Earnings Management and Privatizations: Evidence from Pakistan

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Abstract

Purpose: This paper examines the incidence of earnings management around privatizations of State Owned Enterprises (SOEs) in Pakistan. The privatization program in Pakistan was initiated in 1985, albeit without any specified objectives. It was not until 1991 when Privatization Commission was established and the privatization program continued with a rather clearer agenda. The paper argues that, depending on the circumstances, SOEs could face both upward (such as maximizing privatization proceeds) and downward (such as to gain political favors from investors) earnings management incentives.

Research Methodology/Design: Prior research shows that firms making initial public offering or seasoned equity offerings use income increasing measures (such as accruals) to inflate the reported (quarterly or yearly) earnings to improve the market value of the firm prior to such offerings for different reasons. This study uses the most commonly used modified Jones model to estimate and disintegrate total accruals into discretionary and non-discretionary current and long term accruals to detect the incidence of earnings management during the two years before to two years after the privatization.

Findings: Using a sample of 33 privatizations from a total of 158, conducted during the period 1991-2005, the study shows that SOEs use both short term (current) and long term accruals to inflate reported earnings. The results also show that these accruals reverse in the post-privatization years. Overall, we cannot reject the incidence of earnings management around privatization years.

Practical implications: Investors should carefully evaluate the firms being privatized keeping in view the possibilities of earnings management by SOEs and not be deceived by the improving earnings figures around privatization. Regulatory and accounting authorities could tighten the privatization and accounting regulations to minimize the incidence of intentional earnings management.

Originality/Value: This is the first study that examines the performance of privatization of SOEs in Pakistan in the context of earning management. In addition, to the best of the authors' knowledge, this is the first that applies the modified Jones model to Pakistani firms.

Research limitations: These results should be interpreted with caution due to a relatively smaller sample size as compared to that of the total number of privatizations.

Key Words: Earnings management, privatizations, Pakistan, accruals

The usual disclaimer applies.

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1. Introduction

Earnings management, defined simply, involves the manipulation of financial accounts by management to project a certain image of the firm's economic performance. Such accounts are generally those which require judgment and thus provide managers with the leeway for temperance. Recent evidence supports the incidence of earnings management around a diverse range of events (see, for example, Teoh, Welch, and Wong, 1998a and 1998b, Iqbal, Espenlaub, and Strong, 2006, 2009), for a broad range of incentives, at significant times during the firm's life cycle in both the developed (such as the US and the UK) and emerging markets (such as China).

Privatization has emerged and is steadily becoming increasingly prevalent all over the world as an integral part of government policy designed to secure liberalization, divest state-owned units, develop capital markets, ease fiscal deficits and achieve other important economic and political aims. Interestingly, privatization program were started purely "on faith" and not because there was some conclusive evidence for the superiority of the private sector. Megginson *et al.* (1994) point out that the then academic literature provided little guidance as to the costs and benefits of privatization. Cook and Uchida (2001) find that privatization was initiated without much knowledge about its impact or contribution to economic growth. Manzetti (1994) refers to a Brazilian economist who admitted that the decision to privatize rests ultimately upon political calculations. Suleiman and Waterbury (1990) and Ernst *et al.* (1999) also agree that the decision to privatize is ultimately a political decision. Notwithstanding the rationale for its initiation, there is no doubt that its frequency renders it substantial significance and awards it enough importance as an integral tool of government policy that represents a landmark in a State Owned Enterprise's (SOE hereafter) life cycle. Given the relevance in its use as a government policy tool, one can hypothesize that there exist strong incentives for earnings management at the time of privatization. Such hypothesis derives rationale from the similarities between privatizations and IPOs, with considerable research having been done in case of the latter with respect to earnings management. This study tests the earnings management hypothesis around privatizations in Pakistan.

We examine a sample of 33 large privatizations conducted during 1991-2005 from a population of 158 privatizations in Pakistan.[1] We find that sample firms experience an increase in earnings, decrease in cash flows, and increase in current discretionary accruals in the year prior to and/or in the year of privatization. This suggests that firms to be privatized engage in earnings management to inflate earnings and firm value to ultimately maximize the privatization proceeds. These results imply that investors should carefully scrutinize the accounting information available at the time of privatization and not be deceived by the increased earnings figures.

