms. Board Independence has no significant effect on accounting-based performance</p>

	<p>measures, while board independence has a significant positive influence on the firm's market performance.</p> <p>On average, 69% of CEOs hold the chairmanship of the Board. When the chairman is the firm's CEO, it negatively influences firm performance.</p> <p>Recommendation</p> <p>There should be a minimum of 60% independent directors on the Board if the chairman is an executive in public listed firms. The executive chairman and controlling shareholders can influence the Board and compromise the interest of minority shareholders and other stakeholders.</p> <p>There should be a separation between the role of the chairman and the CEO.</p> <ol style="list-style-type: none"> 1. CEO as a chairman can bring conflict of interest in performance evaluation 2. It can drain the CEOs' focus on strategy implementation 3. It can bring a conflict in the perspective of the CEO and chairman 4. CEO as a Chairman can be critical of questioning and viewpoints of individuals. 5. It can block the individual directors' viewpoint. 6. It can bring authoritative culture to the Board. 7. It can be influential for independent directors to lay their independent perspectives.
ISSUE	Board Meetings
	<p>Current Regulations</p> <p>There shall be four meetings in a financial year</p> <p>Findings</p> <p>No relationship is being inherited between meeting frequency of board and FP.</p> <p>Recommendations</p> <p>There should be at least six board meetings in a year. After every two months,</p> <ol style="list-style-type: none"> 1. Directors should access and discuss important issues more often. 2. The frequent meeting notes can interest investors in bringing more investment or preventing pulling—one back.

	<p>3. It can be helpful for the directors and management in the implementation of strategies to assess the firm's market performance and availability of resources and their optimal use.</p>
ISSUES	Audit Committee
	<p>Current Regulations The AC should include at least three members. The majority of the AC members should be independent, and every member must be non-executive.</p> <p>Findings The relationship between the AC and FP is insignificant.</p> <p>Recommendation. The AC should have at least six members, the majority of whom should be independent. There can be greater knowledge, competence, and less neglect on the audit committee with more members.</p>
ISSUE	Intellectual Capital
	<p>Regulations No Specific regulations</p> <p>Findings The relationship between IC and FP is significant CG has a positive influence on IC. IC mediated the relationship between CG and FP.</p> <p>Recommendation. There should be structured regulations for all the listed and unlisted companies to invest in intellectual capital. The investment in intellectual capital will not only increase the shareholders' wealth but also prevent the businesses' collapse due to market competition. Complete IC disclosures should be made necessary for listing companies. The intellectual capital disclosures will help investors, shareholders and other stakeholders to monitor the business's health. The BODs should take responsibility to make long term strategies and decisions for intellectual capital generation</p>

6.6 Limitations of the Study

The study's findings present extensive evidence about the relationship between CG, IC, and FP. However, the authors have acknowledged the potential limitations of the study. First study did not include all the corporate governance parameters such as corporate governance scores, financial qualification of directors, risk management, transparency, accountability of directors and directors' performance evaluation. Second, the time of the study was defined after the companies act 2013 was administered and did not include the financial sector firms. Third, this study only included two control variables: firm size and leverage.

5.7 FUTURE SCOPE

1. Future studies should include board monitoring, minority shareholders' interest, board expertise, directors' performance evaluation, directors' tenure, remuneration, capital structure, industry type, and CSR Disclosures
2. By collecting primary data, future studies should cover the corporate governance mechanisms, such as demographic factors and stakeholders' perceptions.
3. Future studies could compare tech and non-tech companies, as tech companies need more diversified and knowledgeable directors.
4. Future studies should include more performance and control variables, e.g. debtor's turnover ratio, working capital ratio, debt to equity ratio and market capitalization.
5. Future studies should be done comparing two time periods, e.g. before and after reforms, before and after financial crises, and before and after corporate scandals.
6. Future researchers should study the solely listed financial sector by including NBFC and investment institutions as their accounting system differs from the non-financial sector and has more restrictions.
7. Future studies can compare corporate governance practices, transparency, effectiveness and independence between family and non-family-owned businesses as India has many businesses owned by families.
8. Future studies can also be diverted into comparing developed and developing countries with other Asian countries.

6.8 Conclusion

The main purpose of this study is to assess the relationship between CG, IC, and FP. The authors believe that the objectives of the study were achieved, and all the research questions were properly addressed. This study has used multiple empirical models to achieve the desired

outcomes. Based on the study's findings, it can be concluded that corporate governance influences some performance attributes of the Indian listed firm. The output from the statistical analysis revealed that after several attempts at corporate governance reforms in India, the structure and combination of the board needs an improvement to be right to influence the corporate financial performance.

The empirical findings demonstrate that intellectual and human capital have an impact on the financial success of Indian listed companies. The results obtained from the statistical analysis depict that intellectual capital influences the relationship between CG and FP.

The thesis findings do not completely agree with the theories and literature reviewed. Thus, the study suggests that CG and IC practices must be improved. The study's findings suggested that CEO duality negatively influences company performance; thus, to protect the interest of all stakeholders, the matter should be discussed as agency theory warned that CEO duality affects the board monitoring and compromises the independence for decision making. Further, the study's findings also revealed that independent directors positively influence firm performance. Resource dependency theory suggests that they have a greater external connection to access the resources, leading to a greater market valuation and profitability.

Many studies have investigated the relationship between CG and FP in developing and developed countries. This study attempts to contribute to literature which may be helpful for the stakeholders to establish the relationship between CG and FP. Although the relationship between IC and FP has limited literature in developing countries, especially in India, this study will also help the stakeholders to further explore the area by adding new dimensions and parameters. The policymakers should investigate the matter to protect the interest of stakeholders by inducing long-term regulations based on beliefs of relevant theories and literature review.

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Appendix I Board Characteristics and Return on Asset

Step 1 Pooled OLS

Table 1

regress Return on Asset Return on Asset 1 BSIZE BIND CEODUAL
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

Source	SS	df	MS			
Model	24991.7926	9	2776.86585	Number of obs =		
Residual	87386.7265	1071	81.5935822	F(9, 1071) =		
Total	112378.519	1080	104.054184	Prob > F =		
				R-squared =		
				Adj R-squared =		
				Root MSE =		

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Int	
ROA1	.4533479	.0275376	16.46	0.000	.3993141	.5
BSIZE	.2856212	.1977327	1.44	0.149	-.1023662	.6
BIND	.1701466	.3191501	0.53	0.594	-.4560838	.7
CEODUAL	-1.120529	.5830016	-1.92	0.055	-2.264484	.0
GENDER	0	(omitted)				
BMEET	.2837254	.2585624	1.10	0.273	-.2236208	.7
LEVERAGE	-.0039021	.0087415	-0.45	0.655	-.0210545	.0
Y_2015	0	(omitted)				
Y_2016	-.1449701	.7852954	-0.18	0.854	-1.685862	1.
Y_2017	-.6024849	.7780859	-0.77	0.439	-2.129231	.9
Y_2018	-.4501913	.7769371	-0.58	0.562	-1.974683	
Y_2019	0	(omitted)				
_cons	-.5672354	1.753116	-0.32	0.746	-4.007167	2.

Step 2 Fixed effect

Table 2

xtreg Return on Asset Return On Asset 1 BSIZE BIND CEO DUAL
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,

```

note: GENDER omitted because of collinearity
note: Y_2015 omitted because of collinearity
note: Y_2016 omitted because of collinearity

Fixed-effects (within) regression              Number of obs   =   1081
Group variable: compid                       Number of groups =    272

R-sq:  within = 0.0252                       Obs per group:  min =    1
        between = 0.0628                      avg           =    4.0
        overall = 0.0481                      max           =    4

                                                F(9,800)       =    2.30
corr(u_i, Xb) = -0.1691                      Prob > F       =    0.0152

```

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.0851762	.0297444	2.86	0.004	.0267899	.1435624
BSIZE	-.4736925	.5115518	-0.93	0.355	-1.477835	.5304499
BIND	1.60667	.7535402	2.13	0.033	.1275204	3.085819
CEODUAL	-5.780713	8.147669	-0.71	0.478	-21.77405	10.21262
GENDER	0	(omitted)				
BMEET	.4123201	.3446069	1.20	0.232	-.2641204	1.08876
LEVERAGE	-.0140964	.0080355	-1.75	0.080	-.0298695	.0016767
Y_2015	0	(omitted)				
Y_2016	0	(omitted)				
Y_2017	-.1868496	.6198626	-0.30	0.763	-1.403599	1.0299
Y_2018	-.11597	.6327436	-0.18	0.855	-1.358004	1.126064
Y_2019	.4638492	.6426339	0.72	0.471	-.7975986	1.725297
_cons	3.502978	6.224428	0.56	0.574	-8.715163	15.72112
sigma_u	8.0562727					
sigma_e	6.9799062					
rho	.57122015	(fraction of variance due to u_i)				

```

F test that all u_i=0:      F(271, 800) =    3.67      Prob > F = 0.0000

```

Step 3 Difference generalised method of moments

One Step difference generalized method of moments

Table:3

```
xtabond2 Return On Asset Return On Asset 1 BSIZE BIND CEO DUAL  
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,  
generalised method of moments(Return On Asset1, collapse) iv ( BSIZE  
BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018  
Y_2019) noleveleq nodiffsargan robust small orthogonal
```

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 GENDER dropped due to collinearity
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step difference GMM

Group variable: <code>compid</code>	Number of obs	=	809
Time variable : <code>years</code>	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271)		avg	= 2.99
Prob > F		max	= 3

ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.7906341	.7078914	1.12	0.265	-.6030315	2.1843
BSIZE	-9.442159	10.58682	-0.89	0.373	-30.28503	11.40071
BIND	-8.844174	16.08198	-0.55	0.583	-40.50566	22.81732
CEODUAL	-1.037776	6.761126	-0.15	0.878	-14.34879	12.27323
BMEET	.8457147	1.418983	0.60	0.552	-1.947917	3.639346
LEVERAGE	3.92329	6.867115	0.57	0.568	-9.596386	17.44296
Y_2016	-25.90888	32.31637	-0.80	0.423	-89.53194	37.71417
Y_2017	-4.607456	5.698709	-0.81	0.420	-15.82682	6.611913
Y_2018	-1.500477	1.815001	-0.83	0.409	-5.073771	2.072817

Instruments for orthogonal deviations equation

Standard

FOD. (BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
 GMM-type (missing=0, separate instruments for each period unless collapsed)
 L(1/4).ROA1 collapsed

Arellano-Bond test for AR(1) in first differences: z = 0.44 Pr > z = 0.662
 Arellano-Bond test for AR(2) in first differences: z = 1.14 Pr > z = 0.254

Sargan test of overid. restrictions: chi2(1) = 0.02 Prob > chi2 = 0.900
 (Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 1.000
 (Robust, but weakened by many instruments.)

Two step difference generalized method of moments

Table 4

xtabond2 Return On Asset Return On Asset 1 BSIZE BIND CEO DUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 generalised method of moments(Return On Asset1, collapse) iv (BSIZE
 BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018
 Y_2019) nolevelq nodiffsargan twostep robust small orthogonal

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 GENDER dropped due to collinearity
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271)		avg =	2.99
Prob > F		max =	3

ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.7197971	.6801236	1.06	0.291	-.6192005	2.058795
BSIZE	3.365867	19.97975	0.17	0.866	-35.9694	42.70113
BIND	-35.868	46.54917	-0.77	0.442	-127.512	55.77597
CEODUAL	-2186.113	3446.565	-0.63	0.526	-8971.559	4599.333
BMEET	2.94789	3.849057	0.77	0.444	-4.629965	10.52575
LEVERAGE	6.32625	7.547503	0.84	0.403	-8.532945	21.18544
Y_2016	-45.68292	49.4292	-0.92	0.356	-142.997	51.63114
Y_2017	-5.29528	6.057722	-0.87	0.383	-17.22146	6.630898
Y_2018	-.5660079	1.946056	-0.29	0.771	-4.397319	3.265303

Instruments for orthogonal deviations equation

Standard

FOD. (BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/4).ROA1 collapsed

Step 4 System generalised method of moments

One Step system generalized method of moments

Table 5

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 GENDER dropped due to collinearity
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM

Group variable: compid	Number of obs	=	1081
Time variable : years	Number of groups	=	272
Number of instruments = 13	Obs per group: min	=	1
F(9, 271) = 22.20	avg	=	3.97
Prob > F = 0.000	max	=	4

ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.0145216	.0595221	0.24	0.807	-.1026629	.131706
BSIZE	.4119557	.343944	1.20	0.232	-.2651863	1.089098
BIND	.2128889	.5600238	0.38	0.704	-.8896615	1.315439
CEODUAL	-1.321708	1.042856	-1.27	0.206	-3.374838	.7314215
BMEET	.238154	.3887991	0.61	0.541	-.5272967	1.003605
LEVERAGE	-.0100903	.0048846	-2.07	0.040	-.0197069	-.0004738
Y_2016	-.3012088	.8578928	-0.35	0.726	-1.990191	1.387773
Y_2017	-.6023728	.5850734	-1.03	0.304	-1.75424	.5494941
Y_2018	-.482486	.5829111	-0.83	0.409	-1.630096	.6651238
_cons	.9421153	2.910374	0.32	0.746	-4.787703	6.671933

Instruments for orthogonal deviations equation

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/4).ROA1 collapsed

Instruments for levels equation

Standard

BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018

Y_2019

_cons

GMM-type (missing=0, separate instruments for each period unless collapsed)

D.ROA1 collapsed

Arellano-Bond test for AR(1) in first differences: z = -2.38 Pr > z = 0.017
 Arellano-Bond test for AR(2) in first differences: z = 1.48 Pr > z = 0.138

Sargan test of overid. restrictions: chi2(3) = 121.62 Prob > chi2 = 0.000
 (Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(3) = 8.95 Prob > chi2 = 0.030
 (Robust, but weakened by many instruments.)

Two step system generalized method of moments

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM

```

```

Group variable: compid                Number of obs   =    1081
Time variable : years                 Number of groups =    272
Number of instruments = 13            Obs per group: min =    1
F(9, 271) = 22.23                    avg =    3.97
Prob > F = 0.000                     max =    4

```

ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	-.0794847	.0579746	-1.37	0.172	-.1936224	.0346531
Bsize	.4298975	.3488044	1.23	0.219	-.2568135	1.116608
BIND	.3636469	.5944533	0.61	0.541	-.8066868	1.533981
CEODUAL	-2.256706	.9874584	-2.29	0.023	-4.20077	-.3126407
BMEET	-.162947	.3738445	-0.44	0.663	-.8989557	.5730617
LEVERAGE	-.0116416	.0049966	-2.33	0.021	-.0214787	-.0018044
Y_2016	.7699763	.7619084	1.01	0.313	-.7300357	2.269988
Y_2017	-.2852511	.5048166	-0.57	0.573	-1.279112	.7086098
Y_2018	-.0553619	.4994975	-0.11	0.912	-1.038751	.928027
_cons	2.977338	2.705949	1.10	0.272	-2.350017	8.304692

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
Bsize BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

```

```

Arellano-Bond test for AR(1) in first differences: z = -2.17 Pr > z = 0.030
Arellano-Bond test for AR(2) in first differences: z = 1.44 Pr > z = 0.150

```

```

Sargan test of overid. restrictions: chi2(3) = 121.62 Prob > chi2 = 0.000
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 8.95 Prob > chi2 = 0.030
(Robust, but weakened by many instruments.)

```

Table 6

Appendix II Board Characteristics and Return on Equity

Return On Equity (dependent variable)

Step 1 Pooled OLS

regress Return on Equity Return on Equity1 BSIZE BIND CEO DUAL
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

Table 1

Source	SS	df	MS	Number of obs	
Model	514996.129	9	57221.7921	F(9, 1071)	Prob > F
Residual	3061819.87	1071	2858.84208	R-squared	Adj R-squared
Total	3576816	1080	3311.86666	Root MSE	

ROE	Coef.	Std. Err.	t	P> t	[95% Conf.]
ROE1	.0384784	.0190446	2.02	0.044	.0011094
BSIZE	1.219085	1.170062	1.04	0.298	-1.076789
BIND	-.313317	1.889137	-0.17	0.868	-4.020147
CEODUAL	-.0369053	3.45021	-0.01	0.991	-6.806843
GENDER	0	(omitted)			
BMEET	3.767547	1.530406	2.46	0.014	.7646131
LEVERAGE	.6501871	.0516921	12.58	0.000	.5487579
Y_2015	0	(omitted)			
Y_2016	-4.4874	4.650166	-0.96	0.335	-13.61187
Y_2017	5.959602	4.605691	1.29	0.196	-3.0776
Y_2018	-1.886833	4.601697	-0.41	0.682	-10.9162
Y_2019	0	(omitted)			
_cons	-19.90783	10.36961	-1.92	0.055	-40.25488

Step 2 Fixed effect

xreg Return On Equity Return On Equity1 BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 fe

Table 2

```

note: GENDER omitted because of collinearity
note: Y_2015 omitted because of collinearity
note: Y_2019 omitted because of collinearity

Fixed-effects (within) regression              Number of obs   =    1081
Group variable: compid                       Number of groups =    272

R-sq:  within = 0.1568                       Obs per group:  min =     1
        between = 0.0220                      avg   =     4.0
        overall = 0.0654                      max   =     4

                                                F(9, 800)       =    16.54
corr(u_i, Xb) = -0.4817                      Prob > F        =    0.0000
  
```

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ROE1	-.0834341	.0215284	-3.88	0.000	-.125693	-.0411752
BSIZE	6.55814	3.754896	1.75	0.081	-.8124714	13.92875
BIND	1.583655	5.529173	0.29	0.775	-9.269746	12.43706
CEODUAL	-27.69754	59.77083	-0.46	0.643	-145.0237	89.62864
GENDER	0	(omitted)				
BMEET	6.070468	2.538519	2.39	0.017	1.087522	11.05341
LEVERAGE	.5917302	.059183	10.00	0.000	.4755579	.7079024
Y_2015	0	(omitted)				
Y_2016	.6371122	4.718075	0.14	0.893	-8.624156	9.898381
Y_2017	7.781123	4.449882	1.75	0.081	-.9537006	16.51595
Y_2018	.0553751	4.421187	0.01	0.990	-8.623123	8.733873
Y_2019	0	(omitted)				
_cons	-73.83982	46.44052	-1.59	0.112	-164.9995	17.31985
sigma_u	38.782778					
sigma_e	51.205248					
rho	.36453568	(fraction of variance due to u_i)				

```

F test that all u_i=0:      F(271, 800) =    1.36      Prob > F = 0.0008
  
```

Step 3 Difference generalised method of moments

One step difference generalized method of moments

xtabond2 Return On Equity Return On Equity1 BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 generalised method of moments(Return On Asset1, collapse) iv (BSIZE
 BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018
 Y_2019) nolevel eq nodiffs argan robust small orthogonal

Table 3

Dynamic panel-data estimation, one-step difference GMM					
Group variable: compid		Number of obs		=	
Time variable : years		Number of groups		=	
Number of instruments = 10		Obs per group: min		=	
F(0, 271) = .		avg		=	
Prob > F = .		max		=	
ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf.]
ROE1	.2035743	.6320397	0.32	0.748	-1.040758
BSIZE	2.431181	11.12741	0.22	0.827	-19.47598
BIND	-6.750653	17.0157	-0.40	0.692	-40.25041
CEODUAL	-30.76584	14.96888	-2.06	0.041	-60.23591
BMEET	9.387469	7.072716	1.33	0.186	-4.536986
LEVERAGE	3.245189	5.847203	0.55	0.579	-8.266528
Y_2016	-19.1621	38.73816	-0.49	0.621	-95.42811
Y_2017	4.968012	10.07743	0.49	0.622	-14.87199
Y_2018	-2.895384	7.97867	-0.36	0.717	-18.60344
Instruments for orthogonal deviations equation					
Standard					
FOD. (BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018					
GMM-type (missing=0, separate instruments for each period unless co					
L(1/4).ROA1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -1.23 Pr >					
Arellano-Bond test for AR(2) in first differences: z = 0.41 Pr >					
Sargan test of overid. restrictions: chi2(1) = 3.26 Prob > chi					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi					
(Robust, but weakened by many instruments.)					

