# Earning management's impact on investment decision and performance of firm: The case study of manufacturing sector of Pakistan


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### CERTIFICATE

This is to certify that this thesis entitled **"Earning Management's impact on investment decision and performance of firm: The case study of manufacturing sector of Pakistan"** submitted by **Mr. Shehar Yar Khan** is accepted in its present form by the Department of Economics and Finance, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

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# DEDICATION

I dedicate this thesis to my family for nursing me with affections and love and their dedicated partnership for success in my life.

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***Abstract***

*This study aims to explore the relationship between earning management and investment decision of the firms. Secondly, to also check the impact of such investment decision and earning management on performance of firms. For this purpose data of 164 listed manufacturing companies has been used over the period of eleven year from 2006 to 2016. Special items variable has been used as proxy for earning management. Performance of firms has been measured through accounting based indicators including ROA, ROE, ROCE, EPS, and GP. Results of this study shows that firms engaged in earning management through special items manipulation also over invest in the same period. Consequently, such excessive investment and manipulation through special items negatively impact the performance of firms.*

# Chapter 1

## Introduction

A corporate body contains many dissimilar matters in order to run its business effectively and smoothly. We can say that corporate governance is basically the science that answers how a corporation should be governed. A very comprehensive definition of corporate governance "Corporate governance refers to the manners in which the affairs of a corporate body should be conducted in order to serve and protect the individual and collective interest of all the stakeholders" is given by Dr. S.A Butt. For governance related issues, OECD provide the research and experienced-based solutions for governance. In 1999 OECD first time introduce principles for effective regulation of corporations. Corporate governance involves many important matters to address. One of them is to implement the effective standards of accounting and reporting which prevent frauds and protect the interest of shareholders. Later on in 2004 revised version of these principles published. This version contains the fifth principle as "Disclosure and Transparency" which highlights the importance for disclosing the financial information. So, it is clearly showing the importance of accounting and reporting standards. As it is placed at fifth pillar for good governance code by OECD. Afterwards, number of studies has been conducted for proposing the solution for such kind of issues that are distinct in nature including effective board, management and owners clash of interest, governing bodies & institutional issues, accounting information disclosures, and many other issues. Moreover researchers, academician and scholars also initiate their focus on the issues regarding accounting practices, proper material items disclosure and erection of governing authorities. Similarly, with the passage of time where things were moving to the right path. On the other hand many other complex issues being discovered and investigation started to resolve these issues. Faraway discussion has not come to end. In today's world all the discussion

regarding business frauds and management misconduct have their roots back to the long stream of reporting scandals of multinational companies that happened in UK and USA in late 90's. Some of the examples are Hatry Group 1929, Yale Express System 1965, Equity Funding 1973, Bankers Trust 1988, Waste Management, Inc. 1999, Xerox 2000, and Enron 2001.

After 2001 there is a long list of companies which were found in very ingenious accounting mishaps. Enron hides its decline in earnings which overvalues company's equity in market. And it was badly crashed in 2007 when Bethany McLean an analyst said its equity is overvalued and detect some unusual transaction. It was a big shock to the whole business world, because it is not easy to decide that who should be blamed. Enron's case considered as the failure of auditing practice because it uses the loopholes within the Generally Accepted Accounting Principles (GAAP). Likewise, all the frauds done by means of asymmetry of information, off balance sheet transaction and window dressing of financial reports. Apparently, these scandals occurred due to loopholes in accounting and auditing practices.

As a consequence, diverse approaches adopted to avert such frauds and implemented rigorous accounting and auditing rules. After these scandals Financial Accounting Standard Board announced that board now intended to develop more principle based accounting standards. Likewise, Sarbanes-Oxley Act, International Financial Reporting Standards (IFRS) and International Accounting Standard Board (IASB) came into their existence. Core motive of IASB is to develop such standards which brings limpidity, responsibility and adeptness to the financial markets all around the world. Currently the utmost focus area of IFRS is principle of disclosure. And board is providing research-based services and rules to the member countries. That is short and rough demonstration on the importance of accounting standards, its rigid consequences, need for regulatory bodies and preventions measures that has been made to avoid these frauds.

Afterwards, it is worth considering fact that either these regulatory steps completely prevent the financial miss-reporting or there are still some actions that managers can do to show the good performance of their company? It has been answered into numerous perspectives. These measures prevent the acute kind of accounting frauds but still some manipulation are just within the boundaries of GAAP as shaped by different studies conducted in many different countries ( see., Bartov, (1993); M. Dechow, (1998); Gunny, (2005); McVay, (2006):; McNichols and R.Stubben, (2008); Badertscher, (2011)). These manipulations depicts the optimistic behaviour of managers towards earnings trend. And such maneuvering in earnings known as earnings management. According to Mintani (2010) "earning management is a process to window dress the finanacial statements".

From here a new discussion strated that how the managers mask the financial information in order to signal that firm have very certain and positve earnings. So, here the question arised that how managers can do manipulation within prescribed rules of reporting. Answer is, there are some methods that used by managers in order to show the good performance of the company. McVay, (2006), categorically gives the answer that these methods include, (1) Fradulent accounting practices (2) Accrual-based earning management (AEM) (3) Real Earning management (RM).

First one is prevented with the developmend and implementation of strict rules of disclouser reporting. Second one, accrual is an exposed and very frequently investigated topic and now most of the market participents can indentify such manipulations. Its very interesting to see the effects of recently focused area for investigation on how managers manage the earnings in order to avoid the decline in earnings using real activities. Because real earning management (RM) is a way of masking the accounting information that doesn't change the GAAP earnings. That's why, this technique is most desirable for managers. Because it is within the legal limitations of accounting rules and financial reporting standards prescribed by governing

bodies like IASB. Beside this, there are many other benefits managers want to achieve by doing RM. For the time being, it works in favour of manager to manage the earnings.

On the other hand, investment behaviour is a strategic decision based on the manager's discretion. Because these investment decisions are internal decisions taken by manager for value addition to wealth of the investment providers. In this study investment decisions are considered as the investment rate in fixed assets. As we know that project appraisal techniques are normally used for evaluating the investment in fixed assets as well. And we prefer the investment proposal with positive NPV, higher IRR as compared to hurdle rate and more than one profitability index. Earning management distort the investment decision through two channels. One, by smoothing the net income or net cash inflows (numerator in budgeting process) which is done by manoeuvrings in the revenue recognition and second by lowering the discount rate. Due to the fact that discount rate is composed of two components including risk free rate and reward for taking risk. Earning management smooth the income that lower the standard deviation of returns (depends upon the net income). Low risk requires low required rate of return which indirectly increases the NPV. Thus firm take up the inefficient investment opportunity.

Nevertheless, if we talk about its long run benefits then there must be some costs to bear. As Fama, (1991) conclude that market rewards good news for short period and after that this information incorporated in the share price. Consequently, market will again truly valuate the firm's equity. Managers starts doing RM by using different real activities including classical shifting, overproduction, and sale of assets as evidenced by (McVay, (2006); Gunny, (2005); Naila Tabassum, (2014); Bartov, (1993)). Problem is that masking the financial information is still possible by some complex ways and it turns something into head. Managers do earning management for their own interests. But whats about the shareholders and other stakeholders?

Does this kind of financial information masking strategies with the help of real activities benefits the firm? So, there is a need to further explore such problem and its special effects.

## 1.1 Research Gap

After studying existing literature on earning management come up to the point that there is need to explore the problem in more depth. How earning management leads to over invest and if firms invest excessively when they manage their earnings then how it would affect firm performance. That is the gap in literature which needs to do more work especially in context of Pakistani manufacturing sector. Up to best of knowledge (through literature review) same nature of research study has not been conducted on Pakistani manufacturing firms. That will be the contribution of this study to literature.

## 1.2 Objectives of the Study

This study aims to check the investment behaviour of pakistani manufacturing firms. How the manufacturing firms make their investment decisions in period when they are involved in earning management. Futhermore, empirically test the investmnet behaviour and its impacts on the performance of the firm. For this purpose two objectives are mentioned below:

(1) Investigate that either Pakistani manufacturing firms are involved in excessive investment in the period when they do earning management or not.

(2) Secondly, aims to find the impact of excessive investment and eraning management on the performance of firm.

## 1.3 Research Questions

Here these three research question are going to be investigated by this study:

(1) How the Pakistani firms invest? Optimistically, less than the level of optimistic investment, or invest excessively?

(2) How the earning management with special items influences the investment decision of firms?

(3) If the firms invest excessively then what is the effect of such excessive investment on the performance of the firms?

## 1.4 Significance of the Study

Previously, literature focused on the earning management and its different impacts including incentives to managers, impact on firm's performance, and long run dis-advantages for doing earning management. Whereas some of the researchers revealed that firm inefficiently invest in the time period when they do earning management (see., McNichols and R.Stubben, 2008: Shen, 2015). This research will particularly explore the investment behaviour and its impact on performance of manufacturing sector of Pakistan. Findings of this study can be used in developing disclosure rules and applying them as financial reporting standards in Pakistan. This study also uncover the association between specific earning management technique and its consequences among all the sample manufacturing sector firms. Results will alert the analysts, shareholders and investor about the earning management technique and about how firms in Pakistan manipulates the fianncial figures in order to show good performance. Also shoves investor's interest towards more regrious analysis which results in the benfits of all the stakeholders.

# Chapter 2

## Literature Review

Literature review is divided into several sub sections. First, we will shortly see the earning management and its relationship with corporate governance. Afterwards, will review the available literature from all the possible perspectives. Because this study focus on the relation between earning management and investment behaviour. Therefore, in the last portion will try to gather the facts related to earning management and investment.

### 2.1 Earning management and corporate governance

Previously, a tracked stream of research studies examined the impact of corporate governance on earning management. (M. Dechow *et al.,* (1998); Sweeney *et al*., (1996); Burgstahler and Dichev, (1997)) investigate the association between the accounting frauds and some of the board characteristics. They found inconsistent results with some characteristics of board. Moreover, Bergstresser, (2006) also finds inconsistent result of relationship between earning management and index of corporate governance quality.

Klein, (2002) shows the impact of only one characteristics of the board which related to the independence of audit committee. And reveal that audit committee independence contains low power to mitigate the earning management. Because of auditors give different kind of treatment to firms while passing judgment.

Z.A Shah *et al.,* (2009) investigate the relationship between the quality of corporate governance and earning management. For measuring the quality of corporate governance they take it as linear function of three sub proxies (1. Board structure 2. Ownership structure and 3. Audit committee independence). And for earning management they use discretionary accruals as proxy (cash flow statement approach). They found positive association between earning

management and quality of corporate governance. Results were against the theory of corporate governance. Because sole objective of corporate governance is to protect the shareholder's right. Thus it is against the theory but empirics are not only reliable source to conclude. Therefore, they state that results are not aligned because of the immense pressure on firms during the selected period of analyses. Their sample was Pakistani firms for the year 2006. Due to implementation of governance code in Pakistan firms facing pressure so that might be the reason.

In context above, Mansor, (2013) conduct a study on the Malaysian firms to investigate either corporate mechanism is able to minimize the earning management. They categorize the firms in two groups based on the stratified sampling. One for family owned companies (FOC) and other for non-family owned companies (NOFC). Their results shows that in case of FOC only on characteristics of corporate governance is helpful in mitigation of earning management (number of board meetings held) while for NFOC remaining specific characteristics of governance are able to minimize the earning management.

It prove that corporate governance is helpful in mitigation of earning management. Another study Amjad Iqbal, (2015) conducted on Pakistani firms which is the extension of Z.A shah *et al.,* (2009) work. This study use the same model for measuring the discretionary accurals and pratice of corporate governance (added two more charateristics of corporate governance) with extended period of time. Their findings are consistant with theory of corporate governance. They found negative association between board independence and earning management. whereas dual chair of CEO found positively correlated to earning management. In summarized form we can say that theory of corporate governance strongly influence the earning management decision in different types of ownership structures of firms.

## 2.2 R&D spending behaviour and RM

Generally, it is believed that spending in R&D is kind of investment that will make incremental difference or return after long time. Therefore, it is considered as the most common way to manage earnings. Younes, (2015) State that there is asymmetry of information around the R&D expenditure therefore it's easy for managers to cut-off the expenditure in order to report increased earnings (vice versa). They also argue that due to mandatory provision of capitalization of R&D by IFRS, managers start the real earning management instead of accrual.

R&D investment decision is based on two type of theories. First one prospect theory, manager's decision making based on the short term analysis of losses and benefits without considering the final values (see., Kahneman and Tversky, 1979). Second is psychological theory, which states that people are more likely to have positive numbers rather than negative numbers (see., Degeorge *et al,.* 1999).

Some studies reveal that reduction in R&D investment smooth the earning just to beat the analysts forecast (see., Perry and Grinaker, (1994); Bondt *et al.*, (1998); Mande *et al.*, (2000)). Whereas, some studies (see., Osma, (2008); Young *et al.*, (2009)) argue that such type of cuts are usually indicated by the analysts because these are made right beofre the period when analysts makes forecast. So, the information is being adjusted against these decreases of R&D expenditures. Roychowdhury, (2006) also studies the relationship between real earning management and R&D. He finds that firms can increase their earnings by decreasing the invesmtent in R&D expenditures, adverstisng, maintenance and bounses. A very broad litreature discussed the association, consequences and linkages between R&D expenditures and earning management through different point of views. But most of studies put the evidence that by decreasing (increasing) investment in R&D managers can increase (decrease) earnings for keeping in view the very short benefits. Thus from selective literature above we can conclude

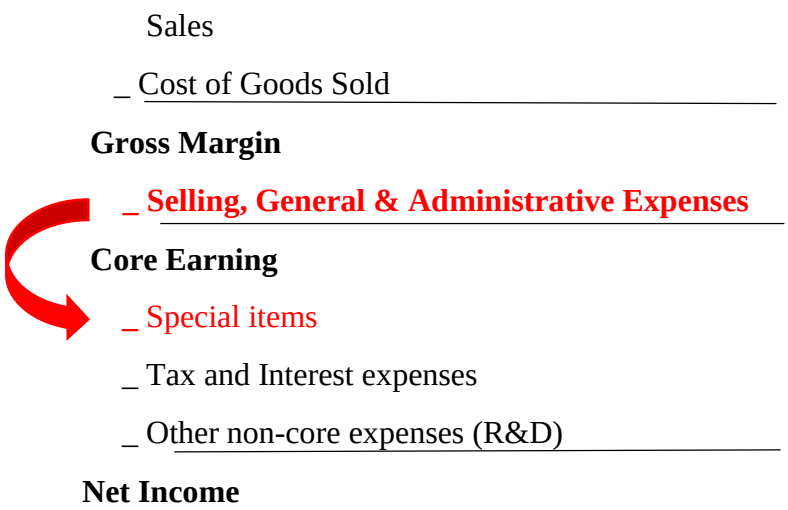
it into a hypothesis that there is positive relationship bewteen targets of earnings and decreasing R&D expenditures.