The rest of the paper is organized as follows. Section 2 introduces the concept of earnings management, its methods and conditions suitable to its existence. Section 3 explores the nature of privatization as a policy pursued by governments around the world. Section 4 then proceeds to draw parallels between IPOs and privatizations and develops testable hypotheses. Section 5 outlines the criteria for sample selection and the methodology. Section 6 presents empirical results and Section 7 concludes the paper.

2. Earnings management, its methods, and opportunities

"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, pp-8). Earnings consist of two components: a cash component and an accrual component. The cash component of earnings consists of earnings received in the form of cash during the current period. On the other hand, accruals reflect the possible magnitude of earnings to be received in the future as a result of current transactions. It is this component of earnings which is susceptible to manipulation.

Accruals may be discretionary or non-discretionary in nature. Non-discretionary accruals are those which result from firm-specific economic variables, such as sales and the level of property, plant and equipment. These are the independent variables used in the Jones (1991) model for estimating non-discretionary accruals. On the other hand, discretionary accruals are those which involve estimation by the management and thus serve as a proxy for determining the level of earnings management in a company (Healy and Wahlen, 1998).

[1] The sample size decreased as a result of (small) size of the privatization and/or missing sample and industry data to estimate accruals using the modified Jones model, as explained in Section 5.2.

2.1 Earnings management methods

Managers are responsible for making decisions regarding what accounting procedures to use and on what basis to make accounting estimates. They have the discretion in choosing among alternative accounting methods while preparing the firm's annual accounts without violating the accounting principles. In addition, due to asymmetric information, it is expected that the managers (insiders) know more about the business and its relevant risks and opportunities present in the industry than the outsiders. Principal-agent relationship aptly describes the frictions and incompleteness in contracting (Martimort, 2006). Hence, it becomes possible for insiders to manage earnings upwards or downwards depending on the demands of the situation and the interests of the managers.

Given this discretion, some window dressing activities of the management have been highlighted in recent years. Especially popular amongst these activities is the 'big bath' behaviour in which management accumulates all their bad news from previous and future years and publishes it in an already bad year in which the company is making losses (Jiang, 2006). This further underestimates the earnings in that year so that the future years then appear to be more favourable. Management can also prepare 'cookie jar' reserves which can be utilized in the future if the need arises to make earnings appear more favourable (Badertscher, 2009). Lin and Shih (2002) also note that earnings are manipulated by deferring current earnings to the future rather than realizing them in the year in which they ought to be recognized or by recognizing revenue earlier in order to make statements appear more attractive. All these activities depend on the incentive at the specific time and the economic conditions that will bring more favourable returns in the future. Privatisation of an SOE is one such event where management may resort to these shadow activities.

Barth, Elliot and Finn (1999) argue that managers may have incentives to smooth income over different time periods, rather than having high fluctuations within earnings across time. Thus, during a recession, managers may actually wish to manage earnings upwards in order to avoid negative earnings despite the unfavourable environment in which the firm is operating. Similarly, during periods of economic growth and times of high profits, managers may manipulate earnings downwards in order to keep earnings at a smoother level. The reason for such behaviour can be explained by the fact that firms with smoother earnings tend to have higher price-earnings multiples.

2.2 Earnings management opportunities

Recent research has identified a number of situations in which firms may engage in upward earnings management. These include period(s) leading to equity offerings (IPOs and SEOs), to increase manager's compensations when they are tied up to their companies' performance (e.g. bonus plans) and to avoid violating clauses within lending contracts, etc.

All these situations provide incentives for managers to inflate accounting figures on their financial statements. Implicitly, the incentives to manage earnings around privatisations are similar to those of equity offerings. This paper elaborates upon this particular incentive and draws two contradictory analogies with respect to privatizations. Firstly, managers' incentives are generally to promote a favourable image of the company and thus to overestimate earnings so that prospective buyers value it higher. The ultimate motive is to sell the shares to the buyers at overvalued prices. Secondly, in case of privatization, managers do not want their companies privatized so as not to risk their future and not to lose their private benefits of staying in office (Fluck et al. 2007). Then it is also in the interest of government to undervalue rather than overvalue so as not to risk failure in privatizing an SOE. Its primary motive is to sell rather than to maximize sale proceeds.

Managers may have personal motives attached towards manipulating earnings since annual bonus plans tend to be attached to year-end earnings and thus it is in the interest of such managers to overestimate them. In case of privatisations, current managers may have a threat of job losses possibly followed by the change in ownership.