Two step difference generalized method of moments

xtabond2 Return On Equity Return On Equity1 BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 generalised method of moments (Return On Asset1, collapse) iv (BSIZE
 BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018
 Y_2019) nolevel eq nodiffsargan twostep robust small orthogonal

table 4

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor s
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step
Dynamic panel-data estimation, two-step difference GMM
  
```

Group variable: compid	Number of obs	=				
Time variable : years	Number of groups	=				
Number of instruments = 10	Obs per group: min	=				
F(0, 271)	=	.			avg	=
Prob > F	=	.			max	=

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Inte
ROE1	1.584541	1.16221	1.36	0.174	-.7035666 3.
BSIZE	312.626	189.0994	1.65	0.099	-59.66466 684
BIND	-799.0003	498.051	-1.60	0.110	-1779.541 181
CEODUAL	-59247.47	36546.13	-1.62	0.106	-131197.9 127
BMEET	83.20064	51.54628	1.61	0.108	-18.28142 184
LEVERAGE	88.58117	56.22295	1.58	0.116	-22.10812 199
Y_2016	-698.1061	441.6777	-1.58	0.115	-1567.662 171
Y_2017	-34.67968	27.64148	-1.25	0.211	-89.09902 19.
Y_2018	6.540808	7.839828	0.83	0.405	-8.893903 21.

```

Instruments for orthogonal deviations equation
Standard
FOD.(BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_20
GMM-type (missing=0, separate instruments for each period unless collap
L(1/4).ROA1 collapsed
  
```

```

Arellano-Bond test for AR(1) in first differences: z = 1.24 Pr > z
Arellano-Bond test for AR(2) in first differences: z = . Pr > z
  
```

```

Sargan test of overid. restrictions: chi2(1) = 3.26 Prob > chi2
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2
(Robust, but weakened by many instruments.)
  
```

Step 4 System generalised method of moments

One step system generalized method of moments

xtabond2 Return On Equity Return On Equity1 BSIZE BIND CEODUAL
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
generalised method of moments(Return On Asset1, collapse) iv (BSIZE
BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017
Y_2018 Y_2019, equation(level)) nodiffsargan robust orthogonal small

Table 5

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM
-----
Group variable: compid                Number of obs   =    1081
Time variable : years                 Number of groups =    272
Number of instruments = 13            Obs per group: min =     1
F(9, 271) = 27.30                    avg =    3.97
Prob > F = 0.000                     max =     4

-----

```

ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROE1	-.0127622	.4144486	-0.03	0.975	-.8287104	.8031861
BSIZE	1.126365	1.508152	0.75	0.456	-1.842818	4.095549
BIND	-.2673491	1.77114	-0.15	0.880	-3.754293	3.219595
CEODUAL	.0566741	4.758784	0.01	0.991	-9.312211	9.42556
BMEET	3.757327	2.592995	1.45	0.148	-1.34765	8.862303
LEVERAGE	.6501083	.0591861	10.98	0.000	.5335853	.7666312
Y_2016	-4.104748	3.982677	-1.03	0.304	-11.94567	3.736172
Y_2017	5.969599	5.729847	1.04	0.298	-5.311075	17.25027
Y_2018	-1.458092	5.049695	-0.29	0.773	-11.39971	8.483526
_cons	-18.8162	11.97817	-1.57	0.117	-42.3983	4.765901

```

-----
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed
-----

Arellano-Bond test for AR(1) in first differences: z = -1.24 Pr > z = 0.217
Arellano-Bond test for AR(2) in first differences: z = -0.02 Pr > z = 0.983

-----
Sargan test of overid. restrictions: chi2(3) = 17.84 Prob > chi2 = 0.000
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 15.44 Prob > chi2 = 0.001
(Robust, but weakened by many instruments.)
-----

```


Two step system generalized method of moments
 xtabond2 Return On Equity Return On Equity1 BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 generalised method of moments(Return On Asset1, collapse) iv (BSIZE
 BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017
 Y_2018 Y_2019, equation(level)) nodiffsargan twostep robust orthogonal
 small

Table 6a

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM

Group variable: compid                Number of obs   =   1081
Time variable : years                Number of groups =    272
Number of instruments = 13           Obs per group: min =    1
F(9, 271) = 28.97                   avg = 3.97
Prob > F = 0.000                    max = 4


```

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROE1	.0708072	.2871548	0.25	0.805	-.4945307	.636145
BSIZE	1.576116	1.032798	1.53	0.128	-.4572108	3.609443
BIND	-.6657172	1.530828	-0.43	0.664	-3.679544	2.348109
CEODUAL	-3.61979	4.14484	-0.87	0.383	-11.77997	4.54039
BMEET	1.613991	1.148174	1.41	0.161	-.6464834	3.874465
LEVERAGE	.6531259	.0527571	12.38	0.000	.54926	.7569919
Y_2016	-2.635785	4.354146	-0.61	0.545	-11.20804	5.936467
Y_2017	2.615902	4.186465	0.62	0.533	-5.626228	10.85803
Y_2018	-.5830287	2.619268	-0.22	0.824	-5.739728	4.573671
_cons	-9.500947	7.472806	-1.27	0.205	-24.21308	5.211187

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

Arellano-Bond test for AR(1) in first differences: z = -1.12 Pr > z = 0.264
Arellano-Bond test for AR(2) in first differences: z = 0.26 Pr > z = 0.797

Sargan test of overid. restrictions: chi2(3) = 17.84 Prob > chi2 = 0.000
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 15.44 Prob > chi2 = 0.001
(Robust, but weakened by many instruments.)

```

Table 6b

xtabond2 Return On Equity Return On Equity1 BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 generalised method of moments(Return On Asset1, collapse) iv (BSIZE
 BIND GENDER LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 equation(level)) nodiffsargan twostep robust orthogonal small

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
-----
Group variable: compid                Number of obs   =    1081
Time variable : years                 Number of groups =     272
Number of instruments = 11           Obs per group: min =     1
F(9, 271) = 5.96                    avg = 3.97
Prob > F = 0.000                    max = 4

-----

```

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROE1	.0777491	.4191981	0.19	0.853	-.7475499	.9030481
BSIZE	-8.651447	15.19297	-0.57	0.570	-38.5627	21.2598
BIND	-10.38686	28.64217	-0.36	0.717	-66.7763	46.00259
CEODUAL	-178.4562	1430.105	-0.12	0.901	-2993.985	2637.073
BMEET	163.7365	187.6335	0.87	0.384	-205.6681	533.1412
LEVERAGE	.494715	.2955791	1.67	0.095	-.0872081	1.076638
Y_2016	-49.21105	46.81265	-1.05	0.294	-141.3738	42.95165
Y_2017	-3.91704	16.38449	-0.24	0.811	-36.1741	28.34002
Y_2018	1.962397	11.44978	0.17	0.864	-20.57943	24.50422
_cons	-595.1692	1659.84	-0.36	0.720	-3862.989	2672.651

```

-----
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND GENDER LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

-----
Arellano-Bond test for AR(1) in first differences: z = -1.18 Pr > z = 0.238
Arellano-Bond test for AR(2) in first differences: z = -0.25 Pr > z = 0.799

-----
Sargan test of overid. restrictions: chi2(1) = 0.78 Prob > chi2 = 0.378
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.39 Prob > chi2 = 0.531
(Robust, but weakened by many instruments.)

```

Appendix III Board Characteristics and TOBINQ

TOBING (dependent variable)

Step 1 Pooled OLS

regress TOBINQ TOBINQ1 BSIZE BIND CEODUAL GENDER BMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

Table 1

Source	SS	df	MS		
Model	415130.283	9	46125.587	Number of obs =	
Residual	3809825.78	1071	3557.2603	F(9, 1071) =	
Total	4224956.07	1080	3911.99636	Prob > F =	
				R-squared =	
				Adj R-squared =	
				Root MSE =	

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. I
TOBINQ1	.2876582	.0320771	8.97	0.000	.224717
BSIZE	-2.577997	1.304666	-1.98	0.048	-5.137988
BIND	7.804391	2.109068	3.70	0.000	3.666016
CEODUAL	-12.80048	3.848486	-3.33	0.001	-20.35191
GENDER	0	(omitted)			
BMEET	-.5845696	1.707418	-0.34	0.732	-3.934833
LEVERAGE	-.0301032	.0576743	-0.52	0.602	-.1432707
Y_2015	0	(omitted)			
Y_2016	2.7336	5.186684	0.53	0.598	-7.443615
Y_2017	-2.588364	5.137608	-0.50	0.615	-12.66928
Y_2018	1.698892	5.131521	0.33	0.741	-8.370083
Y_2019	0	(omitted)			
_cons	11.09793	11.56004	0.96	0.337	-11.58497

Step 2 Fixed effect

xtreg TOBINQ TOBINQ1 BSIZE BIND CEODUAL GENDER BMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, fe

Table 2

```

note: GENDER omitted because of collinearity
note: Y_2015 omitted because of collinearity
note: Y_2016 omitted because of collinearity

Fixed-effects (within) regression              Number of obs   =   1081
Group variable: compid                       Number of groups =   272

R-sq:  within = 0.0208                       Obs per group:  min =    1
        between = 0.2888                      avg   =    4.0
        overall = 0.0495                      max   =    4

corr(u_i, Xb) = -0.3735                      F(9,800)       =    1.89
                                                Prob > F       =    0.0500

```

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	-.1069748	.0273937	-3.91	0.000	-.1607467	-.0532028
BSIZE	-.2584437	2.927598	-0.09	0.930	-6.005125	5.488238
BIND	.5064482	4.312544	0.12	0.907	-7.958789	8.971685
CEODUAL	-2.595731	46.63534	-0.06	0.956	-94.13781	88.94635
GENDER	0	(omitted)				
BMEET	-.3371319	1.974467	-0.17	0.864	-4.21288	3.538616
LEVERAGE	-.0110047	.0459648	-0.24	0.811	-.1012305	.0792211
Y_2015	0	(omitted)				
Y_2016	0	(omitted)				
Y_2017	-2.695601	3.550256	-0.76	0.448	-9.664517	4.273316
Y_2018	.749034	3.62093	0.21	0.836	-6.358612	7.85668
Y_2019	.4768901	3.680156	0.13	0.897	-6.747012	7.700793
_cons	25.89113	35.61138	0.73	0.467	-44.01166	95.79391
sigma_u	54.212711					
sigma_e	39.946642					
rho	.64810995	(fraction of variance due to u_i)				

```

F test that all u_i=0:      F(271, 800) =    5.86      Prob > F = 0.0000
.

```


Two step difference generalized method of moments
 . xtabond2 TOBINQ TOBINQ1 BSIZE BIND CEODUAL GENDER BMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (BSIZE BIND CEODUAL
 GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019) nolevelq
 nodiffsargan twostep robust small orthogonal

Table 4

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
  Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM

```

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271) = .	avg	=	2.99
Prob > F = .	max	=	3

TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	.026952	.2539696	0.11	0.916	-.4730522	.5269563
BSIZE	8.0402	17.30676	0.46	0.643	-26.0326	42.113
BIND	-14.65892	51.32044	-0.29	0.775	-115.6964	86.37851
CEODUAL	-1288.562	3632.726	-0.35	0.723	-8440.514	5863.391
BMEET	.4088289	3.465546	0.12	0.906	-6.413987	7.231645
LEVERAGE	1.0818	6.555834	0.17	0.869	-11.82504	13.98864
Y_2016	-9.230469	48.39628	-0.19	0.849	-104.511	86.05002
Y_2017	-3.278081	5.099276	-0.64	0.521	-13.31731	6.76115
Y_2018	1.420067	2.506033	0.57	0.571	-3.513701	6.353834

```

Instruments for orthogonal deviations equation
Standard
  FOD. (BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed

```

```

Arellano-Bond test for AR(1) in first differences: z = -0.32 Pr > z = 0.747
Arellano-Bond test for AR(2) in first differences: z = 1.72 Pr > z = 0.086

```

```

Sargan test of overid. restrictions: chi2(1) = 0.02 Prob > chi2 = 0.885
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 1.000
(Robust, but weakened by many instruments.)

```

Step 4 System generalised method of moments

One Step system generalized method of moments

```
. xtabond2 TOBINQ TOBINQ1 BSIZE BIND CEODUAL GENDER BMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
of moments( Return On Asset1, collapse) iv ( BSIZE BIND CEODUAL
GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
equation(level)) nodiffsargan robust orthogonal small
```

Table 5

```
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.
```

Dynamic panel-data estimation, one-step system GMM

```
Group variable: compid                Number of obs   =   1081
Time variable : years                 Number of groups =    272
Number of instruments = 13            Obs per group:  min =    1
F(9, 271) = 10.81                    avg = 3.97
Prob > F = 0.000                      max = 4
```

TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	-.1215666	.0698989	-1.74	0.083	-.2591805	.0160473
BSIZE	-2.743426	4.14861	-0.66	0.509	-10.91103	5.424176
BIND	8.930044	5.604316	1.59	0.112	-2.103488	19.96358
CEODUAL	-12.92066	8.78518	-1.47	0.143	-30.21653	4.375223
BMEET	-.1877709	3.131915	-0.06	0.952	-6.353747	5.978206
LEVERAGE	-.0455345	.0312616	-1.46	0.146	-.107081	.016012
Y_2016	.9324873	5.885257	0.16	0.874	-10.65415	12.51912
Y_2017	-2.860482	2.810404	-1.02	0.310	-8.393482	2.672519
Y_2018	.0773236	2.301586	0.03	0.973	-4.453938	4.608585
_cons	13.79321	20.86124	0.66	0.509	-27.27748	54.86391

```
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed
```

```
Arellano-Bond test for AR(1) in first differences: z = 0.38 Pr > z = 0.706
Arellano-Bond test for AR(2) in first differences: z = 0.42 Pr > z = 0.674
```

```
Sargan test of overid. restrictions: chi2(3) = 7.12 Prob > chi2 = 0.068
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 3.97 Prob > chi2 = 0.265
(Robust, but weakened by many instruments.)
```


Two step system generalized method of moments
 xtabond2 TOBINQ TOBINQ1 BSIZE BIND CEODUAL GENDER BMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (BSIZE BIND CEODUAL
 GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019,
 equation(level)) nodiffsargan two step robust orthogonal small

Table: 6

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step

Dynamic panel-data estimation, two-step system GMM

Group variable: compid                                Number of obs
Time variable : years                                Number of groups
Number of instruments = 13                            Obs per group: m
F(9, 271) = 11.31                                     a
Prob > F = 0.000                                     m


```

TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% C
TOBINQ1	-.1146018	.0552137	-2.08	0.039	-.22330
BSIZE	-6.766524	3.189611	-2.12	0.035	-13.046
BIND	13.51928	4.76867	2.84	0.005	4.1309
CEODUAL	-17.64963	8.082367	-2.18	0.030	-33.561
BMEET	.7483716	2.793533	0.27	0.789	-4.7514
LEVERAGE	-.041083	.0293843	-1.40	0.163	-.09893
Y_2016	-6.103456	3.977996	-1.53	0.126	-13.935
Y_2017	-4.34888	2.510742	-1.73	0.084	-9.2919
Y_2018	-.5839621	2.179787	-0.27	0.789	-4.8754
_cons	30.08905	17.80192	1.69	0.092	-4.9585

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless
D.ROA1 collapsed

Arellano-Bond test for AR(1) in first differences: z = 0.30 Pr >
Arellano-Bond test for AR(2) in first differences: z = 0.52 Pr >

Sargan test of overid. restrictions: chi2(3) = 7.12 Prob > chi
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 3.97 Prob > chi
(Robust, but weakened by many instruments.)