### 2.3 Earning management and incentives

Schipper, (1989) first time define the earning management "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain". And this intervention in financial reports mislead the readers, investors, shareholders and all other stakeholders. Most of the investors are interested in the earnings trend of firms. Means, they believe if a firm have some positive consist earnings in last year then it should earn more in next year. That is the indication managers wishes to create and would succeeded in beating analysts and market (in short run) in order to sustain reputation.

Real earning management with special items is distinct from formally used techniques of managing earnings. Managers usually miss-classify core expenses as special items and then write off them. Examples of such expenses include restructuring charges, one time charges etc. that usually not repeated in the very next year. Here is the illustration how managers miss-present the expenses to show the better performance to stakeholders.

**Figure 1 Manager's incentives**



According to the (McVay, 2006) managers who want to increase the core earnings will misclassify the SG & Administrative expenses to special items and increase the core earnings ultimately. In this way management misleads the stakeholders about the actual performance of firm. Jensen & Meckling., (1976) said there is an agency relationship between management and owners, there managers also try to maximize his utility. Manager take decisions for satisfying himself without caring about the actual owners. Jensen and Murphy, (1990) empirically proved that CEO's earn only $3 on their stocks for an increment of $1000 on equity shareholders wealth. It indicate the market performance of equity share is important for executives, managers and insider. Because up to the fact that it has smaller effect for their benefits but indirectly it is related with their compensation other than salary. Additionally Jensen, (1993) proved that CEO's have more incentive are usually more involved in managing the earnings.

Bergstresser, (2006) evidenced that in firms where the CEO's incentives are totally based on stocks and options. In such firms accruals have more incremental trends. Moreover managers, CEO's and insider unusually exercise the right to sell share and option stock in large quantity. Which clears that managers do earning management to increase the market value of share and then earn by utilizing that opportunity (by selling shares in such period).

Rani, (2013) used questionnaire based approach and gather primary data about incentive related to managers and executives. Due to the fact that most of the manager's incentive are based on the stock performance. That's why managers are always conscious about stock performance and stock price is maintained by showing certain future cash flow. Which leads managers to do earning management. Motive behind engage themselves in earning management is only to save their extra incentives that could be earned only in case of good share performance. Incentive losing threat include non-renewal of contracts, downgrading, promotion and no entitlement of benefit, triggers manager to engaged themselves in earning

management. These are some reasons responded by CEO's and managers on close-ended questionnaires. Motivation of the study is the complex discrepancies between these accounting practices and such kind of phenomena. Where managers can use the financial reporting to deceive stakeholders and get benefits by masking the true information.

### 2.4 Institutional clout and RM

In the last section we see the part of literature that elaborate the manager's incentive for managing the earning. But, there will be definitely some factors which help out the managers to manage earnings. These factors are the controlling agents which influences the manager actions. Thus, these agents include the number of board of directors and their independence, role of external auditors which ultimately have influential power on managers reporting.

Some studies find the controlling factors which soften the earning management. For instance, Nelson *et al*, (2002) conduct a field based questionnaire approch study on the 253 auditors of the big firms. They seperately analyze the managers decision and auditors decision related to earning management. they find that audit effectiveness is changes from client to client in terms of the remmunaration auditors will earn. From the side of auditors, they find very interesting responses. Like they found that audiotrs are more interested to adjust the transaction of earning management in small firms and less in big firms. Because they belive most of the time big firms properly follows the accounting standards. And their belive may encourages the managers to manage earnings. In context of the above study, we can say that auditors are not completely independent for giving their judgments. They have different treatment behaviours for different level of firms. So, it should also be investigated that independence of auditors matters or not. Likewise, Klein, (2002) study the relationship between earning management and independence of audit committee. She used the discretionary accruals as the proxy for

earning management. and she find a negative association between the indenpendece of audit committee and discretionary accruals. She also find that more the board is independent less the chances of earning management. she suggest that reduction in the independence of board and audit committe accompained by the large amount of earning management.

Additionally, the core objective of the audit and board committee is mitigation of descripencies. But, if such function is not fulfilled then it will lead in the direction of many issues related to firms including the atmost one (financial reporting). In most of the firms hiring process of auditor is based on managerial shoulders. Here arises the concept of employee-client contract. Means on what grounds the auditor's remmuneration for conducting audit is settled. This thing also have a very encourging impact on the auditors judgment about firm's reporting. Dikolli *et al.,* (2006) states there are three types of contracts (1.Based on financial performance, 2.Non.financial performance and 3.Fixed salary). They study the impact of such contracts on the auditors planning judgement. They reveal that auditors considers the financial based contracts risky for audit while they prefer the non- financial contracts. Which ultimately settled with managers and the audtiors judgement could not be against the manager's interest. Here risk of audit (due to financial performance based contracts) in the view of auditor is a key variable which mediates the situation between the both parties.

### 2.5 Impact of financial reporting factors on RM

Managers always have sensitive behaviour towards the pattern of cash flows. Therefore, they make their best efforts to have a positive streams of future cash flow. Many studies examined the influence of reporting factor on the earning management behaviour. In an experimental study, Libby, (2005) studies the effect of market pressure and mandatory financial disclosure on manager's myopic behaviour. Myopic behaviour is when someone take the decision on the basis of current situation without thinking about its future come outs. They

develop two independent variables one market pressure and second one the mandatory disclosure frequency (annually, quarterly). They ask the managers of different companies to choose project within a line of projects from small to longer (in terms of duration) to lift the earnings up or down. Now, the experienced managers make the choice of project on the base of cash flow and pattern of earnings. Results suggest the story that managers chose the project that they believe will up earnings for short time period instead of the total cash flow inwards of the project. Managers behave in such a way because they have increased capital market pressure and they want to make the picture which depicts that firm is having very certain increasing trends of earnings.

One reason for this behaviour could be that longer period projects smooth the earnings and cash flow trend. And managers are facing market pressure so they usually not consider the longer effect. That was the very first study that show managers keenly manipulate the earning via avoiding the longer effect of cash flow. Another experimental study conducted by Hunton *et al.*, (2006). They basically conduct a behavioural study. They incorporate the reporting transperancy. They design a portfolio of equity securities contianing five securities and managers have the option of selling one of the five openly without facing any difficulty.

On the other hand they implemented the transperancy standard for equity securities as an independent variable (based on Statement of Accounting Standard No.30 ) with the help of IAS. The financial excutives are allowed to sell one security to increase or decrease the current earning. Finally, results of the study conclude that if there are strict disclosure rules then earning management factor reduces, but cannot be eliminated. Chances still exits for both the situation increasing or decreasing the earning. In both of the experimental studies researchers assumed that the interest of managers are alligned with the interest of shareholders. But we know that's not pratctically true because of the presence of the agency theory. And

seperation between ownership and managmenet. Which indirectly must be ended in clashes of interest. And this is even very true if we take it to the side of stakeholders based theories.

### 2.6 RM and institutional ownership

Jensen, (1976) introduced the theory of firm and its different forms of ownership structures. Jensen also described the benefits and costs (agency costs) of these ownership structures. Institutional ownership is also among the prescribed ownership structures by Jensen. Argument in favour of institutional onwership is that onwers are not fully informed and cannot control the role of managers. If they want to advance a delegate system of decision making they have to hire more excutives persons who performs these monotoring duties for owners. But what happen, if these excutive will started to favour the manager's interest. Therefore, Jensen suggested that institutes already have control mechanisim they can controle it better. So, firms owned by other institutional investor are less likely to bear unfair costs and there will be less chances of managing earning for private gain. This structure will proctect the interest of shareholders. This is known as "efficient monotoring hypothesis" and it means there is negative relationship between EM and onwership structure (Sanusi, 2015).

There are several studies which investigated the impact of institutional ownership on earning management. If categorize them, there are four school of thoughts supported by emprical evidences. First one says that institutional onwership in itself is a mechanism where managers are likely to engage in earning management with the least hardles. Many studies (see., Bondt *et al.* (1998); Chung et al., (2002);Ebrahim, (2007); Cornett et al., (2008)) supports the above argument that institutional ownership allows the managers to engage themselves in earning management. In addition, second arguments says institutional ownership machinate with the managers. This argument is supported by several studies (see., Pound, (1998); Sundaramurthy *et al.*, (2005)).

Third, a school of thought believes that institutional owners are not interested in playing their role actively. Duggal *et al.,* (1999) states that institutional type owners are not active excutives. They are passive and are always have keen intentions to sell out their ownership in poor perfromance of the firm. Duggal state that instituional owners not play their role of monotoring actively because they doesn't want to get affected their business relationship by voting against the managers. If simply say, theses institutional investor are incompetent of expertily monotoring the managers. As a result, they perform very passively and do not influence managers at all and also not perform their role of monotroing duties actively (see., Claessens *et al.*, 2002).

Forth and last school of thought belives that instituitonal investors desperately attentive towards the short term earnings. They are not interested in holding the business for very long term. They just want to earn from it. That the reason they are not able to perform monotoring role. Their such expectations put heavy pressure on managers to meet the these short term expectations. For meeting the such requirements, managers involve themselves in managing the earning for very next coming inflows ( see., Bushee, 1998).

### 2.7 Measurement of RM and its impact on firm performance

Previously, many researchers studies the earning management by using different proxies to measure real earning management and provide a multi-dimensional picture of the problem. Including the special effects of earning management, reasons why managers do earning management and other factors that lead managers to earning management. Bartov, (1993) Revealed that managers sell the assets in order to increase earnings in the period when reporting increased earnings have more benefits. That timing of sale of assets show masking of actual performance of firm and also a tool of earning management. Similarly, Burgstahler and Dichev, (1997) stated that firms avoid decreasing earnings and losses. In their study they

proved that firms do earning management in two ways. One by cash flows from operation and second by change in networking capital. Both components are used as proxy for earning management. Both are considered as components of earnings. Firms do so when they face negative earnings or losses.

To this end, Rangan, (1998) study suggest that the firms which offer seasoned equity such firms manage their earnings right before the offering. He added that such firms face a rapid decline in earnings and their stock prices in post-offering period. Reason for the phenomena is market momentarily over valuate such firms which manage their earning time around the equity offering. Firms do this by managing discretionary expenses and market unable to optimistically value such stocks. And a very important addition of Rangan, (1998) toward literature, he evidenced that in period when firms manage earnings for the purpose of issuing new equity, in such period discretionary accruals negatively associated with the change in earnings.

M. Dechow, (1998) Investigate the relationship between earnings, cash flows and accrual. M. Dechow develop a model for these variables which are based on incorporation of future cash flows in earnings. And then try to investigate the forecasting ability of earnings (incorporated future cash flows) and compare it with current cash flow method of predicting future inflows. And also investigate whether the forecasting dominance of current earnings increases with the operating cash cycle? The results indicate that earnings are incrementally useful in forecasting future cash flows. Cash flows exhibit only modest incremental forecasting power. And finally conclude that the difference between earnings and cash flows are accruals, earnings forecasting power beyond cash flows is attributable to accruals. The model also foretells a solid negative association between accrual changes and cash flow changes. Current earnings are a better forecast of future cash flows than current cash flows as predicted (see., M. Dechow, (1998)).

Mary E.Barth, (1999) found that managers look like attentive to have increasing earnings pattern. Research revealed that managers do RM by using overproduction because the market pays for it. Potential investors are very much interested in firm's future earnings. Therefore, they risk their investment for the firms which are previously having increasing trend in earnings. In this way market rewards the firm in terms of their high share price.

McNichols, (2000) afterward summarize the literature regarding earning management proxies and try to evidence the weakness in the models previously used in many famous studies. She categories these proxies into three groups. First aggregated accruals model which uses all the components of accruals as the proxy for measuring earning management. Second, specific accrual models which uses the specific components of accruals as the proxy of earning management including bad debts, write offs and allowances etc. Third, frequency distribution approach which uses the technique of comparing the earning of current year with last year and in quarters also. Gunny, (2005) argued that earning management is basically of three types (1) Fraudulent Accounting practices (2) Accrual based earning management (3) Real activities based earning management. Earning management have a very significant impact on future performance of the firms. Earning management can be done through four techniques (1) R & D (2) SG & A (3) timing of assets sale (4) overproduction to lower the COGS. All four categories have negatively associated with the future performance of firm. Furthermore, investors are not able to identify the effects of (R&D, timing of assets sale) but can recognize SG & A and overproduction.

McVay, (2006) Provide evidence that firms report their core expenses as special item in income statement to mask the performance and try to meet the forecasting of analysts. This vertical changing of expense do not affect the overall income. Roychowdhury, (2006) evidenced that firms are usually involve in managing of their earnings through manipulation of cash flows

from operation by offering discounts, lowering discretionary expenditures to report increased margin profit and finally by overproduction which reduces the cost of goods sold.