```

Appendix IV Board Characteristics and Dividend Pay-Out

DIVIDEND (dependent variable)

Step 1 Pooled OLS

regress DIVIDEND DIVIDEND1 BSIZE BIND CEODUAL GENDER
BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

Table 1

Source	SS	df	MS	Number of observations = 1071	
Model	63219.8203	9	7024.42447	F(9, 1071)	Prob > F
Residual	954958.49	1071	891.651252	R-squared	Adj R-squared
Total	1018178.31	1080	942.757695	Root MSE	

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% Conf Int]
DIVIDEND1	.1752983	.0304099	5.76	0.000	.1156284
BSIZE	2.241052	.6543119	3.43	0.001	.9571737
BIND	-.6855262	1.054987	-0.65	0.516	-2.755602
CEODUAL	1.907585	1.926819	0.99	0.322	-1.873184
GENDER	0	(omitted)			
BMEET	.0128197	.8547	0.01	0.988	-1.664257
LEVERAGE	-.0316452	.0288715	-1.10	0.273	-.0882962
Y_2015	0	(omitted)			
Y_2016	.0669508	2.596978	0.03	0.979	-5.028792
Y_2017	-2.891642	2.572177	-1.12	0.261	-7.938721
Y_2018	-.5468959	2.569141	-0.21	0.831	-5.588017
Y_2019	0	(omitted)			
_cons	-5.616466	5.786891	-0.97	0.332	-16.9714

Step 2 Fixed effect

xtreg DIVIDEND DIVIDEND1 BSIZE BIND CEODUAL GENDER BMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, fe

Table 2

```

note: GENDER omitted because of collinearity
note: Y_2015 omitted because of collinearity
note: Y_2016 omitted because of collinearity

Fixed-effects (within) regression              Number of obs   =   1081
Group variable: compid                        Number of groups =   272

R-sq:  within = 0.0412                        Obs per group:  min =    1
        between = 0.0678                       avg   =    4.0
        overall = 0.0071                       max   =    4

                                                F(9,800)       =    3.82
corr(u_i, Xb) = -0.4957                       Prob > F       =    0.0001
    
```

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND1	-.1756751	.0328045	-5.36	0.000	-.2400682	-.1112819
BSIZE	2.254894	1.880256	1.20	0.231	-1.435923	5.945711
BIND	-2.95607	2.770026	-1.07	0.286	-8.393446	2.481307
CEODUAL	-15.48202	29.94452	-0.52	0.605	-74.26112	43.29708
GENDER	0	(omitted)				
BMEET	-1.611001	1.266333	-1.27	0.204	-4.096727	.8747264
LEVERAGE	.0002708	.0295148	0.01	0.993	-.0576647	.0582064
Y_2015	0	(omitted)				
Y_2016	0	(omitted)				
Y_2017	-3.044281	2.27787	-1.34	0.182	-7.515588	1.427026
Y_2018	-1.343716	2.328008	-0.58	0.564	-5.913442	3.22601
Y_2019	.0811372	2.36154	0.03	0.973	-4.554409	4.716683
_cons	30.71386	22.88052	1.34	0.180	-14.19908	75.6268
sigma_u	24.361453					
sigma_e	25.650416					
rho	.47424398	(fraction of variance due to u_i)				

```

F test that all u_i=0:      F(271, 800) =    2.40      Prob > F = 0.0000
    
```




Two step difference generalised method of moments
xtabond2 DIVIDEND DIVIDEND1 BSIZE BIND CEODUAL GENDER
BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised
method of moments(Return On Asset1, collapse) iv (BSIZE BIND
CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
noleveleq nodiffsargan twostep robust small orthogonal

Table 4

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 GENDER dropped due to collinearity
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271)		avg	= 2.99
Prob > F		max	= 3

DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND1	.7318589	.5982925	1.22	0.222	-.4460331	1.909751
BSIZE	7.125511	15.54657	0.46	0.647	-23.4819	37.73293
BIND	-37.66038	49.66253	-0.76	0.449	-135.4338	60.11303
CEODUAL	-2268.251	3503.975	-0.65	0.518	-9166.724	4630.221
BMEET	.8139502	3.353214	0.24	0.808	-5.787711	7.415611
LEVERAGE	5.745623	6.951253	0.83	0.409	-7.939701	19.43095
Y_2016	-43.34674	52.43089	-0.83	0.409	-146.5704	59.87691
Y_2017	-7.16016	5.894191	-1.21	0.226	-18.76439	4.444066
Y_2018	.6719378	2.244989	0.30	0.765	-3.747899	5.091774

Instruments for orthogonal deviations equation

Standard

FOD. (BSIZE BIND CEODUAL GENDER BMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/4).ROA1 collapsed

Arellano-Bond test for AR(1) in first differences: z = -1.52 Pr > z = 0.127
 Arellano-Bond test for AR(2) in first differences: z = 1.62 Pr > z = 0.104

Sargan test of overid. restrictions: chi2(1) = 0.11 Prob > chi2 = 0.742
 (Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 1.000
 (Robust, but weakened by many instruments.)

Step 4 System generalised method of moments

One Step System generalised method of moments

`xtabond2 DIVIDEND DIVIDEND1 BSIZE BIND CEODUAL GENDER
 BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised
 method of moments(Return On Asset1, collapse) iv (BSIZE BIND
 CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017
 Y_2018 Y_2019, equation(level)) nodiffsargan robust orthogonal small`

Table 5

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2018 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM

```

Group variable: compid	Number of obs	=	1081
Time variable : years	Number of groups	=	272
Number of instruments = 13	Obs per group: min	=	1
F(9, 271) = 28.05	avg	=	3.97
Prob > F = 0.000	max	=	4

DIVIDEND	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND1	.127796	.1949931	0.66	0.513	-.2560979	.5116898
BSIZE	2.304653	.8354467	2.76	0.006	.6598625	3.949444
BIND	-.6883389	1.303034	-0.53	0.598	-3.253695	1.877017
CEODUAL	1.938878	2.067629	0.94	0.349	-2.131779	6.009535
BMEET	.0203135	.8204692	0.02	0.980	-1.59499	1.635618
LEVERAGE	-.0322741	.0161942	-1.99	0.047	-.0641565	-.0003917
Y_2016	.8449767	1.995845	0.42	0.672	-3.084355	4.774309
Y_2017	-2.223256	2.680527	-0.83	0.408	-7.50056	3.054048
Y_2019	.6539508	1.857162	0.35	0.725	-3.00235	4.310251
_cons	-6.203672	6.077502	-1.02	0.308	-18.16879	5.76145

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

```

```

Arellano-Bond test for AR(1) in first differences: z = -2.03 Pr > z = 0.043
Arellano-Bond test for AR(2) in first differences: z = 0.87 Pr > z = 0.386

```

```

Sargan test of overid. restrictions: chi2(3) = 10.41 Prob > chi2 = 0.015
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 14.66 Prob > chi2 = 0.002
(Robust, but weakened by many instruments.)

```

Two step system generalized method of moments
xtabond2 DIVIDEND DIVIDEND1 BSIZE BIND CEODUAL GENDER
BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised
method of moments(Return On Asset1, collapse) iv(BSIZE BIND
CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017
Y_2018 Y_2019, equation(level)) nodiffsargan two step robust orthogonal
small

Table 6

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
GENDER dropped due to collinearity
Y_2015 dropped due to collinearity
Y_2018 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM

```

Group variable: compid	Number of obs	=	1081
Time variable : years	Number of groups	=	272
Number of instruments = 13	Obs per group: min	=	1
F(9, 271) = 22.55	avg	=	3.97
Prob > F = 0.000	max	=	4

DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND1	.1809407	.2072767	0.87	0.383	-.2271367	.589018
BSIZE	2.341373	.9127546	2.57	0.011	.5443811	4.138364
BIND	-.7543743	1.436876	-0.53	0.600	-3.583232	2.074484
CEODUAL	1.492576	2.244127	0.67	0.507	-2.925564	5.910716
BMEET	.5059757	.8242562	0.61	0.540	-1.116784	2.128735
LEVERAGE	-.0320524	.0175586	-1.83	0.069	-.066621	.0025161
Y_2016	1.888011	1.998949	0.94	0.346	-2.047433	5.823455
Y_2017	-2.793158	2.972569	-0.94	0.348	-8.645422	3.059107
Y_2019	-.9588998	1.809368	-0.53	0.597	-4.521104	2.603304
_cons	-9.612434	6.484941	-1.48	0.139	-22.3797	3.154835

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
BSIZE BIND CEODUAL GENDER BMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018
Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

```

```

Arellano-Bond test for AR(1) in first differences: z = -2.11 Pr > z = 0.035
Arellano-Bond test for AR(2) in first differences: z = 1.06 Pr > z = 0.290

```

```

Sargan test of overid. restrictions: chi2(3) = 10.41 Prob > chi2 = 0.015
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 14.66 Prob > chi2 = 0.002
(Robust, but weakened by many instruments.)

```

Appendix V Audit Committee and Return On Asset

xtset compid years

Step 1:Pooled OLS

Table 1

```
. regress ROA ROA1 ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
note: Y_2015 omitted because of collinearity
note: Y_2016 omitted because of collinearity
```

Source	SS	df	MS	Number of observations = 1072	
Model	23620.5373	8	2952.56716	F(8, 1072)	Prob > F
Residual	88757.9819	1072	82.7966249	R-squared	Adj R-squared
Total	112378.519	1080	104.054184	Root MSE	

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
ROA1	.4604663	.027675	16.64	0.000	.4061629 .5147700
ACSIZE	.2169615	.351948	0.62	0.538	-.4736238 .9075468
ACIND	.224103	.3878956	0.58	0.564	-.5370178 .9852238
ACMEET	.2700358	.2800128	0.96	0.335	-.2793995 .8194705
LEVERAGE	-.0027962	.0088066	-0.32	0.751	-.0200763 .0144839
Y_2015	0	(omitted)			
Y_2016	0	(omitted)			
Y_2017	-.3542802	.7843012	-0.45	0.652	-1.89322 .1846600
Y_2018	-.1979284	.7845408	-0.25	0.801	-1.737338 .3414808
Y_2019	.2856955	.7863271	0.36	0.716	-1.257219 .8258280
_cons	.6140235	1.775041	0.35	0.729	-2.868925 4.040878

Step 2: Fixed effect

Table2

```

. xtreg ROA ROA1 ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017
note: Y_2015 omitted because of collinearity
note: Y_2019 omitted because of collinearity

Fixed-effects (within) regression              Number of obs   =
Group variable: compid                       Number of groups =

R-sq:  within = 0.0218                       Obs per group:  min =
        between = 0.0303                      avg =
        overall = 0.0263                      max =

corr(u_i, Xb) = -0.0789                      F(8, 801)      =
                                                Prob > F       =

```

ROA	Coef.	Std. Err.	t	P> t	[95% Conf.]
ROA1	.0860891	.0297691	2.89	0.004	.0276544
ACSIZE	-2.569356	1.234529	-2.08	0.038	-4.992651
ACIND	1.730085	1.352617	1.28	0.201	-.9250072
ACMEET	.0465189	.3449373	0.13	0.893	-.6305689
LEVERAGE	-.0129768	.0080048	-1.62	0.105	-.0286897
Y_2015	0	(omitted)			
Y_2016	-.6518643	.6078159	-1.07	0.284	-1.844964
Y_2017	-.6836174	.6042862	-1.13	0.258	-1.869789
Y_2018	-.5799945	.6014333	-0.96	0.335	-1.760566
Y_2019	0	(omitted)			
_cons	10.51505	4.805545	2.19	0.029	1.082099
sigma_u	8.095674				
sigma_e	6.9874719				
rho	.57307838	(fraction of variance due to u_i)			

```

F test that all u_i=0:      F(271, 801) =      3.75      Prob > F

```

Step 3 Difference generalised method of moments

One step generalised method of moments

Table 3

xtabond2 Return On Asset Return On Asset1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (ACSIZE ACIND ACMEET
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust
 small orthogonal

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step difference GMM

```

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 9	Obs per group: min	=	0
F(0, 271)		avg =	2.99
Prob > F		max =	3

ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.5731809	.4876462	1.18	0.241	-.3868756	1.533237
ACSIZE	-2.182187	2.267225	-0.96	0.337	-6.645801	2.281426
ACIND	-.779459	4.948808	-0.16	0.875	-10.52246	8.963537
ACMEET	.3784488	.7767274	0.49	0.626	-1.150738	1.907636
LEVERAGE	2.082003	4.031733	0.52	0.606	-5.855497	10.0195
Y_2016	-8.557625	11.02066	-0.78	0.438	-30.25462	13.13937
Y_2017	-.7515717	.99925	-0.75	0.453	-2.718851	1.215708
Y_2018	-.330677	.7834994	-0.42	0.673	-1.873196	1.211842


```

Instruments for orthogonal deviations equation
Standard
FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed

```



```

Arellano-Bond test for AR(1) in first differences: z = -0.14 Pr > z = 0.890
Arellano-Bond test for AR(2) in first differences: z = 1.53 Pr > z = 0.125

```



```

Sargan test of overid. restrictions: chi2(1) = 0.08 Prob > chi2 = 0.782
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 1.36 Prob > chi2 = 0.244
(Robust, but weakened by many instruments.)

```


Two step generalised method of moments
 xtabond2 Return On Asset Return On Asset1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (ACSIZE ACIND ACMEET
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust
 small orthogonal twostep

Table 4

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM
-----
Group variable: compid                Number of obs   =      809
Time variable : years                 Number of groups =      271
Number of instruments = 9             Obs per group: min =      0
F(0, 271) = .                          avg =      2.99
Prob > F = .                          max =      3
-----

```

ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	.5038482	.7862748	0.64	0.522	-1.044135	2.051832
ACSIZE	-1.551316	2.337737	-0.66	0.508	-6.153752	3.051119
ACIND	-.6251307	8.353165	-0.07	0.940	-17.07048	15.82022
ACMEET	.1236757	.7819444	0.16	0.874	-1.415782	1.663134
LEVERAGE	2.305633	7.831248	0.29	0.769	-13.11218	17.72345
Y_2016	-6.984376	18.66471	-0.37	0.709	-43.73064	29.76188
Y_2017	-.4311254	.9239412	-0.47	0.641	-2.25014	1.38789
Y_2018	-.1776918	.9716854	-0.18	0.855	-2.090704	1.73532

```

-----
Instruments for orthogonal deviations equation
Standard
FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
-----
Arellano-Bond test for AR(1) in first differences: z = 0.10 Pr > z = 0.919
Arellano-Bond test for AR(2) in first differences: z = 1.31 Pr > z = 0.190
-----
Sargan test of overid. restrictions: chi2(1) = 0.08 Prob > chi2 = 0.782
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 1.36 Prob > chi2 = 0.244
(Robust, but weakened by many instruments.)

```

Step 4 system generalised method of moments

One step generalized method of moments

Table 6

xtabond2 Return On Asset Return On Asset1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level))
 nodiffsargan robust orthogonal small

```
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM

Group variable: compid                                Number of obs   =    1081
Time variable : years                                Number of groups =    272
Number of instruments = 12                            Obs per group: min =     1
F(8, 271)      =    20.43                               avg =    3.97
Prob > F       =     0.000                               max =     4

+-----+-----+-----+-----+-----+-----+-----+
|      ROA |      Coef. | Robust  |      t | P>|t| | [95% Conf. Interval] |
|-----+-----+-----+-----+-----+-----+
|      ROA | .0083888 | .0611623 |  0.14 | 0.891 | -.1120249 | .1288025 |
|    ACSIZE | .4224974 | .596109  |  0.71 | 0.479 | -.7510959 | 1.596091  |
|    ACIND  | .2749298 | .6479113 |  0.42 | 0.672 | -1.00065  | 1.550509  |
|    ACMEET | .3633776 | .3650001 |  1.00 | 0.320 | -.3552185 | 1.081974  |
|  LEVERAGE | -.0090545 | .0046062 | -1.97 | 0.050 | -.018123  | .0000141  |
|   Y_2016  | -.5411317 | .8134744 | -0.67 | 0.506 | -2.142665 | 1.060401  |
|   Y_2017  | -.6667133 | .5792822 | -1.15 | 0.251 | -1.807179 | .4737522  |
|   Y_2018  | -.5274274 | .5837744 | -0.90 | 0.367 | -1.676737 | .6218821  |
|   _cons   |  2.127151 | 2.867371 |  0.74 | 0.459 | -3.518002 | 7.772305  |
+-----+-----+-----+-----+-----+
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

+-----+-----+-----+-----+-----+
Arellano-Bond test for AR(1) in first differences: z = -2.36 Pr > z = 0.018
Arellano-Bond test for AR(2) in first differences: z =  1.42 Pr > z = 0.157

+-----+-----+-----+-----+-----+
Sargan test of overid. restrictions: chi2(3)      = 122.68 Prob > chi2 = 0.000
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3)      =  8.86 Prob > chi2 = 0.031
(Robust, but weakened by many instruments.)
```

Two step generalised method of moments

Table 6

xtabond2 Return On Asset Return On Asset1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Asset1, collapse) iv (ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level))
 nodiffsargan robust orthogonal small two step

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
-----
Group variable: compid                Number of obs      =       1081
Time variable : years                 Number of groups   =        272
Number of instruments = 12            Obs per group: min =         1
F(8, 271) = 22.53                    avg =              3.97
Prob > F = 0.000                      max =              4

-----

```

ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROA1	-.0893659	.058832	-1.52	0.130	-.2051918	.0264599
ACSIZE	.3485509	.6108648	0.57	0.569	-.8540929	1.551195
ACIND	.6279879	.6725872	0.93	0.351	-.6961724	1.952148
ACMEET	.5990464	.3610715	1.66	0.098	-.1118154	1.309908
LEVERAGE	-.0108937	.0047145	-2.31	0.022	-.0201754	-.001612
Y_2016	.4617731	.7248217	0.64	0.525	-.9652242	1.88877
Y_2017	-.3358563	.501269	-0.67	0.503	-1.322733	.6510203
Y_2018	-.0938774	.5009632	-0.19	0.851	-1.080152	.892397
_cons	.4581833	2.76133	0.17	0.868	-4.978202	5.894568

```

-----
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROA1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.ROA1 collapsed

-----
Arellano-Bond test for AR(1) in first differences: z = -2.10 Pr > z = 0.036
Arellano-Bond test for AR(2) in first differences: z = 1.34 Pr > z = 0.181

-----
Sargan test of overid. restrictions: chi2(3) = 122.68 Prob > chi2 = 0.000
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 8.86 Prob > chi2 = 0.031
(Robust, but weakened by many instruments.)

```

Appendix VI Audit Committee and Return On Equity

Step 1:Pooled OLS

Table 1

regress Return On Equity Return On Equity1 ACSIZE ACIND ACMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

Source	SS	df	MS			
Model	495495.321	8	61936.9152	Number of obs =		
Residual	3081320.68	1072	2874.3663	F(8, 1072) =		
Total	3576816	1080	3311.86666	Prob > F =		
				R-squared =		
				Adj R-squared =		
				Root MSE =		

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Int	
ROE1	.035517	.0191099	1.86	0.063	-.00198	.
ACSIZE	.3283738	2.074077	0.16	0.874	-3.741337	4.
ACIND	-1.909647	2.288785	-0.83	0.404	-6.400653	2.
ACMEET	3.157595	1.649868	1.91	0.056	-.0797432	6.
LEVERAGE	.6549455	.05184	12.63	0.000	.5532262	.7
Y_2015	0	(omitted)				
Y_2016	0	(omitted)				
Y_2017	10.10301	4.62292	2.19	0.029	1.032011	19
Y_2018	1.864961	4.621852	0.40	0.687	-7.203942	10
Y_2019	3.809449	4.63517	0.82	0.411	-5.285587	12
_cons	-4.222947	10.45507	-0.40	0.686	-24.73767	16

Step 2: Fixed effect

Table 2

xtreg Return On Equity Return On Equity1 ACSIZE ACIND ACMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, fe

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Int
ROE1	-.0878339	.0214322	-4.10	0.000	-.1299039
ACSIZE	-14.16624	9.043098	-1.57	0.118	-31.91721
ACIND	27.61534	9.910906	2.79	0.005	8.160927
ACMEET	4.560444	2.527138	1.80	0.072	-.4001503
LEVERAGE	.6045673	.0588642	10.27	0.000	.4890209
Y_2015	0	(omitted)			
Y_2016	-1.955073	4.455086	-0.44	0.661	-10.7001
Y_2017	7.332775	4.426087	1.66	0.098	-1.355324
Y_2018	-.6740467	4.409418	-0.15	0.879	-9.329425
Y_2019	0	(omitted)			
_cons	-41.50216	35.18108	-1.18	0.238	-110.5602
sigma_u	39.257954				
sigma_e	51.178911				
rho	.37043597	(fraction of variance due to u_i)			
F test that all u_i=0: F(271, 801) = 1.39 Prob > F =					

Step 3 Difference generalised method of moments

One step generalised method of moments

Table 3

xtabond2 Return On Equity Return On Equity1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Equity1, collapse) iv (ACSIZE ACIND ACMEET
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust
 small orthogonal