After McVay a new dimension added by Nichols and also provide various linear models to measure the RM. McNichols and R.Stubben, (2008) revealed that firms usually do over investment in fixed assets when they are engaged in earning management. They developed a linear model to identify the excess of investment and state that when firms are engaged in managing earnings they excessively invest in fixed assets. And this study will also follow their model to identify the excess of investment. As many researcher claim that most of the discretionary expenses undertake the heading of R & D or SG & A expenses. Therefore, it would be pointless if someone ignores the marketing side of firms. Because in every country firm spends a lot on marketing of their product. Consequently, a new dimension of queries occur that either marketing manager have influence to do RM, if yes then how they do it?

For this purpose Chapman, (2008) investigate the earning management through a different perspective. Many firms charge low prices for their products and offers discounts schemes in the last quarter of the years. He argued that technique behind discount offers, is managers have to achieve the target earnings so they do so. Additional, Chapman, (2008) revealed that increase in sales due to lower price promotion, discount schemes boost the short term earning management and enough to meet the target EPS. Ultimately revival firms also offers discounts. Later on in 2011 Chapman and Thomas conduct research about when the manager have incentive to manage earnings. They found Soup producing firms produce double of their production in last quarter instead of reducing the expenses and just change the marketing mix to boost the short term earning. Brand manager is responsible for the earning management because right after promotional sales a phenomena of ‘post promotional dip’ occurs and cost of 7.5% is associated with that. Brand managers avoid long-term earnings in order to smooth earning and their preference (see., Thomas, (2011)).

Thereafter a new discussion underway when Badertscher, (2011) proved that degree and time length of overvaluation of equity is crucial determinant for manager's choice to shift from one type of earning management to another. And managers of overvalued firms continues overproduction to sustain the firm value. Enomoto, *et al.* (2013) examines the difference between accrual based and real earning management. They revealed that firms prefer REM over AEM in countries where investor protections right are stricter and regulatory bodies are implementing rules strictly. For measuring the AEM they used three proxies 1) standard deviation of operating earnings divided by standard deviation of operating cash flows, 2) correlation between the change in accrual and change in operating cash flows (for measuring accruals they used the Solan models), 3) Absolute value of accrual divided by absolute value of cash flows. For measuring REM they uses other two proxies 1) correlation between change in production cost and change in sales, 2) correlation between change in discretionary expenditures and change in sales. And for investor protection variables they used three proxy variables (legal enforcement, Discloser regulation and Analyst following).

Results showed that REM is negatively related with investor protection and positively with AEM. And similarly provide evidence that advance the analyst investigates the fewer the REM firm can do. Results depict that strong investor protection restricts AEM but induce a shift to REM. A new side was added to literature and it's founded that many firms engage in earning management through overproduction. That is also an important turn that for showing positive image firms ultimately over produce. It has positive or negative impact that should be investigated. So, for that purpose, Naila Tabassum *et al.* , (2014 ) investigate either the Pakistani firms are engaged in overproduction or not. And how overproduction imitates in firm's profitability. Naila Tabassum *et al.* , (2014 ) used the model of Dechow *et al*. (1998) to construct the earning management variable through proxy of overproduction. They uses ROA, ROE, PE ratio, and EPS as measures of financial performance. Other variables including size,

Alt's man ZSCORE model, and growth used in their study as control variables. Because big size firms are probable to have additional profit in future (Fama and fench, 1995). ZSCORE model signifies financial strength of firm and high growth firms are expected to have high fraction of profitability in coming year that's why they are controlled variables in their study.

Results exhibit that in 2006, 47% of manufacturing companies were involved in overproduction to noise greater earnings Naila Tabassum *et al.* , (2014 ). They used four models in their study to investigate the effect of earning management through overproduction on firm's financial performance and all the four models revealed the negative association with financial performance. In a nut shell, combining the findings of all models, there is negative impact of real earnings management on subsequent financial performance.

Afterthought, an event study conducted for Tunisian firms. Weather the implementation of a security law effect the RM or not? Sarra *et al.* (2015) studies the real earnings management activities of 76 Tunisian public offering firms before and after the implementation of the financial security law, over the ten-year period (2003 to 2012). They study both operating and investment activities management and measure investment activities manipulation through the sale of fixed assets and investment securities. They match the performance of real earnings management by breaking the study era down into two moments, a time before and a time after the putting into practice of the financial security law. Furthermore, it's quite interesting to see how the market reacts in the period when firms mask their earnings through earning management. John M. Carlson, (2016 ) claimed that firms repeatedly increase their earnings in the fourth quarter of year to beat the market. Because of the fact that market reward for the positive signal "efficient market hypothesis" market reward (punish) for good (bad) news (Fama, 1991). Study shows that firms have some quarterly reverse patters to manage their earning to fool the market Thus, result show that market can't be fool and just pay reward for the very short term after that it would reflect in the stock prices.

## 2.8 Earning management and investment decision

Although, this study will test that firms which engaged in earning management invest more than their optimal level of investment. This excessive investment portion lead firms to inefficient investment as described by McNichols and R.Stubben, (2008) that RM lead to inefficient investment decision by giving pervert information.

Sweeney, (1996) study revealed that firms do earning management to attract the external financing at low cost in order to further make capital investment. Due to the fact that managers face financing constraints that's why they use RM as a tool but still it is a mystery that why managers not optimistically invest. Wang, (2006) finds that firms over invest in R & D when they manage earnings. It happens when accounting flexibility exits to do so. In the same way Zang, (2005) shows that firm have different choices to invest when engaged in earning management. Afterwards a stream of papers including (Verdi, (2006); Bushman, (2006); Hilary, (2006)) finds that better financial reporting reduces the dicrepancies of information between the firms management and its stakeholders who ultimately provide financing. Shen, (2015) use the two different methods for getting excess of investment. First the industry average level of investment and second by using regression residuals. Furthure Shen, (2015) use the two different regression equations one from the model of McNichols and R.Stubben, (2008) and second from the extend cash flow model of Richardson, (2006). And proved that both of these method support the hypothesis of overinvesmtent. Additonally, he discovered that outliers should be considered while estimating the residuals.

If we sketch the literature in short and descriptive form to understand the already done work we can conclude that different researchers proved that RM leads to excessive investment in the fixed assets. And such investment proven ineffiecient for the firm. Some state that inefficiency can be controlled by improving the quality of disclosure of financial

inforamtion. But there is still gap that how this investment decision affetcs the firm's performance. Now focus of this study is not to test the impact of RM and investment with respect to the lower cost external financing for firms or outliers consideration. This study will test the RM and excess of investment in the absence of external fiinancing.

# Chapter 3

## Theoretical Framework

This chapter aims to explain the theoretical framework of the study. This chapter contains discussion of different theories of finance related to earning management. And will explain the earning management in light of these theories.

### 3.1 Agency Theory

The article of Jensen & Meckling., (1976) titled "Theory of firm: Managerial behavior, Agency cost and Ownership structure" considered as the dominant base of agency theory in finance and corporate governance literature. Establishment of agency theory is rooted in the assumption that all the previous theories are incredible on theoretical level but cannot be empirically tested. Agency theory imparted the new vision to researcher. That firm contains the principle agent relations. Agency theory label the owners as principles and managers as agents who act in best interest of owners. In the same way, agency relationship is being developed between managers and shareholders. This section will discuss the agency theory on base of the points mentioned below and also describe the relationship between agency theory and earning management;

- Separation between Management and ownership
- Conflict of interest
- Agency cost (EM)
- CSR and EM according to agency theory

Before going into the detail of the core points of agency theory lets have an overview of what are the key assumption on which agency theory is based.

### 3.1.1 Assumption origin of agency theory

Same like other theories interconnected to economics and behavioral finance, agency theory is also based on some assumptions. Jensen & Meckling, (1976) proceeds the assumptions of agency theory based on the behaviour of human. They assumed;

- Agents are rational
- Optimistically behave
- Manager's interest is driven by incentives
- Resourceful

On these basis agency theory of modern corporate structures is developed. And mathematical solution for optimal level of capital structure for every types of ownership structure is determined in the presence of monitoring contracts. Thereafter, some researchers for example Brennan, (1994) argue that agency theory is based on the assumption of economics model of man. They actually take it the same as the assumptions of economic model of man are.

Resultantly, Meckling, (1998) review their work and condemn the critique regarding the base of assumptions for agency theory. They compare the five force model of the human behavior and referred their own model named as REMM - Resourceful, Evaluative, Maximizing Model as the best reflection of human actions and the economic model of man is the weak form which doesn't fully reflect the actions of human. They state that foundation for their assumption is their REMM model. Which not same like the economic model of man.

Afterwards, Smith, (2011) compare the economic model of man and REMM model assumptions and conclude that there are some difference between both the models but can be improve to make capable these model to captures the true behavioral traits. Also argue that man is self-interested, optimistic and driven by incentives, currently these things addressed by the agency theory of this man (as manager) in modern corporations.

### 3.1.2 Separation between management and ownership

According to Smith, (2011) agency theory use the concept of separation between ownership and control which is driven from the era of corporation development in the mid of 20th century. Because in late 19s the industrialization was at its peak and big brands name were growing in size. That's why they need external source of funds. Which eventually instigate the race of optimism in decisions from both the parties' managers and owners.

Hence, it created the big stock markets. Which pledgee the sense of risk bareness among shareholders and outsider investors. These outsiders become conscious about the risk associated with their investment and also about the benefits other will enjoy on their money. Jensen & Meckling, (1976) provide the optimistic solution (optimal capital structure) for different types of ownership structures in absense and presense of debt fiancing. They provide mathematical basis for the analysis, well along, there is debate on the accuracy of their analysis. Some researcher said they choose the situation on predecide basis and mathematical analysis was not to some ideal extend (e.g Brennan, 1994; Shapiro, 2005).

But these are still considered as huge contribution in the development of corporate structure. Coming back to the point, when divergent organization built due to the outsider investors. There arise the need of balance between the interests of all types of investors. Jensen gives the nexus of contract as a framework for the protection of everyone's right in a very optimistic way. Reason behind the contract creations is that owners (shareholders) have a willingness to bear risk but not necessarily interested and have time to actively manage the matters of firm. That's why contractual relationship is created where managers (agent) will bear risk and control the matters of firm on the behalf of owners (principle).

### 3.1.3 Conflict of interest

Considering the separation between owners and managers, the divergence of risk profiles among both the parties is occurred. Which means that it can be happen the manager will not always act in the best interest of shareholders. May be shareholder is not risk averse person but managers is, then mangers would definitely not take the best decision for the shareholder's interest. He chooses according to his own choice because maximizing the shareholder's wealth may not always in best interest of managers. Meanwhile, now both the parties have different goals. For example, in a contract manager have to complete a project in three months where consumption of oil is needed and he has to do it within a predetermined amount. After entering into the contract, right after one month oil prices rises up to 30 percent. Then he has to bear the loss if he have not judge it or keep it in mind before entering into contract for his compensation.

In such types of cases where manager's compensation is based on contracts execution there are many problem that can lead the managers to do the actions which are not align with the shareholder's interest. We examine it particularly, conflict arises for the reason that referred as hidden actions. Additionally, also because of the moral hazards. Hidden actions are happened just because of the asymmetry of information. Whereas on other the hand, moral hazard is combination of two terms together. One is conflict of interest and secondly, the actual actions of managers after entering into the contract. These moral hazards problem is at central of agency theory and this theory is designed to addresses these problem and conclude with optimal solution in terms of optimal capital structure in different ownership structures.

### 3.1.4 Agency cost (EM)

As discussed above, presence of moral hazards leads the managers to act in best of their own interest. Two types of agency cost will be arises. One of its losses that occurred in

terms of not maximizing the wealth of shareholders due to the self-interested focus of manager for his own benefits. And second, if a system is employed to overview the actions of managers. For controlling and monitoring such kind of actions there is need to develop a system which make managers accountable to someone for their doings. So, for monitoring these contracts a prescription control system needed to implement. And this system will also associated with some cost. Which also accounted as the agency cost.

In case of earning management mangers seems keen towards their incentives. These incentive could be on contractual basis, bonus, or may be these are some compensational agreements that lead managers to hide the true performance of the firms. And doing this act make decline in future earnings of firm plus shareholder's wealth as well. Thus, earning management is also a type of agency cost. And it can conclude that there is positive relationship between the agency relation and earning management.

### 3.1.5 CSR and EM according to agency theory

As already acknowledged that due to the asymmetry of information agency cost increases in the form of earning management. Because managers look at their side of benefits without bothering owners interest (see., Perry and Grinaker, (1994); Meckling, (1998); Hunon, (2006)). Formerly question arised that either CSR is negativetly associated with EM in the light of agency thoery or positively. As the creations of agencty cost (EM) is based on the asysmmetry information. Thus, the mitigation effect of CSR should be on the decrease of aysmmetry of information. Interestingly, literature provide the two different arguments about relationship between CSR and EM. Some reseachers believe that CSR is negatively related to the practice of EM including (Chih *et al.* (2008); Kim *et al.* (2012); Choi *et al.* (2013); Yousf Almahrog *et al.* (2015)). On the other side, some researchers claim that CSR is a strategic tool for earning management (see., Patten, (2003); Prior *et al.* (2008); Gargouri *et al.* (2010)).

Chih *et al.* (2008) stated that firms which involve themselves in CSR does not practice earning management. Adding to this argument Kim *et al.* (2012) highlighted that the firms with stronge CSR programmes are less involved in earning management because they share more transperent disclouser with stakeholders which indirectly reduces the asysmmetry of information. Similarly, Choi *et al.* (2013) argue that firms with CSR initiatives carefully and responsibly discloses the financial information when reporting their financial statements. On the other hand (see., Patten, (2003); Prior *et al.* (2008); Gargouri *et al.* (2010)) argue that CSR is the tool by using it firms hide the truthness of fianancial performance because it shows that firms bothering even ethical side of society. Then how firm will deceive the stakeholders. Apart from the above discussion in the absence of CSR, positive relationship exists between agency theoy hypothesis and earning management.