```

Favoring space over speed. To switch, type or click on mata: mata set mata
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Har

Dynamic panel-data estimation, one-step difference GMM
-----
Group variable: compid                Number of obs      =
Time variable : years                 Number of groups   =
Number of instruments = 9              Obs per group: min =
F(0, 271) = .                          avg =
Prob > F = .                            max =

-----+-----

```

ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf.
ROE1	.0108908	.0340371	0.32	0.749	-.05612
ACSIZE	-11.91447	14.43183	-0.83	0.410	-40.32723
ACIND	13.141	27.12355	0.48	0.628	-40.25866
ACMEET	6.589171	6.155395	1.07	0.285	-5.529301
LEVERAGE	13.54487	11.52393	1.18	0.241	-9.142945
Y_2016	-53.67577	45.08375	-1.19	0.235	-142.4347
Y_2017	6.612805	7.626495	0.87	0.387	-8.401905
Y_2018	-.3271525	3.078047	-0.11	0.915	-6.387077

```

-----+-----
Instruments for orthogonal deviations equation
Standard
FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless co
L(1/4).ROE1 collapsed

-----+-----
Arellano-Bond test for AR(1) in first differences: z = -0.76 Pr >
Arellano-Bond test for AR(2) in first differences: z = 0.74 Pr >

-----+-----
Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.75 Prob > chi
(Robust, but weakened by many instruments.)

```

Two step generalised method of moments

Table 4

xtabond2 Return On Equity Return On Equity1 ACSIZE ACIND ACMEET
 LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
 of moments(Return On Equity1, collapse) iv (ACSIZE ACIND ACMEET
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust
 small orthogonal twostep

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM

```

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 9	Obs per group: min	=	0
F(0, 271)		avg =	2.99
Prob > F		max =	3

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]
ROE1	-.0025756	.0498821	-0.05	0.959	-.1007814 .0956301
ACSIZE	-8.426704	14.60631	-0.58	0.564	-37.18296 20.32956
ACIND	5.648417	25.13635	0.22	0.822	-43.83893 55.13576
ACMEET	4.059255	7.802137	0.52	0.603	-11.30125 19.41976
LEVERAGE	16.41204	11.87105	1.38	0.168	-6.95917 39.78325
Y_2016	-50.77148	49.53771	-1.02	0.306	-148.2992 46.75619
Y_2017	5.671539	7.540942	0.75	0.453	-9.174738 20.51782
Y_2018	.768252	3.216428	0.24	0.811	-5.564111 7.100615

```

Instruments for orthogonal deviations equation
Standard
FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROE1 collapsed

Arellano-Bond test for AR(1) in first differences: z = -0.40 Pr > z = 0.690
Arellano-Bond test for AR(2) in first differences: z = 0.65 Pr > z = 0.514

Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 0.970
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.75 Prob > chi2 = 0.388
(Robust, but weakened by many instruments.)

```

Step 4 system generalised method of moments

One step generalized method of moments

Table 5

xtabond2 Return On Equity Return On Equity1 ACSIZE ACIND ACMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method
of moments(Return On Equity1, collapse) iv (ACSIZE ACIND ACMEET
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level))
nodiffsargan robust orthogonal small

```

Favoring space over speed. To switch, type or click on mata: mata set mata
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Har
Dynamic panel-data estimation, one-step system GMM

```

ROE	Coef.	Robust Std. Err.	t	P> t	[95%
ROE1	.0183565	.0175019	1.05	0.295	-.0161
ACSIZE	.4033755	2.392966	0.17	0.866	-4.307
ACIND	-2.021257	3.105749	-0.65	0.516	-8.13
ACMEET	3.189291	1.964688	1.62	0.106	-.6787
LEVERAGE	.654741	.0618163	10.59	0.000	.5330
Y_2016	-3.659166	2.616931	-1.40	0.163	-8.811
Y_2017	6.305498	5.992266	1.05	0.294	-5.491
Y_2018	-1.79478	2.168576	-0.83	0.409	-6.064
_cons	-.3621154	7.808641	-0.05	0.963	-15.73

```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period un
L(1/4).ROE1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_
_cons
GMM-type (missing=0, separate instruments for each period un
D.ROE1 collapsed

```

```

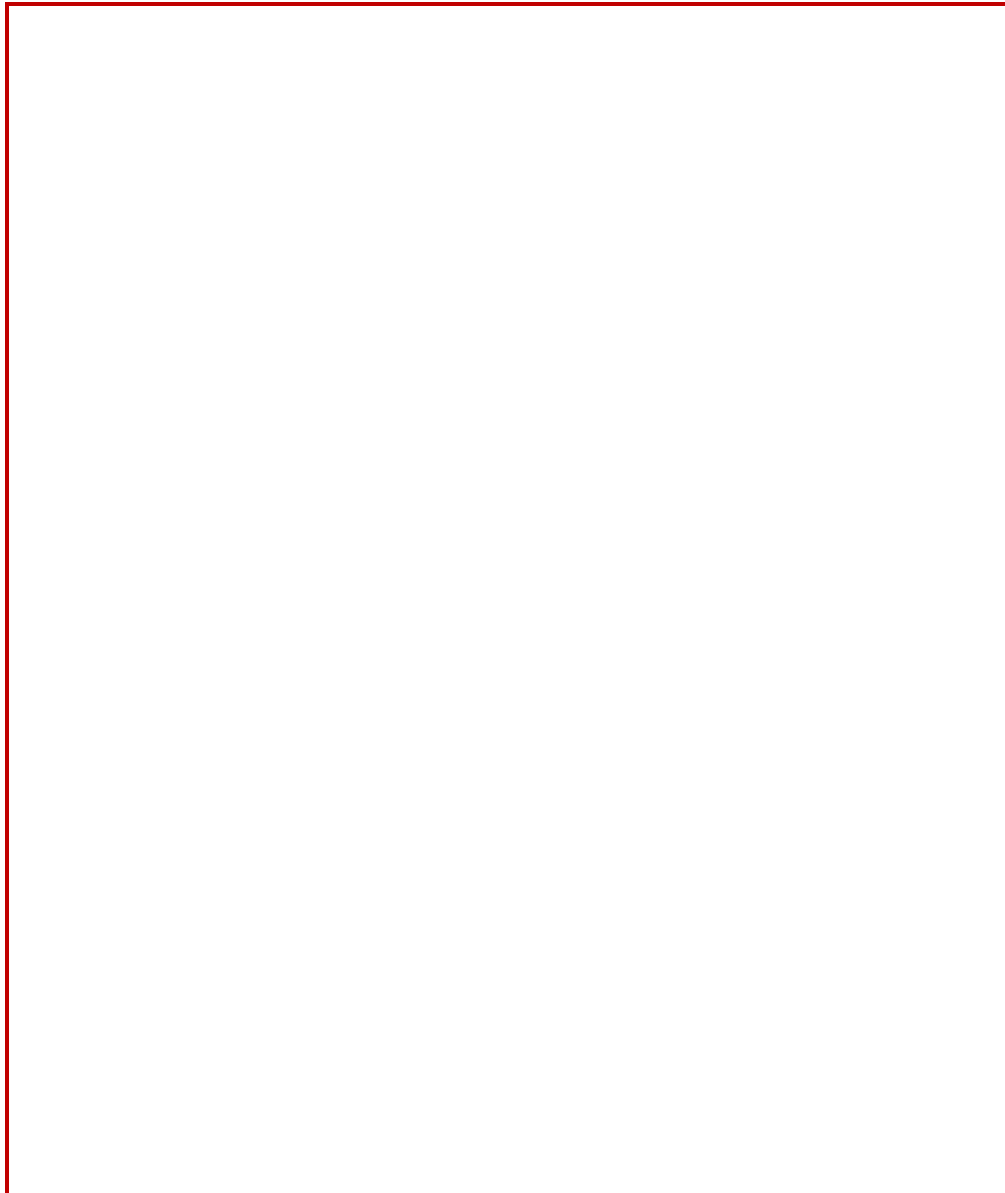
Arellano-Bond test for AR(1) in first differences: z = -1.54 Pr
Arellano-Bond test for AR(2) in first differences: z = 0.50 Pr

```

```

Sargan test of overid. restrictions: chi2(3) = 0.50 Prob >
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 4.27 Prob >
(Robust, but weakened by many instruments.)

```

Two step generalized method of moments

```
xtabond2 Return On Equity Return On Equity1 ACSIZE ACIND ACMEET  
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method  
of moments( Return On Equity1, collapse) iv ( ACSIZE ACIND ACMEET  
LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level))  
nodiffsargan robust orthogonal small two step
```

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM

Group variable: <code>compid</code>	Number of obs	=	1081
Time variable : <code>years</code>	Number of groups	=	272
Number of instruments = 12	Obs per group: min	=	1
F(8, 271) = 25.61	avg	=	3.97
Prob > F = 0.000	max	=	4

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]
ROE1	.0283731	.0233929	1.21	0.226	-.0176818 .074428
ACSIZE	2.281611	1.993375	1.14	0.253	-1.642859 6.206082
ACIND	-2.480517	3.131305	-0.79	0.429	-8.645294 3.68426
ACMEET	2.696927	2.033944	1.33	0.186	-1.307412 6.701267
LEVERAGE	.657251	.0623909	10.53	0.000	.5344186 .7800834
Y_2016	-2.228374	2.54175	-0.88	0.381	-7.23246 2.775712
Y_2017	2.92822	5.018094	0.58	0.560	-6.951183 12.80762
Y_2018	-.1606717	1.742996	-0.09	0.927	-3.592205 3.270862
_cons	-4.968717	7.25239	-0.69	0.494	-19.24691 9.309472

Instruments for orthogonal deviations equation
 GMM-type (missing=0, separate instruments for each period unless collapsed)
 L(1/4).ROE1 collapsed

Instruments for levels equation
 Standard
 ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
 _cons
 GMM-type (missing=0, separate instruments for each period unless collapsed)
 D.ROE1 collapsed

Arellano-Bond test for AR(1) in first differences: z = -1.50 Pr > z = 0.132
 Arellano-Bond test for AR(2) in first differences: z = 0.64 Pr > z = 0.519

Sargan test of overid. restrictions: chi2(3) = 0.50 Prob > chi2 = 0.920
 (Not robust, but not weakened by many instruments.)
 Hansen test of overid. restrictions: chi2(3) = 4.27 Prob > chi2 = 0.233
 (Robust, but weakened by many instruments.)

Appendix VII Audit Committee and TONINQ

Step 1:Pooled OLS

Table 1

regress TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019

note: Y_2015 omitted because of collinearity					
note: Y_2016 omitted because of collinearity					
Source	SS	df	MS	Number of	
Model	340895.589	8	42611.9487	F(8, 1	
Residual	3884060.48	1072	3623.19074	Prob > F	
Total	4224956.07	1080	3911.99636	R-squared	
				Adj R-squ	
				Root MSE	
TOBINQ	Coef.	Std. Err.	t	P> t	[95% C
TOBINQ1	.2899067	.0323793	8.95	0.000	.22637
ACSIZE	1.791373	2.327646	0.77	0.442	-2.7758
ACIND	5.127795	2.567478	2.00	0.046	.08994
ACMEET	.5606956	1.852269	0.30	0.762	-3.0737
LEVERAGE	-.0266668	.0582123	-0.46	0.647	-.14088
Y_2015	0	(omitted)			
Y_2016	0	(omitted)			
Y_2017	-4.547951	5.188999	-0.88	0.381	-14.72
Y_2018	.1223063	5.189134	0.02	0.981	-10.05
Y_2019	-1.720483	5.202827	-0.33	0.741	-11.929
_cons	-9.63403	11.73659	-0.82	0.412	-32.663

Step 2: Fixed effect

Table 2

xtreg TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE Y_2015
Y_2016 Y_2017 Y_2018 Y_2019, fe

```

note: Y_2015 omitted because of collinearity
note: Y_2019 omitted because of collinearity

Fixed-effects (within) regression              Number of obs
Group variable: compid                       Number of groups

R-sq:  within = 0.0214                        Obs per group: m
       between = 0.2760                        a
       overall = 0.0572                        m

corr(u_i, Xb) = -0.3993                       F(8, 801)
                                              Prob > F

```

TOBINQ	Coef.	Std. Err.	t	P> t	[95% C
TOBINQ1	-.1080892	.0274018	-3.94	0.000	-.16187
ACSIZE	-2.878805	7.052402	-0.41	0.683	-16.722
ACIND	1.417602	7.728091	0.18	0.855	-13.75
ACMEET	1.120459	1.974931	0.57	0.571	-2.7561
LEVERAGE	-.0105614	.0457	-0.23	0.817	-.10026
Y_2015	0	(omitted)			
Y_2016	-.3482571	3.471699	-0.10	0.920	-7.1629
Y_2017	-2.97758	3.451527	-0.86	0.389	-9.7526
Y_2018	.3691452	3.436548	0.11	0.914	-6.3765
Y_2019	0	(omitted)			
_cons	24.67894	27.43392	0.90	0.369	-29.171
sigma_u	54.534983				
sigma_e	39.909717				
rho	.65122884	(fraction of variance due to u_i)			

```

F test that all u_i=0:      F(271, 801) =      6.04      Proc

```

Step 3 Difference generalised method of moments

One step generalized method of moments

Table 3

xtabond2 TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
TOBINQ , collapse) iv (ACSIZE ACIND ACMEET Y_2015 Y_2016
Y_2017 Y_2018 Y_2019) nolevel eq nodiffsargan robust small orthogonal

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step difference GMM

```

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271)		avg =	2.99
Prob > F		max =	3

TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	-.5417473	.1845746	-2.94	0.004	-.9051297	-.1783648
ACSIZE	-9.279781	27.40606	-0.34	0.735	-63.23563	44.67607
ACIND	45.18038	66.69385	0.68	0.499	-86.12356	176.4843
ACMEET	-3.579417	12.73944	-0.28	0.779	-28.66027	21.50144
LEVERAGE	-38.44866	57.30146	-0.67	0.503	-151.2613	74.36395
Y_2016	148.8696	157.6051	0.94	0.346	-161.4163	459.1556
Y_2017	-.8020921	14.39644	-0.06	0.956	-29.14518	27.54099
Y_2018	-4.916936	8.650568	-0.57	0.570	-21.9478	12.11393


```

Instruments for orthogonal deviations equation
Standard
FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).TOBINQ collapsed

```



```

Arellano-Bond test for AR(1) in first differences: z = 0.94 Pr > z = 0.347
Arellano-Bond test for AR(2) in first differences: z = 0.28 Pr > z = 0.776

```



```

Sargan test of overid. restrictions: chi2(2) = 0.07 Prob > chi2 = 0.963
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(2) = 9.45 Prob > chi2 = 0.009
(Robust, but weakened by many instruments.)

```

Two step generalized method of moments

Table 4

xtabond2 TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
 TOBINQ , collapse) iv (ACSIZE ACIND ACMEET Y_2015 Y_2016
 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust small orthogonal
 twostep

```
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.
```

Dynamic panel-data estimation, two-step difference GMM

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 10	Obs per group: min	=	0
F(0, 271)		avg =	2.99
Prob > F		max =	3

TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	-.6267397	.734408	-0.85	0.394	-2.07261	.8191307
ACSIZE	3.382963	24.7758	0.14	0.891	-45.39456	52.16048
ACIND	-13.95274	82.27258	-0.17	0.865	-175.9274	148.0219
ACMEET	-1.39043	26.37257	-0.05	0.958	-53.3116	50.53074
LEVERAGE	12.88435	57.32787	0.22	0.822	-99.98025	125.749
Y_2016	-12.62316	377.4057	-0.03	0.973	-755.6431	730.3968
Y_2017	-1.726975	29.5441	-0.06	0.953	-59.89211	56.43816
Y_2018	1.63976	14.29295	0.11	0.909	-26.49957	29.77909

Instruments for orthogonal deviations equation
 Standard
 FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)
 GMM-type (missing=0, separate instruments for each period unless collapsed)
 L(1/4).TOBINQ collapsed

Arellano-Bond test for AR(1) in first differences: z = 0.27 Pr > z = 0.788
 Arellano-Bond test for AR(2) in first differences: z = 0.51 Pr > z = 0.607

Sargan test of overid. restrictions: chi2(2) = 0.07 Prob > chi2 = 0.963
 (Not robust, but not weakened by many instruments.)
 Hansen test of overid. restrictions: chi2(2) = 9.45 Prob > chi2 = 0.009
 (Robust, but weakened by many instruments.)

Step 4 system generalised method of moments

One step generalised method of moments

Table 5

xtabond2 TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
 TOBINQ1 , collapse) iv (ACSIZE ACIND ACMEET LEVERAGE Y_2015
 Y_2016 Y_2017 Y_2018 Y_2019, equation(level)) nodiffsargan robust
 orthogonal small

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM
-----
Group variable: compid                Number of obs   =   1081
Time variable : years                 Number of groups =   272
Number of instruments = 12            Obs per group:  min =    1
F(8, 271) = 6.45                      avg =    3.97
Prob > F = 0.000                      max =    4

-----

```

TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ1	-.0269721	.031848	-0.85	0.398	-.089673	.0357289
ACSIZE	2.42429	2.676248	0.91	0.366	-2.844591	7.693171
ACIND	6.019612	3.878139	1.55	0.122	-1.615499	13.65472
ACMEET	.9073028	3.061709	0.30	0.767	-5.120457	6.935062
LEVERAGE	-.0375929	.0201859	-1.86	0.064	-.077334	.0021482
Y_2016	.2512804	4.873355	0.05	0.959	-9.343169	9.84573
Y_2017	-3.03693	2.305163	-1.32	0.189	-7.575233	1.501374
Y_2018	.5910271	2.202284	0.27	0.789	-3.744734	4.926788
_cons	-11.50885	11.66083	-0.99	0.325	-34.46619	11.44849

```

-----
Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).TOBINQ1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.TOBINQ1 collapsed

-----
Arellano-Bond test for AR(1) in first differences: z = -0.58 Pr > z = 0.559
Arellano-Bond test for AR(2) in first differences: z = 1.14 Pr > z = 0.254

-----
Sargan test of overid. restrictions: chi2(3) = 3.68 Prob > chi2 = 0.299
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 3.21 Prob > chi2 = 0.360
(Robust, but weakened by many instruments.)