### 3.2 Signalling Theory

Modigliani and Miller assume in their whole work that information is not asymmetric. Both internal management and investors have same level of information. Realistically and logically market phenomena is not align with the assumption. Because, while making the capital decisions the management of company is always have more information than any other stake constituents of the society. Which again create the asymmetry of information.

For example, a company wishes to take an investment project for business expansion purpose by issuing new equity shares. One of the basic objective of business existence is to maximize the value of its shareholders. But in this case, by issuing new share management is intended to dilute the value of already outstanding share. Which is not a good signal to investor. Because it indirectly shows that company have not certain future cash flows to pay the high rate of interest (in case of debt borrowing) thus company issuing the new shares. Which avert the new investor for investing in such company. Management knows all the above

story including the expected cash earnings of company. So management will finance this project by borrowing the debt which create a good signal for investor that company have certain future earning that's why they can pay back the investment amount. So, signalling can change the scenario, because information disclosure through financial reports is in the hands of management. Michael Spence 1973, is one them who develop that signalling theory in terms of modelling, equations, and diagrams. He also introduce the job market signalling theory. Which states that an employee gives signal to employer through his/her academic achievements. And employers judge them on the basis that having high educational credential persons have greater ability than the lower credentials holders. Here the actual ability will be exposed when the individual start working on the job. Educational credentials is just the signal. In short according to signalling theory, company gives signal to the investors and stakeholder that company is performing better than its competitors through financial reporting and disclosure.

### 3.2.1 EM and Signalling Theory

Michael Spence 1973 give the 6 principles of the signalling and declared the information asymmetry is very important and rank it on top. Which clearly indicate that signalling theory is based on the asymmetry of information. Which creates the agency problem and ultimately leads to the creation of agency cost in form of managing earnings. Because, in the case of earning management, managers intentionally miss-classify the core expenses to special items to show the better performance of company. All the readers miss-guided through decisive financial reporting and disclosure. Which finally costs devaluation in shareholder's wealth and future profitability. Based on the hypothesis of signalling theory, it can be concluded that signalling exists because of the asymmetry of information. Higher the level of asymmetry of information higher the effect of signalling. Which will end in final cost (earning

management) for creating these signals. Accordingly, one can conclude that there is positive relationship between asymmetry of information and earning management.

### 3.2.2 Mitigation effect of CSR on EM

Some researchers take it into the perspective of corporate social responsibilities. They argue that companies engaged in the CSR activities have lower chance for involving in the practice of earning management. Because the quality of disclosing the financial information increases as company share the real figure of CSR programmes which resulted in decrease of information asymmetry. And signalling theory according to these studies is companies' decrease the asymmetry of information by giving signals that company is performing better than its rivals (see., Hughes *et al.* (1986); Coller *et al.* (1997); Welker (1995); Miller (2002); Brown *et al.* (2004); Heflin *et al.* (2005); Gray (2007); Sun *et al.* (2010)).

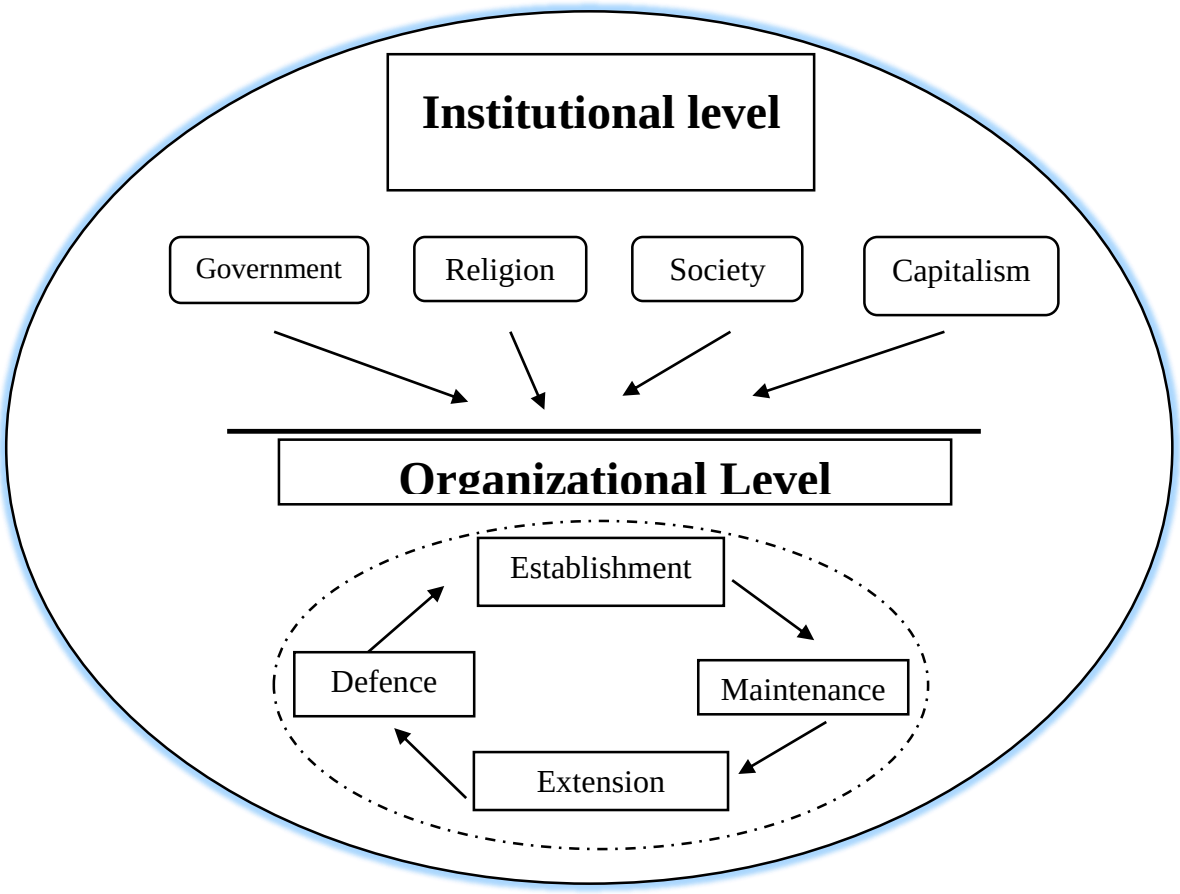
Hughes *et al.* (1986) stated that reliability of information discloses by the company in financial reporting is key element in reducing the asymmetry of information. In addition, Miller (2002) finds that company try to lower the asymmetry of information by disclosure of financial reports and signal the investor the company is performaing good. Likewise, Sun *et al.* (2010) company discloses the CSR side to reduce the information gap and to address the stakeholders that company care for them and keep them aware of its operations and want to contribute in the corporate enviorenment. These all above studies assumed the negative association asymmetry of information through (CSR) and earning management.

## 3.3 Legitimacy Theory

Legitimacy theory has become the most cited theory in social sciences. Here arises the question among researcher that it really offers any genuine insight in the financial disclosure of companies. Problem with understanding the application of legitimacy theory in

accounting disclosure is to occasion based usage of the term. Which is not the problem of theory itself. Suchman, (1995) Defined the legitimacy as; “Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions”. Before moving forward, it is considerable that to which extend an act of company is considered as up to level of these norms and values. This perspective have a brook of discussion which is not align with this section focus and not necessary to report in detail as well. For understanding the legitimacy theory, we first need to understand that this theory have two levels, first is the macro level theory known as institutional legitimacy theory. Second is the micro level theory which is known as the organizational legitimacy theory.

**Figure 2 Institutional level legitimacy**



As graphically presented in figure 3 that firm have to gain the acceptance from the social environment at a huge level. Legitimacy of a company should not be judge subjective basis. Because it's an abstract concept. Thus there should be some elements which provide the basis for measuring the legitimacy of a company. And it should be measured in term of resources often company gained from its stakeholders.

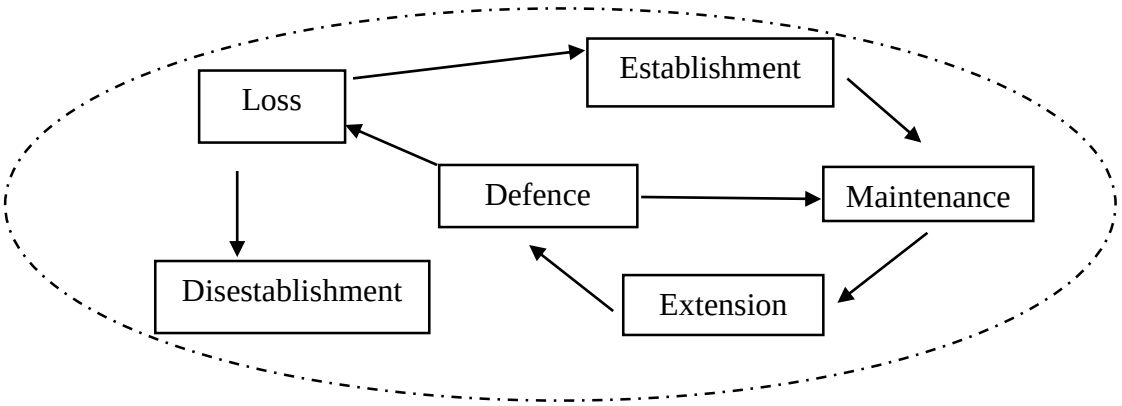
For example the government or capitalism, which are considered as the most powerful resource providers for any company. Government gives contracts, different licence, security, and operational approval certificates and many more things. Thus it should be at top regarding its influence on company. While on the other hand, capitalism play vital role in the success of any company because it is considered as the sole resource for funding the company needs. Same like this other major elements religion and society have their serious impacts on the behaviour of company. A company have to be legitimate in eye of these stakeholders at large otherwise society will boycott it products, capitalists will not invest and government would take action against such firm. In perspective of accounting research these stakeholders' government or demographics and capitalists are taken as static in current business environment.

Second level of legitimacy theory is more relevant to the analysis of this study. Second level of firms (organizational level) is aligned with the strategic legitimacy theory. Because researchers believe that at organizational level companies strategically keep themselves legitimate in the eye of these stakeholders. In the figure 3 there are four level of legitimacy including establishing legitimacy, maintaining legitimacy, expending legitimacy and defencing legitimacy. First two level of legitimacy are not a big deal for big firms. But problem started with the last two, especially with the defencing level legitimacy when a company have lost the legitimate image in stakeholder's eye.

### 3.3.1 Legitimacy theory and EM

As described above the problem of losing legitimacy is aligned with the last point where company fails to defend its legitimacy. Refined model presented below in figure 4 is proposed by (Tilling) who argue that the organizational level need refinement regarding the legitimacy levels.

**Figure 3 Refined organizational level legitimacy**




In the above figure 4 represents a case could be happen when company fails to defense it legitimacy. A firm usually entered in defense level after facing an incident that harms legitimacy of firm. Normally with the help of proper management, firm can maintain its legitimacy or recover it at least. Though, a series of such kind of accidents or a onetime accident that cannot be managed can leads to the decline of legitimacy level. However, firm entered in the loss phase and as a result firm get active in the social and environmental activities with greater level of its social disclosure. On the other hand, violence protestors including different NGOs and media started the criticism. Which eventually active the monitoring bodies like government institutions and taxes etc. These activists indirectly implement different restrictions through different governing bodies. If the firm effectively manage the loss phase it would again goes to the phase of reestablishment otherwise disestablishment. Examples include tobacco industry, chemical industry etc. Donovan (2002) argued that if the legitimacy

level of a firm perceived lower then such firm would less likely to engage itself in the disclosure of social and environmental reports sides.

Same is the case when managers manage earnings then in long run they have to bear the cost. Which finally, result in negative inflows of firm (loss phase). If managers manage the problem effective then it would again lead them to recreate the legitimacy in eye of shareholders otherwise firm will be finished because shareholder started the selling of ownership. Thus, some researchers argued that CSR is a tool by which firms mostly create their legitimacy to keep calm the society protestors. They believe that CSR reduce the information gap and such kind of firms who does it have more legitimacy and less likely to manage earnings. Thus in case of CSR firm not manage earnings but a case without CSR it can be concluded that lower the legitimacy, firms less likely to disclose financial information.

# Chapter 4

## Data and Methodology

This chapter is further distributed in six sections. Section 4.1 contains the detail of data sample, section 4.2 data collection procedure, section 4.3 description and measurement of variables used in this study, section 4.4 empirical model, section 4.5 estimation technique for models, and finally 4.6 econometric methodology.

### 4.1 Sample of study

In this study initially all the manufacturing firms in Pakistan selected during the observation period. Sample size consists of 164 manufacturing firms listed on Pakistan Stock Exchange. Due to limited data, sample size shrink to these firms.

### 4.2 Method of data collection

This study will use the secondary data for the period 2006 to 2016. Data has extracted by using annual reports of the firms listed on Pakistan Stock Exchange. For the purpose of secondary data gathering annual reports of firms for each year, journals, Pakistan Stock exchange web site and each firm's site would be used.

### 4.3 Definition and measurement of variables

Here all the variables are defined and details regarding how these variables going to be measured have explained.

#### 4.3.1 Independent variable

In this study, there are independent variables according to the objective of the study. First, earning management with special items is independent variable. And amount of special items

will be measured in magnitude and sign (reported on income statement) against the expenses and revenues which are unusual and infrequent in nature. Such type of unusual expenses include restructuring charges, gains from elimination of debt, gains from realization of assets sale, earnings from discounted operations. A simple index containing these items will be constructed and used.

### 4.3.2 Dependent variables

#### 4.3.2.1 Excess of investment

Investment is the dependent variable in this research study. Here investment variable is measured from excess investment. And for construction of this variable we need firm's optimal level of investment or a mechanism of underinvestment and overinvestment. Which provide us base for measuring the excess of investment. In literature, some of the researchers take investment as a linear function of sale growth and use the residuals of such equation as efficient investment frontier (negative as under investment and positive as over investment). But empirically sales growth model of differentiation between under investment and over investment is not well supported in literature.

Hence, there should be some logic behind following a specific model. Intended for such purpose this study will utilize the McNichols and R.Stubben, (2008) model of optimal investment. This model is also well documented and supported by literature. According to McNichols and R.Stubben (2008) excess of investment is the difference between a frim's level of investment and its defined investment opportunity. Since focus of this section is to construct the variable over investment, in consequence negative residuals of the equation will be droped due to the fact they represent the under investment portion. McNichols and R.Stubben (2008) arranged this equation for measuring the excess of investment:

$$INV_{it} = \alpha + \beta_1 Q_{(i,t-1)} + \beta_2 CF_{it} + \varepsilon_{it} \quad \text{..... (a)}$$

Where

INV: the amount of investment at time period t

$Q_{(i,t-1)}$ : Tobin's Q ratio

CF: Cash flows of company

In the above equation INV is the capital expenditure taken from statement of cash flow and if not available then calculate it by given formula: Where PP & E is (Property, Plant and Equipment).

Capital Exp. = PP & E (current) – PP & E (previous) + Depreciation

$Q_{(i,t-q)}$ Market value of assets at the beginning of the year divided by book values of assets. And Q is calculated by using the McNichols and R.Stubben, (2008) referred formula

Q = (MVE + TA – BE) / TA

Where

MVE: Market value of equity

TA: Is total assets

BE: Book value of equity.

Excess of investment (ExINV) which is our required variable will be the residuals of the equation (a). And cash flows will be taken from statement of cash flow. In case not available in cash flow statement then balance sheet approach will be used to calculate the CF. formula of balance sheet approach is:

$$CF = OIAD - (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP) - DEPR \quad \text{..... (b)}$$

Where

CF: cash flows

OIAD: operating income after depreciation

CA: current assets

Cash: cash & equivalents

CL: current liabilities

STD: short term debt

TP:  income tax payable

DEPR: depreciation

#### 4.3.2.2 Firm Performance

Second dependent variable is firm performance. This study will also test the impact of excessive investment and earning management on the performance of the firm. Here performance of the firms being taken as financial performance. Various studies used the different financial indicators as financial performance measures. Most of them are accounting based measures. But we can categorize them into two types. One types is accounting based measures and second is market based measures. Accounting based measure includes ROA, ROE, Gross Profit (GP), Net Profit Margin, return on Capital Employed (ROCE) and EBIT. While, the market based measure include EPS, P/E.

Gomez-Mejia, (1987) used the yearly percent change in sale, yearly total profit, yearly sale volume, market value of firm at the end of the year, percentage change in market value of firm end-year, dividend yield to investors on common stock on yearly basis, yearly EPS and yearly ROE as proxies for the measurement of financial performance. Afterward, Sharma,

(2005) used the market based performance measure (EPS) as proxy for the measurement of financial performance. And investigated the relationship between the firm have ISO 9000 certification and their performance. Subsequently, various studies (see., Kyereboah-Coleman, (2007); Vinodh, (2007); San *et al.* (2011); Umar *et al.* (2011); Bayo-Moriones, (2013)) used the mix (market plus accounting measures) measures of financial performance including ROE, ROA, EBIT, Gross profit margin, Net profit margin, P/E ratio, and EPS.

But, if we particularily examine it from the prespesctive of relationship between real earning management and financial performance. Formerly different studies (see., Gunny, (2005); Rangan, (1998); Leggett (2010); Mizik *et al.* (2007); Taylor *et al.* (2010); Gunny K. , (2010)) used the ROA as the performance measure of firm. Afterwards Naila Tabassum *et al.*, (2014 ) uses the ROA, ROE, EPS and P/E ratio as proxies for the measuring the financial performance. This study will also use the some other measures ROE, EPS, GP and ROCE as well. And construction of these financial measures which are used in this study is discussed below.

#### 4.3.2.2.1 Return on Assets

ROA is a financial indicator which tells us that how efficeintly a firm is using its assets. It shows the amount of profit as relative to it assets. In simple it's a measure of knowing the part of profit contributed from assets side. Formula for ROA is:

ROA = Net Income / Total Assets

#### 4.3.2.2.2 Return on Equity

ROE is key financial indicator of firm profitability relative to that part of profit which a firm generates by using the equity fund. It reveals the portion of earning a firm earns over the equity. Formula for ROE is:

ROE = Net Income / Shareholder's equity

#### 4.3.2.2.3 Return on Capital Employed

ROCE is very useful tool when we compare two firm's profitability typically based on the capital they have invested. We need two components to calculate it. First earning before interest and tax and second capital employed. Capital employed can be found from financial statements. And EBIT is most often given in income statement. ROCE is identically close to ROE. But it uses both the parts of capital, shareholders equity fund plus debt part of funds as well. Which allows us to compare across companies at vital level. Formula for ROCE is:

ROCE = EBIT / Capital Employed

Hence if capital employed is not given in financial statetments, we can calculate it by utilizing the formula;

Capital Employed = Total Assets – Current Liabilities

Both of the components can be extracted from balance sheet. And if EBIT is not available we can use operating income or can calculate it by using the formula below;

EBIT = Revenue – (COGS + Operating Exp)

Here COGS is; Cost of goods Sold

#### 4.3.2.2.4 Gross Profit

Gross profit of a company tells us how much company is earning over its making and selling expenditures of products and services. It shows us the intial level of earning just before all other operating expenses, taxes and interest. Formula for gross profit is:

Gross Profit = Revenue – COGS

#### 4.3.2.2.5 Earning Per Share

EPS is a measure of profitabilty which shows earning over each unit of equity fund. It depicts that how much a company is paying to its each comman stock shareholders from its earning. Usually investors, analysts and other stakeholders interested in amount a company pay to its owners. That's why EPS is a very important. Formula for EPS is:

EPS = (Net Income – Dividend on Preferred Stock) / Average Outstanding Comman Shares

### 4.3.3 Control variable

#### 4.3.3.1 Growth

Growth will be used as control variable. In previous literature many studies used the growth as control variable including (Naila Tabassum *et al.* (2014): McNichols and R.Stubben, (2008)). Because growth is the factor that cause higher fiancial performance and profit. Firms with ability to grow more than others are capable of showing good performance (see., Fama and fench, (1995); Gunny K. , (2005); Leggett *et al.* (2010)). Some studies including (McNichols and R.Stubben, (2008); S. Rahmawati *et al.* (2015)) used growth as controle variable and calculate it by dividing current year's total assets to last year's total assets. On the basis of above provided definition, in this study growth is proxied by:

$$Growth = Log \frac{TA_{(t)}}{TA_{(t-1)}}$$

$TA_{(t)}$ is; Total Assets in Current year

$TA_{(t-1)}$ is; Total Assets in previous year

#### 4.3.3.2 Firm Size

Size is considered as the most core element while talking about profitability of firm. Because big size firm have greater profit ratios than smaller firms (see., Fama and fench, 1995). Several studies used different variables to measure the size of the firm. Most of the studies used the total assets, sale volume and number of employees in a firm.

In measurement of relationship between real earning management and financial performance need to control the impact of size. Therefore, to control the influence of size (see., Gunny, (2005); Gunny K., (2010); Naila Tabassum *et al.* (2014); S. Rahmawati *et al.* (2015)) used the natural logarithm of total assets as proxy for size. Leggett *et al*., (2010) take logarithm of market value of equity to minimize the mpact of size of firm. Hence, to control the impact of size of firm this study uses the natural logarithm of total assets and denoted by size.

Size = Natural logarithm of total assets

## 4.4 Empirical Model Specifications

### 4.4.1 Model specification for excessive investment and real earning management

This section conatins the regression model sepecifications to test hypothesis. As information of 164 companies over the period span of 11 years from 2006 to 2016 being utilized in this study for testing hypothesis concerning excessive investment and real earning management and firm performance. Before testing the hypothesis all the traditional assumptions regarding data will be fulfilled. And clean up will be done to ensure that data is unbiased, valid, consistent and estimation of coefficient is efficient. By way of our sample data set have different cross section and variation in time series, panel data estimation technique is appropriate and suitable for this hypothesis testing. Panel data regression analysis will be used in this study. General form of the model is:

$$ExINV_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$ExINV_{it}$: Excess of investment of firm "i" at time "t"

$\beta_0$: Intercept of the equation

$\beta j$: Coefficients of Xjit variables

$X_{(jit)}$: Different independent variables of firms "i" at time "t"

t : 1,2,3,……,11 yearrs

$\varepsilon_{it}$: the error term

If we incorporate the all independent variables of the study our final regression model will become like this:

$$ExINV_{it} = \beta_0 + \beta_1 ExINV_{(it-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t} + \beta_5 Size +$$

$$\beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \qquad \ldots\ldots (1)$$

Where

$Q_{(i,t-1)}$: Tobin's Q at beginning of the year

$ExINV_{it}$: Excess of investment

$CF_i$: Cash flows of company

$SI_i$: Amount of Special items

$Size$: Natural logarithm of total assets

$INV_{(i,t-1)}$: Investment in the last year

$G_{(i,t-1)}$: Growth rate of assets

### 4.4.2 Model specification for firm performance, excessive investment and real earning management

This study will also investigate the relationship between performance of firm and excessive investment. Furthermore, check the relationship between performance of the firm and real earning management. For this purpose study will use the five more regression equations where dependent variables will be the performance proxies as mentioned above (ROA, ROE, ROCE, GP, and EPS). Study will also use panel data estimation technique for this purpose and general form of the model is:

$$ROA_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$$ROE_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$$ROCE_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$$GP_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$$EPS_{it} = \beta_0 + \sum_{j}^{n} \beta j \, X_{(jit)} + \varepsilon_{it}$$

$ROA_{it}$: Return on assets of firm "i" at time "t"

$ROE_{it}$: Return on equity of firm "i" at time "t"

$ROCE_{it}$: Return on capital employed of firm "i" at time "t"

$GP_{it}$: Gross profit of firm "i" at time " t"

$EPS_{it}$: Earning per share of firm "i" at time "t"

$\beta_0$: Intercept of the equation

$\beta j$: Coefficients of Xjit variables

$X_{(jit)}$: Different independent variables of firms "i" at time "t"

t : 1,2,3,…….,11 yearrs

$\varepsilon_{it}$: the error term

Now when particularily other independent variables incorporated in the general form then final regression model becomes:

$$ROA_{it} = \beta_0 + \beta_1 ExINV_{(i,t-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t} + \beta_5 Size + \beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 ExINV_{(i,t-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t} + \beta_5 Size + \beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \quad (2)$$

$$ROCE_{it} = \beta_0 + \beta_1 ExINV_{(i,t-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t} + \beta_5 Size + \beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \quad (3)$$

$$GP_{it} = \beta_0 + \beta_1 ExINV_{(it-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t}\ \beta_5 Size + \beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \quad (4)$$

$$EPS_{it} = \beta_0 + \beta_1 ExINV_{(it-1)} + \beta_2 Q_{(i,t-1)} + \beta_3 CF_i + \beta_4 SI_{i,t} + \beta_5 Size + \beta_6 INV_{(i,t-1)} + \beta_7 G_{(i,t-1)} + \varepsilon_{it} \quad (5)$$

These five equations will be estimated to investigate the relationship between real earning management and performance of the firm. Secondly these equations will also be used to investigate the relationship between excessive investment and performance of the firm.

## 4.5 Estimation technique

While working with panel data instead of times series or simple cross sectional data, a researcher faces many problems. Here are some of the problems may have to face while estimation of above models;

- Existence of the lag of dependent variable excessive investment $ExINV_{(i,t-1)}$, which change the static model into dynamic model. And presence of lag dependent variable as an independent variable in the model lead towards the endogenity problem. Which gives inconsistent and biased estimators. In such circumstances, results of the study would not be reliable.
- Variable $Size$ natural log of total assets, $G_{(i,t-1)}$ growth rate of assets in the last year and $INV_{(i,t-1)}$ investment rate of firms in the last are interconnected with each other. Which signals that these variables can give rise to the problem of autocorrelation and multicollinearity. In these circumstances, results would not be reliable. Because multicollinearity give high standard errors and lower the coefficients of estimation.
- Companies have different characteristics, in terms of size, industry, financial strength and growth, and also geographical factors. There would be problem of heterogeneity in error term.
- There is short time period in this study.

Here previous literature directs that when T is small, the estimators are inconsistent. This study also have 164 cross section and time period is 11 years. Although, there are different panel data estimation techniques including, fixed effect, random effect, pooled OLS, ML (Maximum Likelihood) and IV (Instrumental variable technique) available for analysis. But all the above estimations techniques not deals with the problem of endogenity. Estimators obtained through IV technique are not reliable in case of above mentioned problems.

To avoid these problem a method named as GMM developed by Arellano, (1991). This study uses the system GMM estimation method to tackle the problem of endogeneity and unobserved cross sectional heterogeneity. Because GMM is most proficient and reliable technique to address the endogeneity problem created by the presence of lag dependent variable in the model. It uses the internal transformed instruments to match the data requirements and also follows the moment conditions based on the level equations.

### 4.6 Econometric methodology

Econometric methodology of this study is started with the detection of unit root problem. Before starting any analysis it is necessary to make sure that variable series under study should be free from unit root problem and these series should be stationary. Otherwise, it would lead the analysis towards spurious findings. Then, for tackling the problem of multicollinearity between the independent variables correlation matrix approach will be used. Afterwards, data estimation will be done by using the system GMM. Because it captures the problem of endogenity and removes it, which may be occurred due the presence of lag dependent variable excessive investment as discussed in the last section of the study.