```



Two step generalised method of moments

Table 6

xtabond2 TOBINQ TOBINQ1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
TOBINQ1 , collapse) iv (ACSIZE ACIND ACMEET LEVERAGE Y_2015
Y_2016 Y_2017 Y_2018 Y_2019, equation(level)) nodiffsargan robust
orthogonal small two step

```
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.  
Y_2015 dropped due to collinearity  
Y_2019 dropped due to collinearity  
Warning: Two-step estimated covariance matrix of moments is singular.  
Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.
```


note: Y_2015 omitted because of collinearity
 note: Y_2016 omitted because of collinearity

Source	SS	df	MS	Number of
Model	59284.4052	8	7410.55066	F(8, 1
Residual	958893.905	1072	894.490583	Prob > F
Total	1018178.31	1080	942.757695	R-squared
				Adj R-squ
				Root MSE

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% C
DIVIDEND1	.1826515	.0303823	6.01	0.000	.12303
ACSIZE	2.45104	1.158232	2.12	0.035	.17838
ACIND	3.08508	1.275089	2.42	0.016	.58312
ACMEET	-2.395526	.9201654	-2.60	0.009	-4.2010
LEVERAGE	-.0263702	.0289207	-0.91	0.362	-.08311
Y_2015	0	(omitted)			
Y_2016	0	(omitted)			
Y_2017	-2.007571	2.578007	-0.78	0.436	-7.0660
Y_2018	.7558547	2.581211	0.29	0.770	-4.3089
Y_2019	1.702889	2.584601	0.66	0.510	-3.3685
_cons	3.826029	5.833296	0.66	0.512	-7.6199

Step 2: Fixed effect

Table 2

xtreg DIVIDEND DIVIDEND1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, fe

```

note: Y_2015 omitted because of collinearity
note: Y_2016 omitted because of collinearity

Fixed-effects (within) regression
Group variable: compid

R-sq:  within = 0.0602
       between = 0.0001
       overall = 0.0050

corr(u_i, Xb) = -0.5181

Number of obs      = 802
Number of groups   = 271
Obs per group: max = 3
                av  = 3
                mi  = 1

F(8, 801)
Prob > F           = 0.0000

```

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% Co
DIVIDEND1	-.1713202	.0324866	-5.27	0.000	-.235089
ACSIZE	14.35857	4.484095	3.20	0.001	5.55660
ACIND	3.738786	4.918572	0.76	0.447	-5.91602
ACMEET	-1.703402	1.252816	-1.36	0.174	-4.16259
LEVERAGE	.0013155	.0290611	0.05	0.964	-.055725
Y_2015	0	(omitted)			
Y_2016	0	(omitted)			
Y_2017	-2.775698	2.194755	-1.26	0.206	-7.08384
Y_2018	-.807467	2.200534	-0.37	0.714	-5.1269
Y_2019	.897309	2.207194	0.41	0.684	-3.43525
_cons	-42.61845	17.34472	-2.46	0.014	-76.6645
sigma_u	25.049982				
sigma_e	25.378903				
rho	.4934778	(fraction of variance due to u_i)			

```

F test that all u_i=0:      F(271, 801) =      2.54      Prob

```

Step 3 Difference generalised method of moments

One step generalized method of moments

Table 3

```
xtabond2 DIVIDEND DIVIDEND1 ACSIZE ACIND ACMEET LEVERAGE  
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(  
DIVIDEND1 , collapse) iv ( ACSIZE ACIND ACMEET Y_2015 Y_2016  
Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust small orthogonal
```


xtabond2 DIVIDEND DIVIDEND1 ACSIZE ACIND ACMEET LEVERAGE
 Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
 DIVIDEND1 , collapse) iv (ACSIZE ACIND ACMEET Y_2015 Y_2016
 Y_2017 Y_2018 Y_2019) nolevelq nodiffsargan robust small orthogonal
 twostep

Favoring space over speed. To switch, type or click on `mata: mata set matafavor speed, perm.`
 Y_2015 dropped due to collinearity
 Y_2019 dropped due to collinearity
 Warning: Two-step estimated covariance matrix of moments is singular.
 Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step difference GMM

Group variable: compid	Number of obs	=	809
Time variable : years	Number of groups	=	271
Number of instruments = 9	Obs per group: min	=	0
F(0, 271) = .	avg	=	2.99
Prob > F = .	max	=	3

DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND1	-.7135087	.8855871	-0.81	0.421	-2.457014	1.029997
ACSIZE	6.632993	30.48573	0.22	0.828	-53.38598	66.65197
ACIND	46.40648	87.04451	0.53	0.594	-124.963	217.7759
ACMEET	-8.436713	12.50346	-0.67	0.500	-33.05298	16.17955
LEVERAGE	-38.26626	78.99005	-0.48	0.628	-193.7784	117.2459
Y_2016	150.2218	230.5659	0.65	0.515	-303.7062	604.1498
Y_2017	-1.934406	11.71344	-0.17	0.869	-24.99532	21.12651
Y_2018	-6.580298	12.5853	-0.52	0.602	-31.35768	18.19709

Instruments for orthogonal deviations equation

Standard

FOD. (ACSIZE ACIND ACMEET Y_2015 Y_2016 Y_2017 Y_2018 Y_2019)

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/4).DIVIDEND1 collapsed

Arellano-Bond test for AR(1) in first differences: z = 0.62 Pr > z = 0.538

Arellano-Bond test for AR(2) in first differences: z = 0.61 Pr > z = 0.542

Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 1.000
 (Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 1.000
 (Robust, but weakened by many instruments.)

Step 4 system generalised method of moments

One step generalised method of moments

Table 5

xtabond2 DIVIDEND DIVIDEND1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
DIVIDEND1 , collapse) iv (ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level)) nodiffsargan
robust orthogonal small

```

Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate robust weighting matrix for Hansen test.

Dynamic panel-data estimation, one-step system GMM

```

Group variable: compid	Number of obs	=	1081
Time variable : years	Number of groups	=	272
Number of instruments = 12	Obs per group: min	=	1
F(8, 271)	=	24.01	avg = 3.97
Prob > F	=	0.000	max = 4

DIVIDEND	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
DIVIDEND1	-.0665666	.0443011	-1.50	0.134	-.1537847 .0206515
ACSIZE	3.027684	2.023007	1.50	0.136	-.9551224 7.010491
ACIND	3.256912	1.657669	1.96	0.050	-.0066335 6.520458
ACMEET	-2.383624	1.560599	-1.53	0.128	-5.456062 .6888153
LEVERAGE	-.0292294	.0149957	-1.95	0.052	-.0587523 .0002936
Y_2016	-1.260874	2.37876	-0.53	0.597	-5.944072 3.422325
Y_2017	-3.701126	2.741694	-1.35	0.178	-9.098854 1.696601
Y_2018	-1.510805	1.91197	-0.79	0.430	-5.275009 2.253399
_cons	6.429536	9.656189	0.67	0.506	-12.58115 25.44022


```

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).DIVIDEND1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_2019
_cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.DIVIDEND1 collapsed

```



```

Arellano-Bond test for AR(1) in first differences: z = -2.74 Pr > z = 0.006
Arellano-Bond test for AR(2) in first differences: z = -0.08 Pr > z = 0.933

```



```

Sargan test of overid. restrictions: chi2(3) = 15.58 Prob > chi2 = 0.001
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 6.50 Prob > chi2 = 0.090
(Robust, but weakened by many instruments.)

```

Two step generalised method of moments

Table 6

xtabond2 DIVIDEND DIVIDEND1 ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, generalised method of moments(
DIVIDEND1 , collapse) iv (ACSIZE ACIND ACMEET LEVERAGE
Y_2015 Y_2016 Y_2017 Y_2018 Y_2019, equation(level)) nodiffsargan
robust orthogonal small twostep

```

Favoring space over speed. To switch, type or click on mata: mata set mata
Y_2015 dropped due to collinearity
Y_2019 dropped due to collinearity
Warning: Two-step estimated covariance matrix of moments is singular.
Using a generalized inverse to calculate optimal weighting matrix for tw

Dynamic panel-data estimation, two-step system GMM

Group variable: compid                Number of obs
Time variable : years                Number of groups
Number of instruments = 12           Obs per group: min
F(8, 271) = 21.69                    avg
Prob > F = 0.000                     max

+-----+-----+-----+-----+-----+-----+
| DIVIDEND |          | Corrected |          |          |          |          |
|           | Coef.   | Std. Err. | t       | P>|t|   | [95% Con |
+-----+-----+-----+-----+-----+-----+
| DIVIDEND1 | -0.0867148 | .0440237 | -1.97   | 0.050   | -0.1733866 |
| ACSIZE    | 1.674813  | 2.052217 | 0.82    | 0.415   | -2.365503  |
| ACIND     | 4.075362  | 1.65261  | 2.47    | 0.014   | .8217762   |
| ACMEET    | -3.643739 | 1.398464 | -2.61   | 0.010   | -6.396974  |
| LEVERAGE  | -0.0311861 | .0139786 | -2.23   | 0.027   | -0.0587066 |
| Y_2016    | -3.373926 | 2.011741 | -1.68   | 0.095   | -7.334553  |
| Y_2017    | -4.262944 | 2.400947 | -1.78   | 0.077   | -8.989823  |
| Y_2018    | -2.491641 | 1.685388 | -1.48   | 0.140   | -5.80976   |
| _cons     | 16.53185  | 8.181646 | 2.02    | 0.044   | .4241824   |
+-----+-----+-----+-----+-----+-----+

Instruments for orthogonal deviations equation
GMM-type (missing=0, separate instruments for each period unless
L(1/4).DIVIDEND1 collapsed
Instruments for levels equation
Standard
ACSIZE ACIND ACMEET LEVERAGE Y_2015 Y_2016 Y_2017 Y_2018 Y_201
_cons
GMM-type (missing=0, separate instruments for each period unless
D.DIVIDEND1 collapsed

+-----+-----+-----+-----+-----+-----+
| Arellano-Bond test for AR(1) in first differences: z = -2.43 |
| Arellano-Bond test for AR(2) in first differences: z = -0.33 |
+-----+-----+-----+-----+-----+-----+

Sargan test of overid. restrictions: chi2(3) = 15.58 Prob >
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(3) = 6.50 Prob >
(Robust, but weakened by many instruments.)

```

Appendix IX Intellectual capital and Return On Asset

POOLED OLS

Table 1

regress ROA ROA_1 CEE HCE SCE LEVERAGE logsize						
Source	SS	df	MS	Number of obs	=	
Model	57861.3745	6	9643.56242	F(6, 1415)	=	
Residual	89486.2129	1,415	63.2411399	Prob > F	=	
				R-squared	=	
				Adj R-squared	=	
Total	147347.587	1,421	103.692883	Root MSE	=	

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Int	
ROA_1	.3457792	.0224517	15.40	0.000	.301737	.39
CEE	2.943413	.236582	12.44	0.000	2.479324	3.41
HCE	-.0136756	.0165615	-0.83	0.409	-.0461633	.01
SCE	.9404479	1.770835	0.53	0.595	-2.533296	4.51
LEVERAGE	-1.050018	.3170239	-3.31	0.001	-1.671906	-.43
logsize	1.352607	.1677624	8.06	0.000	1.023517	1.68
_cons	-3.819998	1.320062	-2.89	0.004	-6.409487	-1.23

Table 2

FIXED EFFECT

```

. xtreg ROA ROA_1 CEE HCE SCE LEVERAGE SIZE, fe

```

Fixed-effects (within) regression	Number of obs	=	1,422
Group variable: ID	Number of groups	=	285
R-sq:	Obs per group:		
within = 0.1275	min =		3
between = 0.2281	avg =		5.0
overall = 0.1903	max =		5
	F(6,1131)	=	27.55
corr(u_i, Xb) = -0.1419	Prob > F	=	0.0000

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
ROA_1	-.0019273	.0228164	-0.08	0.933	-.0466946 .0428401
CEE	5.692649	.5041738	11.29	0.000	4.703428 6.68187
HCE	-.1759342	.0355537	-4.95	0.000	-.2456929 -.1061755
SCE	-3.299839	1.926988	-1.71	0.087	-7.080712 .4810344
LEVERAGE	.8357771	.4571842	1.83	0.068	-.0612475 1.732802
SIZE	.0217577	.0334346	0.65	0.515	-.0438431 .0873585
_cons	-4.019811	1.556151	-2.58	0.010	-7.073078 -.9665427
sigma_u	7.2457231				
sigma_e	6.40552				
rho	.56131546	(fraction of variance due to u_i)			

F test that all u_i=0: F(284, 1131) = 4.03 Prob > F = 0.0000

Table 3

xtabond2 Return On Asset Return On Asset_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE,
 generalised method of moments(Return On Asset_1, collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
) noleveq nodiffsargan robust small orthogonal

Dynamic panel-data estimation, one-step difference GMM						
Group variable: ID		Number of obs		=		
Time variable : year		Number of groups		=		
Number of instruments = 7		Obs per group: min		=		
F(0, 285) = .		avg		=		
Prob > F = .		max		=		
ROA	Robust		t	P> t	[95% Conf. Int	
	Coef.	Std. Err.				
ROA_1	.0882215	.1016174	0.87	0.386	-.1117944	.2
CEE	5.274918	1.071139	4.92	0.000	3.16657	7.
HCE	-.2184759	.0775047	-2.82	0.005	-.3710302	-.0
SCE	-1.043427	4.837068	-0.22	0.829	-10.56434	8.
LEVERAGE	3.094086	6.266799	0.49	0.622	-9.240996	15
SIZE	-1.511966	1.096039	-1.38	0.169	-3.669323	.6
Instruments for orthogonal deviations equation						
Standard						
FOD.(CEE HCE SCE)						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -1.62 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = 0.46 Pr > z =						
Sargan test of overid. restrictions: chi2(1) = 0.46 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 0.58 Prob > chi2 =						
(Robust, but weakened by many instruments.)						

Table 4

xtabond2 Return On Asset Return On Asset_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE ,
 generalised method of moments(Return On Asset_1, collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
) nolevelq nodiffsargan twostep robust small orthogonal

Dynamic panel-data estimation, two-step difference GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 7		Obs per group: min =				
F(0, 285) = .		avg =				
Prob > F = .		max =				
ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Int	
ROA_1	.1269771	.0950978	1.34	0.183	-.060206	.3134112
CEE	5.233729	1.075598	4.87	0.000	3.116605	7.350853
HCE	-.1945013	.0723986	-2.69	0.008	-.337005	-.0519967
SCE	-1.617806	5.086437	-0.32	0.751	-11.62956	8.393948
LEVERAGE	.6348304	5.580678	0.11	0.910	-10.34975	11.61508
SIZE	-1.148495	1.05592	-1.09	0.278	-3.226885	1.029895
Instruments for orthogonal deviations equation						
Standard						
FOD.(CEE HCE SCE)						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -1.76 Pr > z = 0.080						
Arellano-Bond test for AR(2) in first differences: z = 0.62 Pr > z = 0.532						
Sargan test of overid. restrictions: chi2(1) = 0.46 Prob > chi2 = 0.496						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 0.58 Prob > chi2 = 0.441						
(Robust, but weakened by many instruments.)						

Table 5

xtabond2 Return On Asset Return On Asset_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE logsize,
 generalised method of moments(Return On Asset_1 , collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
 , equation(level)) nodiffsargan robust orthogonal small

Group variable: ID		Number of obs =			
Time variable : year		Number of groups =			
Number of instruments = 9		Obs per group: min =			
F(6, 284) = 26.07		avg =			
Prob > F = 0.000		max =			
ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Int.]
ROA_1	.23441	.1118292	2.10	0.037	.0142908
CEE	-.5695616	1.77778	-0.32	0.749	-4.068858
HCE	.2745677	.1097572	2.50	0.013	.0585269
SCE	.3475066	4.141525	0.08	0.933	-7.804474
LEVERAGE	-10.13801	5.386702	-1.88	0.061	-20.74094
logsize	8.567329	4.546142	1.88	0.061	-.3810802
_cons	5.372827	5.295218	1.01	0.311	-5.050028
Instruments for orthogonal deviations equation					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
L(1/4).ROA_1 collapsed					
Instruments for levels equation					
Standard					
CEE HCE SCE					
_cons					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
D.ROA_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -3.89 Pr > z =					
Arellano-Bond test for AR(2) in first differences: z = 0.78 Pr > z =					
Sargan test of overid. restrictions: chi2(2) = 3.52 Prob > chi2 =					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(2) = 2.97 Prob > chi2 =					
(Robust, but weakened by many instruments.)					