After examining the dataset by using GMM technique, is will be important to know that instruments used are valid or not? For this purpose J-statistics will be followed to check validity of model. In the end AR (2) process of autocorrelation will be used to check whether the problem of autocorrelation in residuals is removed by using instruments or not. And detailed process of these is discussed below;

### 4.6.1 Panel unit root tests

#### 4.6.1.1 Levin, Lin and Chu (LLC) test

For panel unit root problem detection LLC panel unit root test was developed by Levin and Lin with co-author Chu in 2002 in final form. This test is basically the extended form of the DF unit root test. The model is under this form;

$$\Delta X_{i,t} = \alpha_i + \rho X_{i,t-1} + \sum_{1}^{k} \emptyset k \, \Delta X_{i,t-k} + \delta_i t + \emptyset_t + \mu_{it}$$

They allows the fixed effect from two ways. One from the cross section unit specific fixed effect $\alpha_i$ and second from the specific time fixed effect$\emptyset_t$. Thus, they include the both side of fixed effects. Just like many other unit root tests, they also assumed that there is independent process for each cross section and individual effect. Therefore, formulated hypothesis as under;

H0; $\rho = 0$

H1; $\rho < 0$

In the above case H0 states that there is problem of unit roots in the series whereas H1 states that series is stationary.

#### 4.6.1.2 Im, Pesaran and Shin (IPS) test

This test arisen as an extension of LLC test due to one demerit of LLC test they assumed the homogeneous "$\rho$" across all the "$i$". Which means they were taking the characteristics of all cross section as a same. Therefore, Im, Pesaran and Shine allows the heterogeneity and proposed the procedure of separately estimating for each cross section by allowing the characteristics like their parametric values, lag lengths and variances. Their model is as under;

$$\Delta X_{i,t} = \alpha_i + \rho X_{i,t-1} + \sum_{l=1}^{k} \emptyset k \, \Delta X_{i,t-k} + \delta_i t + \mu_{it}$$

The hypothesis of IPS test is:

H0; $\rho$ = 0 for all $i$

H1; $\rho$ < 0 for at least one $i$

In conclusion they similarly evidenced the standard normal distribution as T $\rightarrow \infty$ is followed as N $\rightarrow \infty$ serially.

### 4.6.2 Correlation Matrix

Strong correlation between the independent variables leads to the problem of multicollinearity. And estimated parameters become inefficient and show high standard errors. It also considered that multicollinearity problem leads to the biased results. Then results and coefficient's value will be no more reliable. According to Anderson *et al.*, (2008) independent variable high correlation not truly explain the dependent variable. Additionally, Hair *et al.*, (2006) stated that correlation between independent variable below than 0.9 not cause serious multicollinearity problem. Another study Malhotra, (2007) reveal that problem of multicollinearity will exits if association between two variables is greater than 0.75. That's why before starting the data analysis it is necessary to check the problem of multicollinearity. For detecting the multicollinearity problem correlation matrix will be used.

### 4.6.3 Descriptive statistics

Descriptive statistics consists of mean, median, mode, maximum, minimum and standard deviation. These measures provide the simple picture of data. And these numbers help us to present the quantitative description in a very meaningful and manageable form, which is easy to present in single digits and graphs (Trochim, 2006).

### 4.6.4 J-test

J-test also called as Sargen test or Hansen test is employed to check the validity of model. A situation when number of parameters estimated are less than the number of instrumental variables used, in such case J statistics used to check the legitimacy of these instruments and over identifying restrictions as well. It follows the chi square distribution and null hypothesis is that over identifying restrictions are satisfied. It assumes that if an instrumental variable is Z, then its correlation with error term should be equal to zero. Secondly, it assumes that instrument Z should be correlated to independent variables.

### 4.6.5 Autoregressive process (AR)

Normally, an autoregressive (AR) method is employed to check that whether or not the problematic condition of serial correlation between the residuals has been removed by exploitation instruments. Previously, many research studies have utilized the autoregressive process of first order and second order to investigate the problem of serial autocorrelation. Now suppose in case of somewhat called variable Y, it is follows as;

$$(Y_t - Y*) = \theta_1\left(Y_{(t-1)} - Y*\right) + \mu_t$$

In the above equation Y* represents the mean of Y, on the other hand $\mu_t$ is error term with constant variation and zero mean. Here, it shows the AR (1) process and indicates that variable $Y_t$ depends upon its lag. Similarly, second order autoregressive process will be as:

$$(Y_t - Y*) = \theta_1(Y_{(t-1)} - Y*) + \theta_2(Y_{(t-2)} - Y*) + \mu_t$$

Same like above process for n lags of the variable Y:

$$(Y_t - Y*) = \theta_1(Y_{(t-1)} - Y*) + \theta_2(Y_{(t-2)} - Y*) + \theta_n(Y_{(t-n)} - Y*)\mu_t$$

In the next chapter of empirical result, all the above process from unit root test to AR process will be followed.

# Chapter 5

## Empirical Results

This chapter covers the discussion of empirical results of study from the data of manufacturing firms listed on PSX. Furthermore, chapter is divided into four sections. First section will present the panel unit root test result. Second section contains correlation matrix for multicollinearity checking and expected sign of variables. Third section will present the description of the data mean, minimum, maximum and standard deviation for understanding the rough picture of relationship between earning management, investment behavior and special items. Finally last section will demonstrate and discuss the regression results. Section 5.1 present the panel unit root test results.

### 5.1 Panel unit root test

Because of the fact that data span of the current study is eleven years and also due to nature of panel data, there may arise the problem of unit root while analyzing the data. Therefore, it is requisite to check the unit root before further proceedings in analysis. Normally, unit root detection tests including Fisher –ADF (Augmented Dickey Fuller), Fisher–Philip-Perron (PP), Levin, Lin and Chu (LLC), Breitung and Im, Pesaran and Shin (IPS) are being used. These tests normally not give the same results because they have typically different processes for testing unit root from each other. Like tests including Levin, Lin and Chu, Hadri and Levin, and Breitung assume that there is homogenous panel data unit root for all the cross sections which is also a drawbacks of these tests. But other tests including Im, Pesaran and Shin (IPS), Fisher–Philip- Perron (PP), and Fisher –ADF suppose that there is individual unit root process for every single cross section.

In this study for checking the unit root both tests IPS and LLC have been applied. Results regarding unit root for all the variables used in the study reported in Table 5.1. It is concluded that all the variables under the discussion of this study are not subject to contain unit roots and are stationary at level according to P-values of both (LLC and IPS) tests. Because of low P-value for both the tests null hypothesis cannot be accepted. Results of unit root tests during the estimations are reported as follows:

***Table 5.1 Panel Unit Root***

| ***Variables*** | ***LLC Test Stats*** | ***IPS Test Stats*** | ***Test for Unit Root*** | ***Conclusion*** |
|---|---|---|---|---|
| $ExINV_{it}$ | -6.25139 (0.0000) | -5.43780 (0.0000) | Level | Stationary |
| $CF_{i,t}$ | -18.1429 (0.0000) | -10.6746 (0.0000) | Level | Stationary |
| Size | -5.8528 (0.0000) | -12.9869 (0.0000) | Level | Stationary |
| $Q_{(i,t)}$ | -20.9777 (0.0000) | -10.5993 (0.0000) | Level | Stationary |
| $SI_{i,t}$ | -8.32386 (0.0000) | -5.9998 (0.0000) | Level | Stationary |
| $G_{(i,t)}$ | -24.3442 (0.0000) | -19.7773 (0.0000) | Level | Stationary |
| INV $_{(i,t)}$ | -14.5487 (0.0000) | -6.2347 (0.0000) | Level | Stationary |
| $ROA_{it}$ | -9.8952 (0.0000) | -3.4632 (0.0003) | Level | Stationary |
| $ROE_{it}$ | -7.9295 (0.0000) | -2.9225 (0.0001) | Level | Stationary |
| $ROCE_{it}$ | -10.0006 (0.0000) | -10.0067 (0.0000) | Level | Stationary |
| $EPS_{it}$ | -58.7053 (0.0000) | -6.0480 (0.0000) | Level | Stationary |
| $GP_{it}$ | -3.8486 0.0001 | -6.76892 (0.0000) | Level | Stationary |

*Note:*

- *LLC is the Levin, Lin & Chu and IPS is Im, Pesaran & Shin panel unit root tests. With null "Panel contains unit root" LLC follows common unit root process and IPS follows individual unit root process.*
- *$ExINV_{(it)}$ is amount of excessive investment, CF is cash flow of current year, Size is the natural logarithm of total assets, Q is Tobin's Q ratio, SI is the amount of special items (proxy for earning management), G is the lag of company growth rate, INV lag represents the company investment rate in the last year, ROA (ROA = Net Income / Total Assets), ROE (ROE = Net Income / Shareholder's equity), ROCE*

*(ROCE = EBIT / Capital Employed), EPS (EPS = (Net Income – Dividend on Preferred Stock) / Average Outstanding Common Shares), and GP (Gross Profit = Revenue – COGS).*

## 5.2 Correlation Matrix

Multicollinearity is considered as the central problem in empirical work that leads toward ambiguous result in any type of analysis. For that reason, before analysis it is very essential to investigate the correlation among explanatory variables because highly correlated variables generate the problem of multicollinearity. For detection of multicollinearity, correlation matrix method is usually adopted in previous studies and well cited in literature. Therefore, current study use the correlation matrix to identify the problem of multicollinearity in explanatory variables and to have an idea about expected relationship between these variables as well.

Table 5.2 below identify that there is no problem of multicollinearity exist in explanatory variables used in this study. Correlation matrix results also represent association among all the variables. For example, variable excessive investment (ExINV) is lag depended and its positive relationship with variable special item (SI) (which has been used as a proxy for earning management) predicting that in time period "T" amount of special items lead a firm towards the aggressive investment behaviour. And second question regarding the impact of such excessive investment and manipulation of earning through special items on firm performance is expressed by expected signs of performance measures including return on assets, return on equity, return on capital employed, earning per share and gross profit. Results of all the variables under the study are presented in correlation matrix which are as follows.

***Table 5.2 Correlation matrix***

| Variables | $ExINV_{(it)}$ | $ExINV_{(it-1}$ | $CF_{i,t}$ | $Size$ | $Q_{(i,t-1)}$ | $SI_{i,t}$ | $G_{(i,t-1)}$ | $INV_{(i,t-}$ | $ROA_{it}$ | $ROE_{it}$ | $ROCE_{it}$ | $GP_{it}$ | $EPS_{it}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ExINV_{(it)}$ | 1 | | | | | | | | | | | | |
| $ExINV_{(it-1)}$ | 0.3981*** | 1 | | | | | | | | | | | |
| $CF_{i,t}$ | 0.6271*** | 0.7569*** | 1 | | | | | | | | | | |
| $Size$ | 0.4644*** | 0.7377*** | 0.7332*** | 1 | | | | | | | | | |
| $Q_{(i,t-1)}$ | 0.7629*** | -0.0402 | -0.0253 | -0.0056 | 1 | | | | | | | | |
| $SI_{i,t}$ | 0.0528* | 0.1776*** | 0.0952*** | 0.3846*** | -0.0018 | 1 | | | | | | | |
| $G_{(i,t-1)}$ | 0.0946*** | 0.1439*** | 0.1519*** | 0.2163*** | -0.0044 | 0.4807*** | 1 | | | | | | |
| $INV_{(i,t-1)}$ | 0.0075 | 0.0139 | -0.0211 | -0.0086 | 0.0273 | -0.0056 | -0.0019 | 1 | | | | | |
| $ROA_{it}$ | -0.0588** | -0.0526* | 0.0884*** | 0.0333 | 0.0177* | 0.3990*** | -0.0251 | 0.0026 | 1.0000 | | | | |
| $ROE_{it}$ | -0.0220** | -0.0226** | 0.0289** | -0.0190 | 0.0001* | -0.0075* | -0.0062 | 0.0000 | 0.0807*** | 1.0000 | | | |
| $ROCE_{it}$ | 0.0218** | -0.0020** | 0.0339* | 0.0424 | 0.0052* | -0.0053** | -0.0069 | 0.0008 | 0.1540*** | 0.0401* | 1 | | |
| $GP_{it}$ | 0.2865*** | 0.4302*** | 0.4067*** | 0.4092 | 0.0280 | 0.2874*** | 0.4198* | -0.0063 | 0.0928*** | 0.0080 | 0.0344 | 1 | |
| $EPS_{it}$ | 0.0692** | -0.1072*** | 0.1065*** | 0.0581 | -0.0061 | -0.0046** | -0.0126 | 0.0009 | 0.2723*** | 0.0428* | 0.0948*** | 0.0492** | 1 |

Note:

- *Significance of statistics at 1%, 5% and 10% is indicated by ***, ** and * respectively.*

### 5.3 Descritpive Statistics

In table 5.3 descriptive statistics for the variables of research are explained and afterwards discussed. The descriptive statistics are mean, minimum, maximum and standard deviation calculated from the panel data. These statistics provide the rough foundation for understanding the situation of data under analysis. Results of these calculation are presented in table 5.3.