Table6

xtabond2 Return On Asset Return On Asset_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE logsize,
 generalised method of moments(Return On Asset_1 , collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
 , equation(level)) nodiffsargan twostep robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID		Number of obs		=		
Time variable : year		Number of groups		=		
Number of instruments = 9		Obs per group: min		=		
F(6, 284) = 26.71		avg		=		
Prob > F = 0.000		max		=		
ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Inte	
ROA_1	.3303492	.087867	3.76	0.000	.157396	.50
CEE	-.6952195	1.591592	-0.44	0.663	-3.828034	2.4
HCE	.2631786	.100968	2.61	0.010	.0644381	.46
SCE	.8833892	4.529038	0.20	0.845	-8.031352	9.
LEVERAGE	-7.910295	6.057897	-1.31	0.193	-19.83437	4.0
logsize	9.116889	4.726229	1.93	0.055	-.1859935	18.
_cons	3.488142	5.871274	0.59	0.553	-8.068593	15.
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).ROA_1 collapsed						
Instruments for levels equation						
Standard						
CEE HCE SCE						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapse)						
D.ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.08 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = 0.93 Pr > z =						
Sargan test of overid. restrictions: chi2(2) = 3.52 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 2.97 Prob > chi2 =						

Appendix X Intellectual Capital and Return On Equity

Table 1

```
regress ROE ROE_1 CEE HCE SCE LEVERAGE SIZE
```

Source	SS	df	MS	Number of obs	=
Model	105904.725	6	17650.7876	F(6, 1415)	=
Residual	102858.382	1,415	72.6914358	Prob > F	=
Total	208763.107	1,421	146.912813	R-squared	=
				Adj R-squared	=
				Root MSE	=

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Int
ROE_1	.3335703	.0204305	16.33	0.000	.2934929
CEE	5.230554	.2563559	20.40	0.000	4.727675
HCE	-.0015446	.0175469	-0.09	0.930	-.0359654
SCE	9.498168	1.898872	5.00	0.000	5.773261
LEVERAGE	-.8787289	.3375072	-2.60	0.009	-1.540797
SIZE	.0213707	.0359921	0.59	0.553	-.049233
_cons	-13.10142	1.419282	-9.23	0.000	-15.88554

Table 2

```
. xtreg ROE ROE_1 CEE HCE SCE LEVERAGE SIZE, fe
```

Fixed-effects (within) regression

Group variable: ID

R-sq:

within = 0.5274

between = 0.3256

overall = 0.3637

corr(u_i, Xb) = -0.4671

Number of obs = 1

Number of groups =

Obs per group:

min =

avg =

max =

F(6,1131) = 210

Prob > F = 0.0

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Int
ROE_1	-.0390342	.0171006	-2.28	0.023	-.0725867
CEE	11.47431	.4344521	26.41	0.000	10.62188
HCE	-.2669728	.0306351	-8.71	0.000	-.3270809
SCE	8.887964	1.662066	5.35	0.000	5.626886
LEVERAGE	-.3066606	.3941225	-0.78	0.437	-1.079954
SIZE	.0144428	.0288126	0.50	0.616	-.0420894
_cons	-21.04348	1.348148	-15.61	0.000	-23.68864

sigma_u	9.4182145
sigma_e	5.518068
rho	.74445149 (fraction of variance due to u_i)

F test that all u_i=0: F(284, 1131) = 7.91 Prob > F = 0.0

Table 3

xtabond2 Return On Equity Return On Equity_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE ,
 generalised method of moments(Return On Equity_1 , collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
) nolevel eq nodiffs argon robust small orthogonal

Dynamic panel-data estimation, one-step difference GMM						
Group variable: ID			Number of obs =			
Time variable : year			Number of groups =			
Number of instruments = 7			Obs per group: min =			
F(0, 285) = .			avg =			
Prob > F = .			max =			
ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Inte	
ROE_1	-.0171774	.0585807	-0.29	0.770	-.1324831	.09
CEE	11.70469	1.255726	9.32	0.000	9.233015	14
HCE	-.2848261	.0610031	-4.67	0.000	-.4048999	-1.0
SCE	9.267181	5.032279	1.84	0.067	-.6379679	19
LEVERAGE	3.321798	4.651272	0.71	0.476	-5.833407	3
SIZE	.2751142	1.36536	0.20	0.840	-2.412355	2.5
Instruments for orthogonal deviations equation						
Standard						
FOD.(CEE HCE SCE)						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -1.95 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = 0.33 Pr > z =						
Sargan test of overid. restrictions: chi2(1) = 1.31 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 0.49 Prob > chi2 =						
(Robust, but weakened by many instruments.)						

Table 4

xtabond2 Return On Equity Return On Equity_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE ,
 generalised method of moments(Return On Equity_1 , collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
) nolevel eq nodiffs argan twostep robust small orthogonal

```

Dynamic panel-data estimation, two-step difference GMM
-----
Group variable: ID                Number of obs   =   1137
Time variable : year             Number of groups =    285
Number of instruments = 7        Obs per group: min =    2
F(0, 285) = .                    avg =   3.99
Prob > F = .                      max =    4
-----

```

ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
ROE_1	-.0036954	.0571677	-0.06	0.949	-.1162197	.108829
CEE	11.96128	1.23554	9.68	0.000	9.529342	14.39323
HCE	-.2875409	.0609102	-4.72	0.000	-.4074319	-.16765
SCE	9.020587	5.052079	1.79	0.075	-.9235346	18.96471
LEVERAGE	1.801464	4.171448	0.43	0.666	-6.409292	10.01222
SIZE	.4980338	1.243072	0.40	0.689	-1.948733	2.9448

```

-----
Instruments for orthogonal deviations equation
Standard
FOD.(CEE HCE SCE)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).ROE_1 collapsed
-----
Arellano-Bond test for AR(1) in first differences: z = -1.72 Pr > z = 0.085
Arellano-Bond test for AR(2) in first differences: z = 0.30 Pr > z = 0.766
-----
Sargan test of overid. restrictions: chi2(1) = 1.31 Prob > chi2 = 0.252
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.49 Prob > chi2 = 0.484
(Robust, but weakened by many instruments.)

```

Table 5

xtabond2 Return On Equity Return On Equity_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE log
 size, generalised method of moments(Return On Equity_1 , collapse) iv (
 Capital Employed Efficiency Human Capital Efficiency Structural Capital
 Efficiency , equation(level)) nodiffsargan robust orthogonal small

Dynamic panel-data estimation, one-step system GMM						
Group variable: ID		Number of obs		=	1422	
Time variable : year		Number of groups		=	285	
Number of instruments = 9		Obs per group: min		=	3	
F(6, 284) = 29.89		avg		=	4.99	
Prob > F = 0.000		max		=	5	
ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROE_1	.2293921	.0985533	2.33	0.021	.0354045	.4233797
CEE	.1934979	2.090824	0.09	0.926	-3.92198	4.308976
HCE	.3730184	.1404767	2.66	0.008	.0965107	.649526
SCE	10.80536	5.745224	1.88	0.061	-.5032605	22.11399
LEVERAGE	-7.090684	6.213631	-1.14	0.255	-19.3213	5.139931
logsize	13.33573	5.176689	2.58	0.010	3.14618	23.52527
_cons	-5.075904	6.847112	-0.74	0.459	-18.55343	8.401623
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).ROE_1 collapsed						
Instruments for levels equation						
Standard						
CEE HCE SCE						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
D.ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.26 Pr > z = 0.000						
Arellano-Bond test for AR(2) in first differences: z = -0.31 Pr > z = 0.758						
Sargan test of overid. restrictions: chi2(2) = 2.99 Prob > chi2 = 0.224						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 2.68 Prob > chi2 = 0.261						

Table 6

xtabond2 Return On Equity Return On Equity_1 Capital Employed Efficiency
 Human Capital Efficiency Structural Capital Efficiency LEVERAGE logsize,
 generalised method of moments(Return On Equity_1 , collapse) iv (Capital
 Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
 , equation(level)) nodiffsargan twostep robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID		Number of obs		=	14	
Time variable : year		Number of groups		=	2	
Number of instruments = 9		Obs per group: min		=	4	
F(6, 284) = 29.20		avg		=	4	
Prob > F = 0.000		max		=	4	
ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval	
ROE_1	.2147779	.1080623	1.99	0.048	.0020732	.42748
CEE	.5352734	1.981503	0.27	0.787	-3.365021	4.4358
HCE	.3574525	.1401351	2.55	0.011	.0816173	.63328
SCE	9.765142	5.745131	1.70	0.090	-1.543298	21.073
LEVERAGE	-6.021757	6.879288	-0.88	0.382	-19.56262	7.5193
logsize	13.08577	5.080009	2.58	0.011	3.086523	23.085
_cons	-5.364188	7.453053	-0.72	0.472	-20.03442	9.3060
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).ROE_1 collapsed						
Instruments for levels equation						
Standard						
CEE HCE SCE						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
D.ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.41 Pr > z = 0.0000						
Arellano-Bond test for AR(2) in first differences: z = -0.25 Pr > z = 0.8000						
Sargan test of overid. restrictions: chi2(2) = 2.99 Prob > chi2 = 0.2288						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 2.68 Prob > chi2 = 0.2588						

Appendix XI Intellectual

Capital and TOBINQ

Table 1

regress TOBINQ TOBINQ_1 CEE HCE SCE LEVERAGE SIZE						
Source	SS	df	MS	Number of obs	=	
Model	307687.97	6	51281.3284	F(6, 1415)	=	
Residual	359312.739	1,415	253.931264	Prob > F	=	
Total	667000.709	1,421	469.388254	R-squared	=	
				Adj R-squared	=	
				Root MSE	=	

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. Int	
TOBINQ_1	.5711326	.0206373	27.67	0.000	.5306497	.6
CEE	3.582414	.4638242	7.72	0.000	2.672557	4.
HCE	-.1234466	.0329823	-3.74	0.000	-.188146	-.0
SCE	2.511808	3.549876	0.71	0.479	-4.451777	9.
LEVERAGE	-3.040381	.6332273	-4.80	0.000	-4.282546	-1.
SIZE	.1934854	.067446	2.87	0.004	.0611805	.3
_cons	-1.506972	2.661722	-0.57	0.571	-6.728317	3.

Table 2

. xtreg TOBINQ TOBINQ_1 CEE HCE SCE LEVERAGE SIZE, fe						
Fixed-effects (within) regression				Number of obs	=	
Group variable: ID				Number of groups	=	
R-sq:				Obs per group:		
within = 0.0427				min	=	
between = 0.2060				avg	=	
overall = 0.1700				max	=	
corr(u_i, Xb) = 0.1994				F(6,1131)	=	
				Prob > F	=	

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. Int	
TOBINQ_1	.0122335	.0193567	0.63	0.528	-.0257456	.0
CEE	4.876295	.8281794	5.89	0.000	3.251354	6.
HCE	-.1720548	.0583782	-2.95	0.003	-.2865965	-.0
SCE	.70256	3.163992	0.22	0.824	-5.505394	6.
LEVERAGE	-1.587246	.751385	-2.11	0.035	-3.061511	-.1
SIZE	.0429292	.0549215	0.78	0.435	-.0648303	.1
_cons	5.377938	2.560158	2.10	0.036	.3547444	10

sigma_u	17.737967					
sigma_e	10.520974					
rho	.73975068	(fraction of variance due to u_i)				

F test that all u_i=0: F(284, 1131) = 7.46				Prob > F	=	
--	--	--	--	----------	---	--

Table 3

xtabond2 TOBINQ TOBINQ_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE , generalised method of moments(TOBINQ_1 , collapse) iv (Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency) nolevel eq nodiffs argon robust small orthogonal

Dynamic panel-data estimation, one-step difference GMM					
Group variable: ID		Number of obs		=	
Time variable : year		Number of groups		=	
Number of instruments = 7		Obs per group: min		=	
F(0, 285) = .		avg		=	
Prob > F = .		max		=	
TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Int.]
TOBINQ_1	.10328	.0913979	1.13	0.259	-.0766206
CEE	3.053888	1.951372	1.56	0.119	-.7870422
HCE	-.1424076	.1347695	-1.06	0.292	-.4076774
SCE	2.394415	7.595799	0.32	0.753	-12.55657
LEVERAGE	-16.3361	12.55078	-1.30	0.194	-41.04008
SIZE	-3.208265	3.618468	-0.89	0.376	-10.33058
Instruments for orthogonal deviations equation					
Standard					
FOD.(CEE HCE SCE)					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
L(1/4).TOBINQ_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -1.29 Pr > z =					
Arellano-Bond test for AR(2) in first differences: z = -0.42 Pr > z =					
Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 =					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(1) = 0.01 Prob > chi2 =					
(Robust, but weakened by many instruments.)					

Table4

xtabond2 TOBINQ TOBINQ_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE , generalised method of moments(TOBINQ_1 , collapse) iv (Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency) nolevel eq nodiffs argan twostep robust small orthogonal

Dynamic panel-data estimation, two-step difference GMM					
Group variable: ID			Number of obs =		
Time variable : year			Number of groups =		
Number of instruments = 7			Obs per group: min =		
F(0, 285) = .			avg =		
Prob > F = .			max =		
TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Int.]
TOBINQ_1	.1036707	.0920777	1.13	0.261	-.0775679
CEE	2.990173	1.804447	1.66	0.099	-.5615605
HCE	-.1441638	.1331873	-1.08	0.280	-.4063195
SCE	2.590323	7.262221	0.36	0.722	-11.70407
LEVERAGE	-15.969	11.69819	-1.37	0.173	-38.99481
SIZE	-3.337391	3.32929	-1.00	0.317	-9.890508
Instruments for orthogonal deviations equation					
Standard					
FOD.(CEE HCE SCE)					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
L(1/4).TOBINQ_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -1.37 Pr > z =					
Arellano-Bond test for AR(2) in first differences: z = -0.41 Pr > z =					
Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 =					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(1) = 0.01 Prob > chi2 =					
(Robust, but weakened by many instruments.)					

Table 5

xtabond2 TOBINQ TOBINQ_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE log size, generalised method of moments(Return On Equity_1 , collapse) iv (Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency , equation(level)) nodiffsargan robust orthogonal small

Dynamic panel-data estimation, one-step system GMM					
Group variable: ID		Number of obs =			
Time variable : year		Number of groups =			
Number of instruments = 9		Obs per group: min =			
F(6, 284)	= 25.99	avg =			
Prob > F	= 0.000	max =			
TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Int.]
TOBINQ_1	.2497762	.1764057	1.42	0.158	-.0974524
CEE	-3.417508	3.486413	-0.98	0.328	-10.28
HCE	.453928	.2272249	2.00	0.047	.0066693
SCE	.6974778	8.646598	0.08	0.936	-16.32207
LEVERAGE	-21.06735	9.232643	-2.28	0.023	-39.24044
logsize	18.1357	7.605835	2.38	0.018	3.164738
_cons	20.57309	9.93838	2.07	0.039	1.010858
Instruments for orthogonal deviations equation					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
L(1/4).ROE_1 collapsed					
Instruments for levels equation					
Standard					
CEE HCE SCE					
_cons					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
D.ROE_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -3.17 Pr > z =					
Arellano-Bond test for AR(2) in first differences: z = -1.10 Pr > z =					
Sargan test of overid. restrictions: chi2(2) = 2.11 Prob > chi2 =					

Table 6

xtabond2 TOBINQ TOBINQ_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE log size, generalised method of moments(TOBINQ_1, collapse) iv (Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency , equation(level)) nodiffsargan two step robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID			Number of obs =			
Time variable : year			Number of groups =			
Number of instruments = 9			Obs per group: min =			
F(6, 284) = 20.78			avg =			
Prob > F = 0.000			max =			
TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Int	
TOBINQ_1	.1410771	.0953636	1.48	0.140	-.0466319	.3
CEE	-6.372973	3.089071	-2.06	0.040	-12.45335	-.2
HCE	.7552693	.255182	2.96	0.003	.2529813	1.
SCE	-1.673983	12.6506	-0.13	0.895	-26.57481	23
LEVERAGE	-35.40139	17.31181	-2.04	0.042	-69.47713	-1.
logsize	23.13024	8.034239	2.88	0.004	7.316034	38
_cons	33.72859	16.93171	1.99	0.047	.4010139	67
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).TOBINQ_1 collapsed						
Instruments for levels equation						
Standard						
CEE HCE SCE						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapse)						
D.TOBINQ_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.19 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = -1.59 Pr > z =						
Sargan test of overid. restrictions: chi2(2) = 0.51 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 1.36 Prob > chi2 =						

Appendix XII Intellectual Capital and Dividend Pay-Out

Table 1

. regress DIVIDEND DIVIDEBD_1 CEE HCE SCE LEVERAGE SIZE						
Source	SS	df	MS	Number of obs	=	
Model	65988.7868	6	10998.1311	F(6, 1415)	=	0
Residual	1202998.85	1,415	850.175863	Prob > F	=	0
Total	1268987.63	1,421	893.024372	R-squared	=	0
				Adj R-squared	=	0
				Root MSE	=	2

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% Conf. Inte	
DIVIDEBD_1	.1412342	.0377614	3.74	0.000	.0671598	.21
CEE	2.141643	.8486912	2.52	0.012	.4768151	3.8
HCE	-.0398661	.0603499	-0.66	0.509	-.158251	.07
SCE	6.172292	6.495453	0.95	0.342	-6.569461	18.
LEVERAGE	-5.810868	1.15866	-5.02	0.000	-8.083744	-3.5
SIZE	.0711141	.1234106	0.58	0.565	-.1709733	.31
_cons	6.070307	4.870337	1.25	0.213	-3.483549	15.

Table 2

```

. xtreg DIVIDEND DIVIDEBD_1 CEE HCE SCE LEVERAGE SIZE, fe

Fixed-effects (within) regression              Number of obs   =    1
Group variable: ID                          Number of groups =
R-sq:                                         Obs per group:
  within = 0.0033                               min =
  between = 0.1264                              avg =
  overall = 0.0352                              max =

corr(u_i, Xb) = -0.4037                       F(6,1131)       =
                                                Prob > F        =    0.

```

DIVIDEND	Coef.	Std. Err.	t	P> t	[95% Conf. Inter	
DIVIDEBD_1	-.0702952	.0461828	-1.52	0.128	-.1609089 .020	
CEE	-1.874053	1.97594	-0.95	0.343	-5.750972 2.00	
HCE	.0587711	.1392836	0.42	0.673	-.2145122 .332	
SCE	3.992836	7.548916	0.53	0.597	-10.81862 18.8	
LEVERAGE	.4986813	1.792717	0.28	0.781	-3.018744 4.01	
SIZE	.0266418	.1310364	0.20	0.839	-.2304599 .283	
_cons	16.19744	6.10824	2.65	0.008	4.212688 28.1	
sigma_u	20.759815					
sigma_e	25.101819					
rho	.40616492	(fraction of variance due to u_i)				

F test that all u_i=0: F(284, 1131) = 2.74 Prob > F = 0.