***Table 5.3 Descriptive Statistics***

| ***Variables*** | ***Mean*** | ***Mini*** | ***Max*** | ***Std. Dev.*** |
|---|---|---|---|---|
| $CF_{i,t}$ | 11.786 | -0.386 | 17.53145 | 2.042 |
| $Size$ | 14.653 | 7.0873 | 19.682 | 1.560 |
| $Q_{(i,t)}$ | .18804 | -.05103 | .19682 | 1.538 |
| $SI_{i,t}$ | 12.105 | -1.099 | 18.272 | 2.043 |
| $G_{(i,t-1)}$ | 0.186 | -5.103 | 19.682 | 1.532 |
| $INV\ _{i,t}$ | 39.828 | -8.156 | 67.033 | 15.953 |
| $ExINV_{(i,t)}$ | 63.452 | 84.776 | 198.768 | 42.819 |
| *ROA* | 3.854 | -74.42 | 426 | 15.600 |
| *ROE* | 12.98 | -3.507 | 19.300 | 26.48 |
| *ROCE* | 7.97 | -4.094 | 34.139 | 11.191 |
| *EPS* | 1.516 | -4.605 | 6.720 | 1.617 |
| *GP* | 12.399 | 2.079 | 17.879 | 1.794 |

*Note:*

- *$ExINV_{(it)}$ is amount of excessive investment, CF is cash flow of current year, Size is the natural logarithm of total assets, Q is Tobin's Q ratio (Q = (MVE + TA – BE) / TA), SI is the amount of special items (proxy for earning management), G is the lag of company growth rate, INV lag represents the company investment rate in the last year, ROA (ROA = Net Income / Total Assets), ROE (ROE = Net Income / Shareholder's equity), ROCE (ROCE = EBIT / Capital Employed), EPS (EPS = (Net Income – Dividend on Preferred Stock) / Average Outstanding Common Shares), and GP (Gross Profit = Revenue – COGS).*

In the above table 5.3 proceedings of descriptive statistics showed the behaviour of data. Overall, the average value of cash flows is 11.786 having the minimum, maximum of -0.386, 17.532 respectively with deviation of 2.042 from mean on both the sides. Variable special items *SI* have an average value 12.105 with minimum and maximum of -1.099, 18.272 in that order.

Deviation of *SI* from the mean is 2.043. Investment rate of firms have mean value of 39.828 with minimum, maximum rate of -8.156, 67.033 accordingly, high standard deviation of 15.953 from the mean. On the other hand, mean of Q is 4.597 and minimum and the maximum values are 0 and 21.58 respectively. According to McNichols and R.Stubben, (2008) a firm's investment opportunities are summarized into the marginal q (as they define the Tobin (1969) in their study), conditionally after marginal q is equal to the average Q. Their argument of comparing the averages of investment rate and Q is based on the fact that in perfect markets investment only depends upon the investment opportunities.

Thus, comparing the average level of investment rate and mean of Q which is 39.828 and 4.597 respectively. Now if average level of Q represent the investment opportunities then here it is clearly shown that manufacturing firms have invested very extensively as compared to their opportunities of investment which was 4.597. If a firm is not maximally invest (up to the level of investment opportunity), it makes some sense that firm wanted to retain some certain level of earnings so, delays the investment in that period. But in above case when firms are investing aggressively it clues the practice of earning management. Additionally, the average level of excessive investment (ExINV) is 63.451 with minimum and maximum of 84.776 and 198.768 respectively. About the standard deviation of both excessive investment (ExINV) and investment (INV), its clearly indicate the high variation which leads to the point that in some time period manufacturing firms invest aggressively as above concluded the same result after comparing the averages of variable Q and INV.

The financial performance measure (ROA) shows that manufacturing companies on average earns profit before the tax over last eleven years. For the whole sample period, mean of ROA is 3.854 with a minimum and maximum of -74.42, and 426. But highly deviating from the mean which indicates that manufacturing firms experienced high return on their assets. Need to use the assets optimistically to increase the return of equity providers.

As concerned to debt provider's side, ROCE capture it. Mean value of ROCE is 7.97 with a minimum and maximum of -4.094 and 34.139 respectively. Its deviation from mean value is 11.91. Another measure of financial performance EPS having the mean value of 1.516 with minimum -4.605 and maximum 6.720 with a variation of 1.617 from mean value on both sides. EPS is also showing the same kind of situation.

The last financial performance measure is very important because the sole objective for including the gross profit is to cross check its relationship with earning management (SI) variable. Since, special items are the classical shifting of core expenses and other flexible expenses or earnings with an intention of showing good initial level of returns. If particularly examine the mean values of SI and GP are 12.105, and 12.399 respectively. Also their maximum, minimum and standard deviation from their mean values seems much related to each other. It specifies that strong association between SI and GP is existing. Logically it should be positive because higher level of SI would increase the initial earnings. Because deduction from the total sale will become lower as compare it with a situation in which there is no such classical shifting.

## 5.4 Regression results of study

This section is further divided into two sub sections. First sub section will discuss the regression results of relationship between excessive investment and real earning management. Second sub section will explores the relationship between performance of firms, excessive investment, and real earning management.

### 5.4.1 Relationship between excessive investment and RM

Regression results are according to the hypothesis proposed by different researcher in literature and presented in table 5.4 below.

***Table 5.4 Relationship between excessive investment and RM***

| ***Variables*** | ***Coefficients*** |
|---|---|
| $ExINV_{(it-1)}$ | 0.002***<br>(0.000) |
| $CF_{i,t}$ | 2.369***<br>(0.000) |
| $Size$ | 0.000442***<br>(0.010) |
| $Q_{(i,t-1)}$ | 1.483***<br>(0.000) |
| $SI_{i,t}$ | 0.0074***<br>(0.000) |
| $G_{(i,t-1)}$ | 0.000**<br>(0.043) |
| $INV_{(i,t-1)}$ | 0.000098***<br>(0.000) |
| *Hansen test (P-Value)* | 0.521 |
| *AR(2) (P-Value)* | 0.948 |

*Note:*

- *Here two step GMM estimates*
- *$ExINV_{(it-1)}$ is amount of excessive investment in the previous period, CF is cash flow of current year, Size is the natural logarithm of total assets, Q is lag of Tobin's Q ratio, SI is the amount of special items (proxy for earning management), G is the lag of company growth rate, INV lag represents the company investment rate in the last year.*
- *Hansen test of over identification is used to check the validity of instruments, followed the null hypothesis "instruments are valid" asymptotically distributed as chi square distribution.*
- *Followed the AR (2) process, to test the 2nd order serial correlation, by null hypothesis "there is no autocorrelation" and assumed that residuals are normally distributed N (0, 1).*
- *Significance of statistics at 1%, 5% and 10% is indicated by ***, ** and * respectively.*

In the above regression analysis lag dependent variable captured the dynamics of the model. First lag of excessive investment (dependent variable) is positively related at 1% level of significance. And such positive association between the amount of current year's excessive investment and last year's excessive investment shows consistency of over investing behaviour of manufacturing firms over the study period of eleven years. Moreover now, it is also clear that current year's excessive investment is significantly affected by the last year's excessive investment. Beside the fact that lag of dependent variable have weak coefficient only 0.2% to

explain it but it is also an important determinant which is also highly significant. If we look at it from financial prospective. Positive lag dependence depicts that after some years firms will face serious problems including unnecessary blockage of funds in fixed assets, excessive maintenance cost for smooth working of these assets, excessive insurance cost, and also the risk of liquidity related to these investments (because value of fixed investment reduces due to long holding period and it will be difficult to dispose these investment at purchased value). Lag dependent variable generates the problem of endogeneity. To avoid the problem of endogeneity GMM estimation technique is utilized because its procedure for estimating the instrumental variable deals with endogeneity problem.

There is positive relationship between excessive investment and cash flows (CF) which shows that one unit increase in CF overall increases the excessive investment by 2.369 units at 1% level of significance. Certain future cash flows are considered as a good sign and sound financial health of a firm. Because it shows that firm have the ability to pay back all of its obligation without troubling the investors. Normally, value of a company's cash flows is considered as internal financing ability of the company.

In addition McNichols and R.Stubben, (2008) stated that firms with great level of funding also have the great level of investment. Which identify that companies whose internal funding is strong will affect their investment decision. By keeping in mind, the strong coefficient of variable cash flow presented in table 5.4 shows the ability of manufacturing firms under the study to over invest. It can be said that manufacturing firms under this study have solid source available for over investing in the form of cash flows. Consequently, it can be concluded that manufacturing firms under this study use internal funds (fund from cash flow) to invest that leads to over investing behaviour. These results are consistent with the previous studies including (McNichols and R.Stubben, (2008); Susanti, (2011); S. Rahmawati, (2015)).

Control variables including size and growth does significantly affect the excessive investment of manufacturing firms. But their impact is too weak, growth coefficient is almost zero whereas on the other hand influence of the second control variable size on excessive investment is very weak. Reason for that, could be the behaviour of over investing exists in manufacturing firms irrespective of their size. Thus, size will not remain as subject matter for investing aggressively. Growth have not strong influnce the excessive investment as well. May be the growth is not necessary component for firms while taking the decision to invest. As disccused above, cash flows are the main source of investment for manufacturing sector. These findings are persistent with studies of S. Rahmawati, (2015) and Susanti, (2011). Value of firm is another important variable that surely involved in a firm's investment decision because it restricts the low value firms to take part in big budget investment plans. And make it suitable for the high value firms. Here Q represent the (market to book value of assets) value of firm in term of assets. Table 5.4 show that Q positively influence the excessive investment with strong coefficeint value of (1.483) highly significant at 1% level. It infers that manufacturing firms under the analysis of this study are investing in such type of assets which creates market value for firms and ultimately it leads to over investment. An increase in Q absolutely increases the excessive investment and these findings are inconsistent with S. Rahmawati *et al.* (2015) results, they found the insignificant impact of Q on investment decision. These investments prove inefficient in future as described by McNichols and R.Stubben, (2008) that firms engaged in earning management invest excessively in fixed assets and afterwards these investment prove inefficeint for firms. Regardless of the efficieny of investment one can conclude from the above discussion and results of Q presented in table 5.4 that higher the value of assets, higher the level of over investment.

An important determinant of excessive investment is earning management. Special items variable has been used as a proxy for earning management in this study. In table 5.4 results

show that variable SI is positively affect the excessive investment. A one unit increase in SI would increases the excessive investment by 0.74% highly significant at 1% level of significance. Which means that manufacturing firms invest excessively in the same period when they are involved in managing their earnings through special items. These results supports the hypothesis of the study and consistent with literature as well. Whereas, S. Rahmawati *et al.* (2015) found the coefficient of SI insignificant in their study. These findings are consistent with study of (see., Wang, (2006); McNichols and R.Stubben, (2008)). Wang, (2006) finds that firms over invest in R&D when they manage earning. It happens when accounting flexibility exits to do so. If talk about the relationship between firm's actual investment rate and excessive investment, then results of the table 5.4 show that last year's investment rate (INV) is significantly influence the current year's excessive investment. Because some portion of last year's investment will remain in circle in next year as well. These results are consistent with findings of S. Rahmawati *et al.* (2015).

After reporting and discussing the relationship between all the explanatory variables and excessive investment. It is necessary to check, that in GMM process of estimation used instruments are valid or not and there is also need to check the second order serial correlation in residuals. To check the validity of instruments Hansen-test statistics are reported. Null hypothesis of Hansen test is "instruments are valid". According to p-value of test, cannot reject the null and conclude that all the used instruments are valid. For checking the second order serial correlation, AR(2) process is followed with the null hypothesis of "there is no serial correlation". According to the p-value cannot reject the null and it is concluded that there is no problem of serial correlation exist in the residuals.

### 5.4.2 Impact of excessive investment and RM on firm performance

To investigate the impact of excessive investment and earning management through special items on the performance of firms, five accounting based indicators of performance used in this study. Regression results for the five model of performance are reported in table 5.5 below.

***Table 5.5 Relationship between firm performance, excessive investment and RM***

| ***Models*** | ***1 ROA*** | ***2 ROE*** | ***3 ROCE*** | ***4 EPS*** | ***5 GP*** |
|---|---|---|---|---|---|
| ***Variables*** | ***Coefficients*** | ***Coefficients*** | ***Coefficients*** | ***Coefficients*** | ***Coefficients*** |
| $ExINV_{(it-1)}$ | .1693991*** 0.000 | -.1641983* (0.092) | -.2125784** (0.014) | -.209457** (0.040) | 1.584377** (0.032) |
| $CF_{i,t}$ | 2.488184*** (0.000) | 5.151953*** (0.005) | 3.127818** (0.015) | 12.97097** (0.044) | .721416*** (0.004) |
| $Size$ | -1.14433*** (0.000) | -.9207003 (1.09) | -.8221215** (0.014) | 8.5051** (0.049) | 2.664123 (0.348) |
| $Q_{(i,t-1)}$ | .590512*** (0.007) | 1.322493* (0.092) | 1.635762*** (0.003) | -.485913 (0.622) | .2867321 (0.614) |
| $SI_{i,t}$ | 0.000523*** (0.000) | -0.00982** (0.018) | -0.00737** (0.029) | -0.0027** (0.041) | .0772236* (0.066) |
| $G_{(i,t-1)}$ | -0.00000*** (0.000) | -0.000000*** (0.001) | -0.000002*** (0.000) | -0.000000** (0.031) | .0331601*** (0.009) |
| $INV_{(i,t-1)}$ | -1.984611 (0.817) | -1.48233 (0.548) | -1.389145 (0.864) | -5.280115 (0.610) | -4.343229 (0.516) |
| *Hansen test (P-Value)* | 0.124 | 0.314 | 0.270 | 0.988 | 0.990 |
| *AR(2) (P-Value)* | 0.550 | 0.486 | 0.436 | 0.222 | 0.252 |

*Note:*

- *Here is also two step GMM estimates*
- *Variable firm performance measured against the five performance indicators ROA (ROA = Net Income / Total Assets), ROE (ROE = Net Income / Shareholder's equity), ROCE (ROCE = EBIT / Capital Employed), EPS (EPS = (Net Income – Dividend on Preferred Stock) / Average Outstanding Common Shares), and GP (Gross Profit = Revenue – COGS). $ExINV_{(it-1)}$ is amount of excessive investment in the previous period, CF is cash flow of current year, Size is the natural logarithm of total assets, Q is lag of Tobin's Q ratio, SI is the amount of special items (proxy for earning management), G is the lag of company growth rate, INV lag represents the company investment rate in the last year.*

- *Hansen test of over identification is used to check the validity of instruments, followed the null hypothesis "instruments are valid" asymptotically distributed as chi square distribution.*
- *Followed the AR (2) process, to test the 2nd order serial correlation, by null hypothesis "there is no autocorrelation" and assumed that residuals are normally distributed N (0, 1).*
- *Significance of statistics at 1%, 5% and 10% is indicated by ***, ** and * respectively.*

For instance in the last section, it has been discussed that all the explanatory variables significantly affect the dependent variable excessive investment in some cases positively and in some cases negatively. Now, to investigate the impact of real earning management through special items and excessive investment on the performance of firm all five performance indicators used against the same independent variables. Again, same explanatory variables are taken and investigate their relationship with firm performance by using the GMM estimation technique. Results of the study are presented in the table 5.5 and discussed separately for each performance measure below.