Table 3

xtabond2 DIVIDEND DIVIDEBD_1 Capital Employed Efficiency Human
Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE ,
generalised method of moments(DIVIDEBD_1 , collapse) iv (Capital
Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
) nolevel eq nodiffsargan robust small orthogonal

```

Dynamic panel-data estimation, one-step difference GMM
-----
Group variable: ID                Number of obs   =    1137
Time variable : year              Number of groups =    285
Number of instruments = 7         Obs per group: min =     2
F(0, 285) = .                      avg =    3.99
Prob > F = .                        max =     4
-----

```

DIVIDEND	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
DIVIDEBD_1	.0454938	.1658533	0.27	0.784	-.2809589	.3719466
CEE	-1.836952	3.848569	-0.48	0.634	-9.412177	5.738274
HCE	-.2061752	.3668065	-0.56	0.575	-.9281687	.5158184
SCE	13.62408	14.6312	0.93	0.353	-15.17484	42.42299
LEVERAGE	34.72226	31.52302	1.10	0.272	-27.32521	96.76973
SIZE	-3.837033	6.682131	-0.57	0.566	-16.98962	9.315556

```

-----
Instruments for orthogonal deviations equation
Standard
FOD. (CEE HCE SCE)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).DIVIDEBD_1 collapsed
-----
Arellano-Bond test for AR(1) in first differences: z = -1.61 Pr > z = 0.108
Arellano-Bond test for AR(2) in first differences: z = 0.72 Pr > z = 0.471
-----
Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 0.991
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2 = 0.992
-----

```

Table 4

xtabond2 DIVIDEND DIVIDEBD_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE SIZE , generalised method of moments(DIVIDEBD_1 , collapse) iv (Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency) nolevel eq nodiffsargan twostep robust small orthogonal

Dynamic panel-data estimation, two-step difference GMM					
Group variable: ID		Number of obs =			
Time variable : year		Number of groups =			
Number of instruments = 7		Obs per group: min =			
F(0, 285)	=	.			avg =
Prob > F	=	.			max =
DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. I
DIVIDEBD_1	.0458159	.1623929	0.28	0.778	-.2738258
CEE	-1.829053	3.762582	-0.49	0.627	-9.235029
HCE	-.2063935	.3661014	-0.56	0.573	-.9269992
SCE	13.62804	14.60573	0.93	0.352	-15.12075
LEVERAGE	34.76352	31.25331	1.11	0.267	-26.75306
SIZE	-3.820755	6.464835	-0.59	0.555	-16.54564
Instruments for orthogonal deviations equation					
Standard					
FOD.(CEE HCE SCE)					
GMM-type (missing=0, separate instruments for each period unless col					
L(1/4).DIVIDEBD_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -1.63 Pr > z					
Arellano-Bond test for AR(2) in first differences: z = 0.74 Pr > z					
Sargan test of overid. restrictions: chi2(1) = 0.00 Prob > chi2					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(1) = 0.00 Prob > chi2					

Table 5

xtabond2 DIVIDEND DIVIDEBD_1 Capital Employed Efficiency Human
Capital Efficiency Structural Capital Efficiency LEVERAGE logsize,
generalised method of moments(DIVIDEBD_1 , collapse) iv (Capital
Employed Efficiency Human Capital Efficiency Structural Capital Efficiency
, equation(level)) nodiffsargan robust orthogonal small

Dynamic panel-data estimation, one-step system GMM					
Group variable: ID		Number of obs =			
Time variable : year		Number of groups =			
Number of instruments = 9		Obs per group: min =			
F(6, 284)	=	25.58	avg =		
Prob > F	=	0.000	max =		
DIVIDEND	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Int.]
DIVIDEBD_1	.0067579	.1052939	0.06	0.949	-.2004976
CEE	1.279608	2.457922	0.52	0.603	-3.558449
HCE	-.0880448	.1888651	-0.47	0.641	-.4597979
SCE	12.5808	11.7595	1.07	0.286	-10.56604
LEVERAGE	12.63028	16.80529	0.75	0.453	-20.44844
logsize	13.16979	9.664928	1.36	0.174	-5.854196
_cons	-6.269724	15.40344	-0.41	0.684	-36.58912
Instruments for orthogonal deviations equation					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
L(1/4).DIVIDEBD_1 collapsed					
Instruments for levels equation					
Standard					
CEE HCE SCE					
_cons					
GMM-type (missing=0, separate instruments for each period unless collapsed)					
D.DIVIDEBD_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -2.58 Pr > z = 0.108					
Arellano-Bond test for AR(2) in first differences: z = -0.08 Pr > z = 0.936					
Sargan test of overid. restrictions: chi2(2) = 0.21 Prob > chi2 = 0.892					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(2) = 0.18 Prob > chi2 = 0.912					

Table 6

xtabond2 DIVIDEND DIVIDEBD_1 Capital Employed Efficiency Human Capital Efficiency Structural Capital Efficiency LEVERAGE log size, generalised method of moments(DIVIDEBD_1 , collapse) iv (Capital

Employed Efficiency) Human Capital Efficiency Structural Capital Efficiency
, equation(level)) nodiffsargan two step robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 9		Obs per group: min =				
F(6, 284) = 26.44		avg =				
Prob > F = 0.000		max =				
DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Inter	
DIVIDEBD_1	-.0118941	.0822999	-0.14	0.885	-.1738893	.150
CEE	.8261906	2.130204	0.39	0.698	-3.366801	5.01
HCE	-.0516189	.1610834	-0.32	0.749	-.3686878	.2
SCE	12.6498	11.73544	1.08	0.282	-10.44967	35.7
LEVERAGE	12.17252	16.39953	0.74	0.459	-20.10754	44.4
logsize	14.85064	8.494519	1.75	0.081	-1.869559	31.5
_cons	-5.639331	14.95834	-0.38	0.706	-35.08261	23.8
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapse						
L(1/4).DIVIDEBD_1 collapsed						
Instruments for levels equation						
Standard						
CEE HCE SCE						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapse						
D.DIVIDEBD_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -2.61 Pr > z = 0						
Arellano-Bond test for AR(2) in first differences: z = -0.17 Pr > z = 0						
Sargan test of overid. restrictions: chi2(2) = 0.21 Prob > chi2 = 0						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 0.18 Prob > chi2 = 0						

Appendix XIII VAI Intellectual Capital and Return On Asset

Table 1

```
. regress ROA ROA_1 VAIC LEVERAGE logsize
```

Source	SS	df	MS	Number of obs	=	1,42
Model	47797.5731	4	11949.3933	F(4, 1417)	=	170.0
Residual	99550.0143	1,417	70.254068	Prob > F	=	0.000
				R-squared	=	0.324
				Adj R-squared	=	0.322
Total	147347.587	1,421	103.692883	Root MSE	=	8.381

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval
ROA_1	.4086365	.0230655	17.72	0.000	.3633903 .453882
VAIC	.0923598	.015145	6.10	0.000	.0626509 .122068
LEVERAGE	-1.755348	.329013	-5.34	0.000	-2.400752 -1.10994
logsize	1.6914	.1744771	9.69	0.000	1.349139 2.03366
_cons	2.348516	.3803241	6.18	0.000	1.602457 3.09457

Table 2

```
. xtreg ROA ROA_1 VAIC LEVERAGE logsize, fe
```

Fixed-effects (within) regression

Group variable: ID

Number of obs = 1,42

Number of groups = 28

R-sq:

within = 0.0390

between = 0.0321

overall = 0.0341

Obs per group:

min =

avg = 5.

max =

F(4, 1133) = 11.5

Prob > F = 0.000

corr(u_i, Xb) = -0.0447

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval
ROA_1	-.0070225	.0239282	-0.29	0.769	-.0539711 .039926
VAIC	.1357112	.0221179	6.14	0.000	.0923146 .179107
LEVERAGE	.6021774	.4795319	1.26	0.209	-.338693 1.54304
logsize	.6826414	.2751218	2.48	0.013	.1428359 1.22244
_cons	2.882924	.4926874	5.85	0.000	1.916242 3.84960

sigma_u	8.0250071				
sigma_e	6.7152479				
rho	.58815989	(fraction of variance due to u_i)			

F test that all u_i=0: F(284, 1133) = 3.78 Prob > F = 0.000

Table3

xtabond2 Return On Asset Return On Asset_1 VAIntellectual Capital
 LEVERAGE logsize , generalised method of moments(Return On Asset_1 ,
 collapse) iv(VAIntellectual Capital) nolevelq nodiffsargan robust small
 orthogonal

Dynamic panel-data estimation, one-step difference GMM						
Group variable: ID		Number of obs		=	1	
Time variable : year		Number of groups		=		
Number of instruments = 5		Obs per group: min		=		
F(0, 285)	=	.	avg	=	3	
Prob > F	=	.	max	=		
ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interv	
ROA_1	.0443894	.1095793	0.41	0.686	-.171298	.2600
VAIC	.1130773	.0380261	2.97	0.003	.0382296	.1879
LEVERAGE	7.121216	7.591356	0.94	0.349	-7.821021	22.06
logsize	-4.372406	5.262421	-0.83	0.407	-14.73055	5.985
Instruments for orthogonal deviations equation						
Standard						
FOD.VAIC						
GMM-type (missing=0, separate instruments for each period unless collapse						
L(1/4).ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.15 Pr > z = 0.						
Arellano-Bond test for AR(2) in first differences: z = 1.19 Pr > z = 0.						
Sargan test of overid. restrictions: chi2(1) = 1.09 Prob > chi2 = 0.						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 1.03 Prob > chi2 = 0.						

Table4

xtabond2 Return On Asset Return On Asset_1 VAIntellectual Capital
 LEVERAGE logsize, generalised method of moments(Return On Asset_1 ,
 collapse) iv (VAIntellectual Capital) nolevelq nodiffsargan twostep robust
 small orthogonal

Dynamic panel-data estimation, one-step system GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 7		Obs per group: min =				
F(4, 284) = 27.82		avg =				
Prob > F = 0.000		max =				
ROA	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Inte	
ROA_1	.2273405	.1071713	2.12	0.035	.0163897	.43
VAIC	.2472076	.0569651	4.34	0.000	.1350803	.3
LEVERAGE	-9.996864	5.389835	-1.85	0.065	-20.60596	.61
logsize	8.2719	3.509398	2.36	0.019	1.364168	15.
_cons	3.821774	3.051304	1.25	0.211	-2.184267	9.8
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collap						
L(1/4).ROA_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless collap						
D.ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.87 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = 0.79 Pr > z =						
Sargan test of overid. restrictions: chi2(2) = 3.58 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 3.08 Prob > chi2 =						

Table6

xtabond2 Return On Asset Return On Asset_1 VAIntellectual Capital
LEVERAGE logsize, generalised method of moments(Return On Asset_1 ,

collapse) iv (VAIIntellectual Capital , equation(level)) nodiffsargan twostep
robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 7		Obs per group: min =				
F(4, 284) = 28.18		avg =				
Prob > F = 0.000		max =				
ROA	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Int	
ROA_1	.3266965	.0872376	3.74	0.000	.1549823	.4
VAIC	.2327698	.0554566	4.20	0.000	.1236117	.3
LEVERAGE	-8.011166	6.176854	-1.30	0.196	-20.16939	4.
logsize	8.589237	3.911458	2.20	0.029	.89011	16
_cons	2.280342	3.499925	0.65	0.515	-4.608743	9.
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless colla						
L(1/4).ROA_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless colla						
D.ROA_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.76 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = 0.96 Pr > z =						
Sargan test of overid. restrictions: chi2(2) = 3.58 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 3.08 Prob > chi2 =						

Appendix XIV VAIntellectual Capital and Return On Equity

Table1

. regress ROE ROE_1 VAIC LEVERAGE logsize						
Source	SS	df	MS	Number of obs	=	1,4
Model	74019.727	4	18504.9318	F(4, 1417)	=	194.
Residual	134743.38	1,417	95.0905998	Prob > F	=	0.00
				R-squared	=	0.35
				Adj R-squared	=	0.35
Total	208763.107	1,421	146.912813	Root MSE	=	9.75

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Interva
ROE_1	.4478972	.0224347	19.96	0.000	.4038885 .49190
VAIC	.1952828	.0178042	10.97	0.000	.1603575 .23020
LEVERAGE	-1.888944	.3841871	-4.92	0.000	-2.642581 -1.1353
logsize	1.345915	.1999652	6.73	0.000	.9536554 1.7381
_cons	2.873273	.4628862	6.21	0.000	1.965257 3.7812

Table2

```
. xtreg ROE ROE_1 VAIC LEVERAGE logsize, fe
```

```
Fixed-effects (within) regression
Group variable: ID
```

```
Number of obs =
Number of groups =
```

```
R-sq:
```

```
within = 0.2140
between = 0.0365
overall = 0.0783
```

```
Obs per group:
min =
avg =
max =
```

```
corr(u_i, Xb) = -0.2582
```

```
F(4,1133) =
Prob > F =
```

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Inte	
ROE_1	-.042011	.0220142	-1.91	0.057	-.0852043	.00
VAIC	.4081017	.0234629	17.39	0.000	.362066	.45
LEVERAGE	-.9591238	.5081994	-1.89	0.059	-1.956241	.03
logsize	.6977907	.2912652	2.40	0.017	.1263109	1
_cons	3.722871	.5428173	6.86	0.000	2.657831	4.7
sigma_u	10.104588					
sigma_e	7.1092085					
rho	.66889626	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(284, 1133) = 5.40
```

```
Prob > F = 0
```

Table3

xtabond2 Return On Equity Return On Equity_1 VAIntellectual Capital
 LEVERAGE logsize , generalised method of moments(Return On Equity_1 ,
 collapse) iv(VAIntellectual Capital) nolevel eq nodiffs argan robust small
 orthogonal

Dynamic panel-data estimation, one-step difference GMM						
Group variable: ID		Number of obs =		113		
Time variable : year		Number of groups =		28		
Number of instruments = 5		Obs per group: min =		3		
F(0, 285) =		.		avg =		3.5
Prob > F =		.		max =		
ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROE_1	.030391	.1353835	0.22	0.823	-.2360875	.296865
VAIC	.375255	.0416666	9.01	0.000	.2932416	.457268
LEVERAGE	8.017622	10.0905	0.79	0.428	-11.84374	27.8785
logsize	-3.458069	10.65972	-0.32	0.746	-24.43983	17.5234
Instruments for orthogonal deviations equation						
Standard						
FOD.VAIC						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.62 Pr > z = 0.00						
Arellano-Bond test for AR(2) in first differences: z = 0.65 Pr > z = 0.51						
Sargan test of overid. restrictions: chi2(1) = 0.86 Prob > chi2 = 0.35						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 1.17 Prob > chi2 = 0.27						

Table4

xtabond2 Return On Equity Return On Equity_1 VAIIntellectual Capital
 LEVERAGE logsize, generalised method of moments(Return On Equity_1 ,
 collapse) iv (VAIIntellectual Capital) noleveleq nodiffsargan twostep robust
 small orthogonal

Dynamic panel-data estimation, two-step difference GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 5		Obs per group: min =				
F(0, 285) = .		avg =				
Prob > F = .		max =				
ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Inter	
ROE_1	.0165598	.0872109	0.19	0.850	-.1550995	.18
VAIC	.3695233	.0368913	10.02	0.000	.2969092	.442
LEVERAGE	8.833564	6.864731	1.29	0.199	-4.678441	22.3
logsize	-5.265569	6.588249	-0.80	0.425	-18.23337	7.70
Instruments for orthogonal deviations equation						
Standard						
FOD.VAIC						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.47 Pr > z = 0						
Arellano-Bond test for AR(2) in first differences: z = 0.64 Pr > z = 0						
Sargan test of overid. restrictions: chi2(1) = 0.86 Prob > chi2 = 0						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 1.17 Prob > chi2 = 0						

Table5

xtabond2 Return On Equity Return On Equity_1 VAIIntellectual Capital
 LEVERAGE log size, generalised method of moments(Return On Equity_1 ,
 collapse) iv (VAIIntellectual Capital , equation(level)) nodiffsargan robust
 orthogonal small

Dynamic panel-data estimation, one-step system GMM						
Group variable: ID		Number of obs =		14		
Time variable : year		Number of groups =		2		
Number of instruments = 7		Obs per group: min =				
F(4, 284) = 35.52		avg =		4.		
Prob > F = 0.000		max =				
ROE	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ROE_1	.2376797	.0950538	2.50	0.013	.0505804	.4247
VAIC	.3885341	.0814664	4.77	0.000	.2281796	.54888
LEVERAGE	-6.346297	6.143675	-1.03	0.302	-18.43921	5.746
logsize	14.1074	4.73925	2.98	0.003	4.778886	23.435
_cons	1.473195	3.499416	0.42	0.674	-5.414889	8.3612
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapsed						
L(1/4).ROE_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed						
D.ROE_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.60 Pr > z = 0.0						
Arellano-Bond test for AR(2) in first differences: z = -0.34 Pr > z = 0.7						
Sargan test of overid. restrictions: chi2(2) = 2.90 Prob > chi2 = 0.2						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 2.75 Prob > chi2 = 0.2						

Table6

xtabond2 Return On Equity Return On Equity_1 VAIIntellectual Capital
 LEVERAGE log size, generalised method of moments(Return On Equity_1 ,
 collapse) iv (VAIIntellectual Capital , equation(level)) nodiffsargan two step
 robust orthogonal small

Dynamic panel-data estimation, two-step system GMM					
Group variable: ID		Number of obs		=	
Time variable : year		Number of groups		=	
Number of instruments = 7		Obs per group: min		=	
F(4, 284) = 35.17		avg		=	
Prob > F = 0.000		max		=	
ROE	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. I
ROE_1	.2258312	.1054138	2.14	0.033	.0183396
VAIC	.3916021	.0849947	4.61	0.000	.2243026
LEVERAGE	-5.820408	6.811033	-0.85	0.394	-19.22692
logsize	14.24626	5.048558	2.82	0.005	4.30892
_cons	1.14892	3.802617	0.30	0.763	-6.335969
Instruments for orthogonal deviations equation					
GMM-type (missing=0, separate instruments for each period unless col					
L(1/4).ROE_1 collapsed					
Instruments for levels equation					
Standard					
VAIC					
_cons					
GMM-type (missing=0, separate instruments for each period unless col					
D.ROE_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -4.52 Pr > z					
Arellano-Bond test for AR(2) in first differences: z = -0.34 Pr > z					
Sargan test of overid. restrictions: chi2(2) = 2.90 Prob > chi2					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(2) = 2.75 Prob > chi2					

Appendix XV VAIntellectual Capital and TOBINQ

TABLE 1

```
. regress TOBINQ TOBINQ_1 VAIC LEVERAGE logsize
```

Source	SS	df	MS	Number of obs	=	1,422
Model	306887.009	4	76721.7522	F(4, 1417)	=	301.89
Residual	360113.7	1,417	254.138109	Prob > F	=	0.0000
				R-squared	=	0.4601
				Adj R-squared	=	0.4586
Total	667000.709	1,421	469.388254	Root MSE	=	15.942

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
TOBINQ_1	.5790627	.0204266	28.35	0.000	.5389931 .6191322
VAIC	.0274251	.0286182	0.96	0.338	-.0287135 .0835638
LEVERAGE	-3.296636	.6285823	-5.24	0.000	-4.529688 -2.063584
logsize	2.8012	.3276704	8.55	0.000	2.158429 3.443971
_cons	7.060024	.7707444	9.16	0.000	5.548101 8.571947

Table2

```
. xtreg TOBINQ TOBINQ_1 VAIC LEVERAGE logsize, fe
```

Fixed-effects (within) regression

Group variable: ID

R-sq:

within = 0.0275

between = 0.2164

overall = 0.1590

corr(u_i, Xb) = 0.2973

Number of obs =

Number of groups =

Obs per group:

min =

avg =

max =

F(4, 1133) =

Prob > F =

TOBINQ	Coef.	Std. Err.	t	P> t	[95% Conf. In
TOBINQ_1	.0149854	.0194792	0.77	0.442	-.023234 .
VAIC	.1087224	.0348762	3.12	0.002	.0402932 .
LEVERAGE	-1.854491	.7564645	-2.45	0.014	-3.33872 -.
logsize	1.74041	.4333761	4.02	0.000	.8900996 2
_cons	13.62265	.8077628	16.86	0.000	12.03777 1

sigma_u	18.311982
sigma_e	10.587413
rho	.74946847 (fraction of variance due to u_i)

F test that all u_i=0: F(284, 1133) = 7.32 Prob > F =

Table3

xtabond2 TOBINQ TOBINQ_1 VAIIntellectual Capital LEVERAGE logsize ,
 generalised method of moments(TOBINQ_1 , collapse) iv(VAIIntellectual
 Capital) nolevel eq nodiffs argon robust small orthogonal

Dynamic panel-data estimation, one-step difference GMM						
Group variable: ID		Number of obs =		113		
Time variable : year		Number of groups =		28		
Number of instruments = 5		Obs per group: min =		3		
F(0, 285) =		avg =		3.9		
Prob > F =		max =				
TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ_1	.0745564	.0682572	1.09	0.276	-.0597958	.208908
VAIC	.1879247	.0902784	2.08	0.038	.0102278	.365621
LEVERAGE	-29.43791	16.5507	-1.78	0.076	-62.01502	3.139
logsize	8.23821	10.38621	0.79	0.428	-12.2052	28.6816
Instruments for orthogonal deviations equation						
Standard						
FOD.VAIC						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).TOBINQ_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.44 Pr > z = 0.00						
Arellano-Bond test for AR(2) in first differences: z = -1.10 Pr > z = 0.27						
Sargan test of overid. restrictions: chi2(1) = 0.44 Prob > chi2 = 0.50						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 1.14 Prob > chi2 = 0.28						

Table4

xtabond2 TOBINQ TOBINQ_1 VAIIntellectual Capital LEVERAGE log size,
 generalised method of moments(TOBINQ_1 , collapse) iv (VAIIntellectual
 Capital) nolevel eq nodiffs argan twostep robust small orthogonal

```

Dynamic panel-data estimation, two-step difference GMM
-----
Group variable: ID                Number of obs   =   1137
Time variable : year             Number of groups =   285
Number of instruments = 5        Obs per group:  min =    2
F(0, 285) =                      .                    avg =   3.99
Prob > F =                      .                    max =    4
-----

```

TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ_1	.0735105	.0736538	1.00	0.319	-.071464	.218485
VAIC	.1646028	.0888994	1.85	0.065	-.0103798	.3395855
LEVERAGE	-23.61728	17.57322	-1.34	0.180	-58.20705	10.97249
logsize	7.025515	10.91682	0.64	0.520	-14.46232	28.51335

```

-----
Instruments for orthogonal deviations equation
Standard
FOD.VAIC
GMM-type (missing=0, separate instruments for each period unless collapsed)
L(1/4).TOBINQ_1 collapsed
-----
Arellano-Bond test for AR(1) in first differences: z = -3.14 Pr > z = 0.002
Arellano-Bond test for AR(2) in first differences: z = -0.91 Pr > z = 0.363
-----
Sargan test of overid. restrictions: chi2(1) = 0.44 Prob > chi2 = 0.505
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1) = 1.14 Prob > chi2 = 0.285
(Robust, but weakened by many instruments.)

```

Table5

xtabond2 TOBINQ TOBINQ_1 VAIIntellectual Capital LEVERAGE log size,
 generalised method of moments(TOBINQ_1 , collapse) iv (VAIIntellectual
 Capital , equation(level)) nodiffsargan robust orthogonal small

Dynamic panel-data estimation, one-step system GMM						
Group variable: ID		Number of obs =		1422		
Time variable : year		Number of groups =		285		
Number of instruments = 7		Obs per group: min =		3		
F(4, 284) = 34.26		avg =		4.99		
Prob > F = 0.000		max =		5		
TOBINQ	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
TOBINQ_1	.1014501	.0812008	1.25	0.213	-.0583817	.2612818
VAIC	.505026	.1550156	3.26	0.001	.1999008	.8101512
LEVERAGE	-35.86457	14.77753	-2.43	0.016	-64.95196	-6.77719
logsize	21.08741	7.287337	2.89	0.004	6.743366	35.43146
_cons	19.89267	8.106176	2.45	0.015	3.936862	35.84848
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).TOBINQ_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
D.TOBINQ_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -4.49 Pr > z = 0.000						
Arellano-Bond test for AR(2) in first differences: z = -1.70 Pr > z = 0.090						
Sargan test of overid. restrictions: chi2(2) = 0.46 Prob > chi2 = 0.794						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 1.46 Prob > chi2 = 0.483						
(Robust, but weakened by many instruments.)						

Table6

xtabond2 TOBINQ TOBINQ_1 VAIIntellectual Capital LEVERAGE log size,
 generalised method of moments(TOBINQ_1 , collapse) iv (VAIIntellectual
 Capital , equation(level)) nodiffsargan two step robust orthogonal small

Dynamic panel-data estimation, two-step system GMM					
Group variable: ID		Number of obs		=	
Time variable : year		Number of groups		=	
Number of instruments = 7		Obs per group: min		=	
F(4, 284) = 33.84		avg		=	
Prob > F = 0.000		max		=	
TOBINQ	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. I
TOBINQ_1	.1118024	.0834022	1.34	0.181	-.0523624
VAIC	.5001037	.160605	3.11	0.002	.1839764
LEVERAGE	-34.84682	16.25372	-2.14	0.033	-66.83986
logsize	20.68531	7.404222	2.79	0.006	6.111197
_cons	19.20108	8.527556	2.25	0.025	2.41585
Instruments for orthogonal deviations equation					
GMM-type (missing=0, separate instruments for each period unless col					
L(1/4).TOBINQ_1 collapsed					
Instruments for levels equation					
Standard					
VAIC					
_cons					
GMM-type (missing=0, separate instruments for each period unless col					
D.TOBINQ_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -4.51 Pr > z					
Arellano-Bond test for AR(2) in first differences: z = -1.62 Pr > z					
Sargan test of overid. restrictions: chi2(2) = 0.46 Prob > chi2					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(2) = 1.46 Prob > chi2					

TABLE3

xtabond2 DIVIDEND DIVIDEND_1 VAIntellectual Capital LEVERAGE log size , generalised method of moments(DIVIDEND_1 , collapse) iv(VAIntellectual Capital) nolevel eq nodiffs argan robust small orthogonal

Dynamic panel-data estimation, one-step difference GMM					
Group variable: ID				Number of obs	=
Time variable : year				Number of groups	=
Number of instruments = 5				Obs per group: min	=
F(0, 285)	=	.		avg	=
Prob > F	=	.		max	=
DIVIDEND	Coef.	Robust Std. Err.	t	P> t	[95% Conf. I
DIVIDEND_1	.1808792	.4932857	0.37	0.714	-.7900662
VAIC	.0978358	.4146602	0.24	0.814	-.7183493
LEVERAGE	-53.12173	144.6625	-0.37	0.714	-337.8642
logsize	10.81467	66.76325	0.16	0.871	-120.5969
Instruments for orthogonal deviations equation					
Standard					
FOD.VAIC					
GMM-type (missing=0, separate instruments for each period unless col					
L(1/4).DIVIDEND_1 collapsed					
Arellano-Bond test for AR(1) in first differences: z = -1.13 Pr > z					
Arellano-Bond test for AR(2) in first differences: z = -0.20 Pr > z					
Sargan test of overid. restrictions: chi2(1) = 0.07 Prob > chi2					
(Not robust, but not weakened by many instruments.)					
Hansen test of overid. restrictions: chi2(1) = 0.10 Prob > chi2					

TABLE4

xtabond2 DIVIDEND DIVIDEND_1 VAIntellectual Capital LEVERAGE log size, generalised method of moments(DIVIDEND_1 , collapse) iv (VAIntellectual Capital) nolevel eq nodiffs argan twostep robust small orthogonal

Dynamic panel-data estimation, two-step difference GMM						
Group variable: ID		Number of obs		=	1137	
Time variable : year		Number of groups		=	285	
Number of instruments = 5		Obs per group: min		=	2	
F(0, 285)	=	.	avg	=	3.99	
Prob > F	=	.	max	=	4	
DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Interval]	
DIVIDEND_1	.2061351	.3942101	0.52	0.601	-.5697975	.9820676
VAIC	.1188036	.3543105	0.34	0.738	-.5785937	.8162009
LEVERAGE	-60.31907	120.2355	-0.50	0.616	-296.9813	176.3431
logsize	16.4794	52.31873	0.31	0.753	-86.50074	119.4595
Instruments for orthogonal deviations equation						
Standard						
FOD.VAIC						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(1/4).DIVIDEND_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -1.49 Pr > z = 0.136						
Arellano-Bond test for AR(2) in first differences: z = -0.30 Pr > z = 0.761						
Sargan test of overid. restrictions: chi2(1) = 0.07 Prob > chi2 = 0.790						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(1) = 0.10 Prob > chi2 = 0.756						
(Robust, but weakened by many instruments.)						

TABLE5

xtabond2 DIVIDEND DIVIDEND_1 VAIntellectual Capital LEVERAGE logsize, generalised method of moments(DIVIDEND_1 , collapse) iv (VAIntellectual Capital , equation(level)) nodiffsargan robust orthogonal small

Dynamic panel-data estimation, one-step system GMM						
Group variable: ID		Number of obs		=		
Time variable : year		Number of groups		=		
Number of instruments = 7		Obs per group: min		=		
F(4, 284) = 22.26		avg		=		
Prob > F = 0.000		max		=		
DIVIDEND	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interv	
DIVIDEND_1	.150176	.0734335	2.05	0.042	.0056331	.2947
VAIC	.4824233	.2755671	1.75	0.081	-.0599897	1.024
LEVERAGE	-45.66011	32.1005	-1.42	0.156	-108.8452	17.52
logsize	6.081842	7.462868	0.81	0.416	-8.607711	20.77
_cons	27.52479	13.85443	1.99	0.048	.254396	54.79
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapse						
L(1/4).DIVIDEND_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapse						
D.DIVIDEND_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.42 Pr > z = 0.						
Arellano-Bond test for AR(2) in first differences: z = -0.46 Pr > z = 0.						
Sargan test of overid. restrictions: chi2(2) = 0.08 Prob > chi2 = 0.						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 0.08 Prob > chi2 = 0.						

TABLE6

xtabond2 DIVIDEND DIVIDEND_1 VAIntellectual Capital LEVERAGE logsize, generalised method of moments(DIVIDEND_1 , collapse) iv (VAIntellectual Capital , equation(level)) nodiffsargan two step robust orthogonal small

Dynamic panel-data estimation, two-step system GMM						
Group variable: ID		Number of obs =				
Time variable : year		Number of groups =				
Number of instruments = 7		Obs per group: min =				
F(4, 284) = 22.60		avg =				
Prob > F = 0.000		max =				
DIVIDEND	Coef.	Corrected Std. Err.	t	P> t	[95% Conf. Int	
DIVIDEND_1	.1382292	.0570034	2.42	0.016	.0260264	.2
VAIC	.4579316	.2625313	1.74	0.082	-.0588225	.9
LEVERAGE	-42.18973	29.31808	-1.44	0.151	-99.89804	15
logsize	6.817705	6.884118	0.99	0.323	-6.732663	20
_cons	26.10153	12.67095	2.06	0.040	1.160643	51
Instruments for orthogonal deviations equation						
GMM-type (missing=0, separate instruments for each period unless collapse)						
L(1/4).DIVIDEND_1 collapsed						
Instruments for levels equation						
Standard						
VAIC						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapse)						
D.DIVIDEND_1 collapsed						
Arellano-Bond test for AR(1) in first differences: z = -3.04 Pr > z =						
Arellano-Bond test for AR(2) in first differences: z = -0.41 Pr > z =						
Sargan test of overid. restrictions: chi2(2) = 0.08 Prob > chi2 =						
(Not robust, but not weakened by many instruments.)						
Hansen test of overid. restrictions: chi2(2) = 0.08 Prob > chi2 =						
(Robust, but weakened by many instruments.)						

Appendix XVII Mediation Analysis

Table 1

sem (Intellectual Capital-> VAIntellectual Capital)(Firm Performance-> Return On Equity TOBINQ)(Corporate Governance-> LBSIZE BINDP CEODUAL ACINDP)(Intellectual Capital<-Corporate Governance) (Firm Performance<-Intellectual Capital Corporate Governance)

```
Iteration 1: log likelihood = -54807.781
```

		Coef.	OIM Std. Err	z	p> z	[95% Conf. Interval]	
Structural IC <-		CG	.3213541	0.11245	6.94	0.000	.6123124 .6784597
FP <-		IC	.2162847	.118599	1.88	0.000	.0263521 .4512874
		CG	.5861383	.044018	7.53	0.001	.2677142 .3125687
Measurement LBSIZE <-		CG	1.00	(Constrained)			
		_cons	.0516198	.1718939	0.30	0.042	.2867279 .3899676
LBSIZE <-		CG	.5078229	.1071399	4.74	0.000	.2969338 .3718712
		_cons	.0516198	.1718939	0.30	0.042	.2867279 .3899676
BINDP <-		CG	1.00	(Constrained)			
		_cons	2.544744	.4545544	10.68	0.020	1.25452 .352648
BINDP <-		CG	6.826618	.1384581	8.21	0.00	.1045899 .6496504
		_cons	3.253077	.4507666	5.10	0.00	.0751997 .0887142

CEODUAL<-							
	CG	1.00	(Constrained)				
	_cons	3.366521	2.432654	6.62	0.011	.2356487	.456
CEODUAL<-							
	CG	2.371957	8.922050	3.11	0.000	3.233436	5.41
	_cons	3.614928	.1105765	6.23	0.000	4.698034	6.13
ACSIZE<-							
	CG	1.00	(Constrained)				
	_cons	4.470133	2.378924	14.52	0.030	.1327317	.192
ACSIZE<-							
	CG	.2564125	.2215845	3.14	0.000	.1287457	.186
	_cons	5.115427	3.558745	15.05	0.000	.2254896	.265
ACINDP<-							
	CG	1.00	(Constrained)				
	_cons	6.544320	1.689758	7.15	0.000	.1526478	.178
ACINDP<-							
	CG	4.213145	2.125741	10.47	0.000	.3222546	.397
	_cons	6.524521	1.933325	5.01	0.000	.3256879	.472

ROA<-							
	FP	1.00	(Constrained)				
	_cons	.654171	.4378924	13.26	0.000	.1877452	.1924
ROA<-							
	FP	2.388911	1.817413	3.63	0.000	7.416179	9.316
	_cons	2.366521	1.432654	4.82	0.000	.2356487	.4568
ROE<-							
	FP	1.00	(Constrained)				
	_cons	5.461125	3.378924	9.02	0.000	.1627227	.1824
ROE<-							
	FP	3.566425	2.528996	12.86	0.002	.3256897	.6524
	_cons	6.996363	4.221302	14.18	0.010	.1752436	.2151
TOBINQ<-							
	FP	1.00	(Constrained)				
	_cons	3.570322	2.332698	11.13	0.010	.1224528	.1722
TOBINQ<-							
	FP	26.82661	4.111258	42.12	0.000	.4789669	.74327
	_cons	10.25307	8.922052	18.33	0.000	.9122344	4.780

VAIC<-	IC	1.00	(Constrained)				
	_cons	5.342214	3.376518	12.01	0.020	.1225642	.1864
VAIC<-	IC	2.689741	1.632355	7.88	0.040	.2357141	.6854
	_cons	5.342214	3.376518	12.01	0.020	.1225642	.1864
var (e.FP)		3.339587	82.83164			95.93435	89.14
var (e.IC)		5567.342	193.8057			5173.197	4806
LR test of model vs. saturated: chi2(0) = 0.00, Prob > chi2 = .							

Table 2

medsem, indep(Corporate Governance) med(Intellectual Capital) dep(Firm Performance) mrceps (500) rit rid.

Significance testing of indirect effect (unstandardised)			
Estimation	Delta	Sobel	Monte Carlo
Indirect effect	0.130	0.130	0.130
Std. Err.	0.040	0.038	0.040
z-value	12.144	12.147	12.146
p-value	0.000	0.000	0.000
Conf. Interval	0.331 , 0.242	0.328 , 0.311	0.331 , 0.311

Baron and Kenny Approach to testing mediation

STEP 1 - IC : CG (X -> M) with B=0.321 and p=0.000

STEP 2 - FP : IC (M -> Y) with B=0.216 and p=0.030

STEP 3 - FP : CG (X -> Y) with B=0.586 and p=0.000

As STEP 1, STEP 2, STEP 3 as well as the Sobel's test above are significant the mediation is partial!

RIT = (Indirect effect/Total effect)
(0.130/0.716) = 0.181
 Mening that about 18% of the effect of CG
 On FP is mediated by IC

RID = (Indirect effect/Direct effect)
(0.130/0.586) = 0.221
 That is, the mediated effect is about 0.2 times as
 large as the direct effect of CG on FP

Appendix XVIII Correlation analysis

Correlation matrix

Table 1

Variables	BSIZE	BIND	CEODUAL	GENDER DIVERSITY	AUDIT COMMITTEE SIZE	AUDIT COMMITTEE INDEPENDENCE	BSIZEPRE	BINDPRE	GENDER DIVERSITY PRE
BSIZE	1.00								
BIND	-0.012	1.00							
CEODUAL	0.025	0.122	1.00						
GENDER DIVERSITY	-0.126	0.142	-0.168	1.00					
AUDIT COMMITTEE SIZE	-0.215	0.226	0.226	0.014	1.00				
AUDIT COMMITTEE INDEPENDENCE	-0.061	-0.259	-0.325	-0.025	-0.225	1.00			
BSIZEPRE	0.056	0.156	0.121	0.125	-0.129	-0.258	1.00		
BINDPRE	-0.187	-0.264	-0.497	0.058	-0.256	0.024	0.014	1.00	
GENDER DIVERSITY PRE	0.154	0.112	0.258	-0.236	0.358	-0.010	0.011	-0.225	1.00
CEO DUALP	0.121	0.114	0.197	0.323	0.226	0.154	0.067	0.223	0.010
AUDIT COMMITTEE SIZEP	0.121	0.148	0.168	0.143	0.424	0.296	-0.168	0.542	-0.263
AUDIT COMMITTEE INDEPENDENCEP	0.162	0.445	0.112	-0.158	-0.168	-0.223	0.026	0.737	0.028

Table 2

Histogram