#### 5.4.2.1 Impact of excessive investment and special items on ROA

Model 1 investigate the relationship between performance of firm, real earning management (special items SI) and excessive investment with having two control variables size and growth. And also check the impact of previous year' investment rate, last year's value of assets and cash flows of the company. Impact of last year's excessive investment on ROA is strongly significant at 1% of level significance. Which shows that a one unit increase in excessive investment would increase the ROA by 0.1693991 units. It implies that manufacturing firms make over investment in such a way that it would prove efficient in terms of return on their assets. These findings are not consistent with the findings of McNichols and R.Stubben, (2008). They found the excessive part of investment as inefficient. But here in case of pakistani manufacturing firms this over invesmtent part is significantly positive. May be over invesmtent is being done on the production side which intially increase the revenues of firm because a research study conducted by Naila Tabassum *et al.*, (2014 ) finds that 47% of

Pakistani manufacutring firm were involved in over production in 2007. Cash flows have strong impact on ROA at 1% level of significance. Which implies that firms with positive earnings have greater returns on their employed assets. Because cash flows are considered as the core soucre of earnings for any type of business. Thus, it can be concluded that firms with more certain cash flows have good performance and these results supported by the perious studies as well.

Value of assets in the last year represented by (Q) have strong impact on the ROA significant at 1% level of significance. Which shows that previous value of assets also positively associated with the current year return on assets. On the other hand, last year investment rate represented by lag INV in table show negative impact on ROA but insignificant.

Real earning mnagament through special items (SI) also has the same impact on ROA like the excessive investment. SI is highy significant at 1% level of significance which leads to the point that earning management is positively effect the firm performance (ROA). Literature have different arguments about the relationship between real earning management and performance of firms. These results are in conflict with literature findings. Most of the studies found negative impact of earning management on performance. It may be due to the nature of proxy used for real earning management in this study. For example, special items (SI) variable contains the component “amount earned from sale of assets” which indirectly reduce the amount of assets and as a result ROA increases. whereas results of this study are consistent with the finding of Gunny K. , (2010) because she also found the positive association bewteen earning management and firm performance.

According to the P-value of Hansen test it can conclude that model is valid under the null hypothesis “instruments are valid”. There no evidence for existence of second order serial

correlation. Because P-value of correlation test AR(2) is 0.550 which clearly indicate that one cannot reject the null hypothesis “There is no serial correlation in second order”.

#### 5.4.2.2 Impact of excessive investment and special items on ROE

Model 2 examine the relationship between excess of investment, special items (proxy for earning management) and return of equity. This study use excessive investment and special items with other variables CF, Q, INV, and control variables including size and growth. Control variables size is insignificant and variable growth is significant but having a zero impact on ROE. Variable excessive investment is negatively causing ROE at 10% level of significance. Which implies that excessive investment through special items manipulation reduce the firm performance in terms of their equity returns. Hence it is already discussed in last section of this study that manufacturing firms over invest in the period when they are engaged in earning management through special items manipulation. Same like first model cash flows also significantly and positively affect the ROE with strong coefficient of 5.16 significant at 1% level of significance. A firm’s equity returns are also positively influenced by value of its assets in the last year. As table 5.5 shows that lag of Q with coefficient of 1.3222493 have strong impact on ROE at 10% level of significance. Whereas another important element is the company’s actually investment rate in the last year. However, lag of INV is insignificant which shows that ROE does not influenced by last year’s investment rate.

SI variable is significantly causing the ROE at 5% level of significance. Which shows that earning management through manipulation of special items have negative impact on the performance of manufacturing firms (see table 5.5). These results are consistent with previous studies (see., Gunny K., (2005); Roychowdhury, (2006); Leggett *et al.* (2010); Taylor, (2010); Naila Tabassum *et al.*, (2014)). P-value of Hansen test (0.314) depicts that instruments

are valid and on the other hand correlation test shows that cannot reject the null hypothesis and leads to the conlcusion that there is no second order serial correlation in the residuals as well.

#### 5.4.2.3 Impact of excessive investment and special items on ROCE

Model 3 is used to investigate the relationship of excessive investment and special items with ROCE. Table 5.5 shows that excessive investment (ExINV) is negatively related with return on capital employed. Which shows that a one unit increase in excessive investment will decrease the ROCE by 0.213 units. It reveals a strong significant association of excessive investment with ROCE at 5% level of significance. These result depicts that same like its relationship with ROE, excessive investment have negative impact on ROCE, which represents the debt provider's side. From the above argument one can conclude that this part of excessive investment is also reducing the return of debt providers. Results of table 5.5 shows that firm's assets value (Q) positively impact the ROCE. It means in producing returns for both equity providers plus debt providers firm's assets value plays an important role.

Firm's earnings are rooted in positive cash inflows. For making over investing firm need internal funds. And these funds are ultimately extracted from cash flows. So, the relationship between manufacturing firm's cash flows and its return are positive as shown in table 5.5. A one unit increase in CF increases the ROCE with 3.129 units significant at 5% level of significance. Other control variable size and growth does not influence the ROCE. Additionally, value of firm's assets in the last year and investment rate of last year are also insignificant. Generally it is expected that if a firms is not doing good efforts to maximize the value of its shareholders then it will not do good hard work for other investors as well. That's only the game of signalling. It simply signal the market that specific firm is not maximizing the value of its own shareholders so, this firm will not carefully use external funding. Consequently, table 5.5 shows the similar nature of relationship between variable special items

(proxy for earning management) and ROCE. SI have negative impact on ROCE. SI would decrease the ROCE by 0.27% (significant at 5% of significance) if a rise of one unit occurs in SI. It means practice of earning management in manufacturing sector firms not only decrease the equity returns but it will also decrease the return of debt providers. For checking the validity of instrument used in the analysis Hansen test is used. P-value of Hansen test is 0.270 (see table 5.5) which clearly shows that model is valid and cannot reject the null hypothesis "instruments are valid". Furthermore, for detection of serial correlation problem AR (2) is followed. P-value of 0.436 in table 5.5 shows that residuals does not have the problem of second order serial correlation.

#### 5.4.2.4 Impact of excessive investment and special items on EPS

Investor interested in the equity financing usually keen about the per unit earnings. Therefore, it is important to check it's the relationship of excessive investment and special items. Results from table 5.5 depicts that excessive investment decrease per unit earning of a common shareholder. According to the results a one unit increase in variable excessive investment will decrease the EPS by 0.2095 units significantly at 5% level of significance. Same like last three models CF positively influence EPS as well. Control variables growth does not affect EPS. Whereas variable Q with one lag and last year's investment rate does not significantly affects the EPS.

Results in table 5.5 shows that variable special items (SI) affects the EPS negatively. Findings reveals that one unit increase in the special items (earning management) will decrease the EPS by 0.0027 units, significantly at 5% level of significance. It suggests, the period in which manufacturing firms practice the SI (earning management) through classical shifting of expenses and revenues they face poor performance of firm. Result of this study are persistent with empirical literature including (Roychowdhury, (2006); San *et al.*, (2011); Naila Tabassum

*et al.*, (2014)). After the discussion of results it's also important to know the validity of model. For checking the validity of instruments p-value of Hansen test (0.988) is reported in table 5.5 which shows that instruments are valid. And p-value (0.222) of AR (2) process indicate that residuals of the model are free from the problem of second order serial correlation.

#### 5.4.2.5 Impact of excessive investment and special items on GP

Finally, last model is used to check the relationship of gross profit with the proxy (special items) used for earning management and also with excessive investment. As described in literature by different researchers that shifting of core expenses or revenues to special item will show increased profit at initial level of income statement or profit & loss statement. For instance, McVay, (2006) state that manager miss-classify the core expenses to special items in order to show good performance at initial level which doesn't change the final earnings. Subsequently, it can be said that by creating or increasing these special items it will also increases the initial earning in terms of gross profit. Then logically there should be positive relationship between SI and gross profit. Thus table 5.5 shows that there is positive relationship exists between SI and GP. One unit increase in SI will cause 0.772236 (significant at 10% level of significance) units increase in gross profit.

Likewise, as discussed earlier that in the period when firms do real earning management invest excessively. Thus, here this study shows that manufacturing firms are investing excessively and there exists positive relation between previous ExINV (coefficient value 1.58438 significant at 1% level of significance) and gross profit as well (see table 5.5). It means, earning management through manipulation of SI leads to over investment that also proved as a determinant of increase in gross profit. It can be concluded that in this study such types of result between SI, ExINV and gross profit exits because of using the different proxy for earning management as compared with previous studies. Control variable growth significantly affects

the GP whereas Size does not. Lag of Q and lag of INV are also insignificant. For the reliability of instruments used in the analysis p-value of Hansen test is reported in table 5.5 which is almost 0.990. P-value of Hansen test shows that instruments used in this analysis are valid. On the other hand, for checking the autocorrelation used the AR (2) process. Reported p-value in table 5.5 for AR (2) process is 0.252 which indicates that there is no problem of second order serial correlation in the residuals.

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If we summarize the results of all five models of performance. There is negative relationship between excessive investment, special items (proxy for earning management) and performance measure, ROE, ROCE, and EPS. Other two accounting based performance measures ROA and GP are showing positive association with excessive investment and earning management (SI) because of the nature of proxy (special items) used to measure the earning management. However, on overall basis one can draw a conclusion that there is negative impact of excessive investment and earning management on performance of the manufacturing firms. Negative relationship between firm performance and earning management is also supported by literature including (Gunny K, (2005); Mizik *et al.*, (2007); Leggett *et al.*, (*2010*); Naila Tabassum A. K., (2014); S. Rahmawati, (2015)). This study reveals that earning management through speical items leads to over investment and also lower ROE, ROCE and EPS.

# Chapter 6

## Conclusion and recommendation

### 6.1 Conclusion

Business world consist of conflicts between majority and minority shareholders or in other words interest dis-alignment between management and ownership. Such conflicts usually benefits the party who have more access to the information. Which ultimately become asymmetric information for the second party (generally it is owners side). Consequently, managers protect their interests due to the fact they have more information as compared to any other party. Thus, managers behave optimistically, and always try to put good side of the firm. For doing this they usually put efforts to smooth the earnings for showing better performance of the company. Accounting earnings are considered to be a very important sign of the financial performance of an entity. Mechanics of accounting earnings have some flaws or discretions. Which provide the opportunity to the management to behave opportunistically. Management uses these flaws to maneuver the accounting earnings which are self-serving for the management. This maneuvering in accounting earnings is called earnings management. Therefore, this side should be well investigated to alert the other stakeholders for their protecting their rights.

This study assessed that how earning management through special items play its role in investment decision of manufacturing firms and performance of the firms as well. For empirical examination, yearly data of 164 manufacturing firms listed on Pakistan Stock Exchange has been used for the time span of eleven years from 2006 to 2016. For analysis of model, GMM estimation technique is used for annual data of eleven years. Excess of investment (ExINV), then variable special items for earning management, cash flows, last

year's investment rate and firm's assets value along with control variables size and growth are investigated to get the reliable results. This study reveals that firms engaged in earning management through special items also over invest in the same period. It shows that in manufacturing sector practice of earning management lead the firms towards over investment. Secondly, lag of excessive investment also positively influence the excessive investment, that mean manufacturing firm's investment decision of current years positively depend on their last year's investment decision.

Results of the study also showed that the practice of earning management is negatively linked to the performance of the firms including the performance indicators ROE, ROCE and EPS. Whereas other two performance indicators ROA and GP are showing positive association with earning management (SI), and excessive investment. Interestingly, excessive investment is positively associated to the performance indicator which also have positive relation with earning management (SI). For example ROA and GP shows positive relationship with special items (proxy for earning management) and also have positive association with excessive investment. While on the other hand, ROE, ROCE, and EPS have negative association with both variables special items and excessive investment.

### 6.2 Policy implication

Results of the study can be helpful in making disclosure policy for firms listed under the PSX. Findings of this study can also take into consideration while implementation of disclosure rules for financial reporting. Subsequently, the chances for practice of earning management can be decrease. Because, these results would be help in the development of more strict rules for financial reporting. In this way, truthfulness and reliability of financial statements will increase. Which ultimately removes all the asymmetry of information and one can rely on the company's disclosed information.

Secondly, results of this study can be used by different investor while making any investment decision. Because, results of the study exposed that manufacturing firms are involved in the practice of earning management through special items which means information in financial statement is not presenting the true picture. So, by these finding investor can save themselves from losses.

### 6.3 Limitations

Proxy used for earning management in this study is special items. This special item variable is a simple index constructed by using "benefits from revaluation of assets, benefits from debt elimination, on time charges like restructuring charges that does not occur in the next year". Proxy used in this study is supported by the study of S. Rahmawati, (2015) which is different from the proxies used for earning management in literature. And that's the expected limitation of this study.

### 6.3 Suggestions

Here are some recommendations mentioned below in order to complete the limitation of the study.

- Further study can be done by using the more proxies for earning management like sale manipulation, overproduction, discretionary revenues along with special items and check the relationship of all these proxies of earning management with investment decision of firms.
- By using these proxies one can also be able to tell that which type of earning management is more linked with investment decision of firms.
- In this study, control variable "Size" most of times give significant impact on investment decision and also on the performance of firms. One can study the

relationship between excessive investment and earning management by separating the manufacturing firms into two categories small size and big size firms.

- In this study, performance measure ROA is positively influenced by special item (proxy of earning management) which is against the previous literature. But maybe it is due to nature of proxy. One can use all the above mentioned proxies at the same time and investigate its relationship with firm performance which will clear the phenomena.

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