The third case relates to loan provisions; lending contracts may contain certain clauses such as restrictions on the amount of further debt taken or a minimum annual earnings target. If the company is expecting to make a loss, it may be in the interest of the company to overestimate earnings to avoid violation of the clauses and thus retain the loan contracts. This becomes even more critical in case of privatisations as such companies may not be able to achieve the required level of issue proceeds. Government also avoids this risk by offering shares at a deflated price in an IPO.

3. Nature of privatization, its objectives and methods

This paper attempts to explore earnings management around the significant economic event of privatization, a term coined by Peter Drucker in 1969 and defined in Megginson and Netter (2001, pp-2) as the 'deliberate sale by a government of state-owned enterprises (SOE) or assets to private economic agents'. SOEs here refer to government owned or government

controlled units. This paper aims to test the hypothesis that firms undergoing privatization indulge in earnings management at the time of privatization. The hypothesis is two sided and will be tested for both upward earnings management and downwards earnings management, as explained in Section 4.

The fact is that the debate about the costs and benefits of privatization is infinite. It hinges on the economic and political merits of the role of government in society as well as the economics of ownership, and has found supporters on both sides of the policy divide. Though the sponsors of private ownership are in ascendance now, the state ownership was considered the most successful economic policy only a few decades ago. Plane (1997) also comments that today's uncertain enthusiasm for the private sector is similar to the one policy makers once had for public sector-led development in the 1970s.

Popular opinion has historically supported state ownership of 'strategic' units such as utilities, telecommunications, off-road transportation, and defense production (Sheshinski and Lopez-Calva, 2000). The rationale behind this view is that these firms are integral to state stability and hence should not be subjected to the volatility inherent in market mechanisms.

Contrary to traditional perspectives, privatization programs emerge around the 1960's, with the Adenauer government in Germany divesting a major stake in Volkswagen, followed twenty years later by the massive privatization program invoked by the Thatcher government in the U.K. The policy subsequently began to spread worldwide, adopted extensively by the Latin American countries and other parts of Europe especially transitional economies of Eastern Europe. Again, some of these countries adopted this strategy without fully understanding its implications to their economic needs (Dharwadkar et al. 2000).

The popularity of privatization over the last half century establishes its credibility as an event of sufficient significance to be studied independently. It is not merely a unique policy specific to a region, but one that is present and practiced around the world. Given the nature of privatization programs, it can be argued that there exist strong incentives towards both upward and downwards earnings management at the time of privatization. Since there is dearth of research in this particular area, the earnings management hypothesis can be substantiated by comparing incentives for earnings management with other relatively more researched events (such as IPOs and SEOs) that are analogous to the sale of SOEs. Similar incentives could also exist in case of privatizations.

3.1 Privatization in Pakistan

Cameroon (1997) and Kemal (1996) point out that privatization was adopted in Pakistan as an essential component of the structural adjustment program. Kemal (2001) states that Pakistan has implemented three structural adjustment and stabilization programs between 1988 and 2000. These programs were aimed to restructure the whole economy by rationalization of tariffs, removal of subsidies, liberalization of import, deregulation and reform of corporate and financial sector, and the divestiture of public assets. In Pakistan, Privatization Commission was established as one aspect of the 1988 IMF/World Bank structural adjustment package (Cameroon 1997; Paddon 1997), though there was not much conviction behind the initiation of privatization program on the part of the government (Kemal 1996). Though, PC (2000: 5) terms privatization a "very much home-grown program developed in response to the dismal performance of public enterprises", there is not much truth in it. The fact is that in Pakistan, aid was conditioned with the privatization and restructuring of public enterprises. Mirza (1995) also gives a number of examples that highlight the role of international donors in privatization.

3.2 Objectives of privatization

Since privatization was an imported phenomenon in Pakistan and there was not much thought behind it, there were no clearly spelled out objectives at the initial stages of privatization during 1985-91. Though with the establishment of Privatization Commission in 1991, privatization was initiated in the country on a sound footing, the GOP does not list even a single privatization objective as late as 1992 (Qureshi 1992). It was as late as 1996, that we find the broad contours of privatization policy and its objectives (PC 1996b). The objectives of privatization are not much different from those in other countries of the world. PC (2000:7) emphasizes the need for privatization by highlighting the negative and adverse effects of government intervention in commercial activities: "distorted prices, lack of competition, and poor government management of business have hindered economic development, introduced inefficiencies, generated unproductive and unsustainable employment, slowed down investment, reduced access to services by the poor, resulted in sub-standard goods and services, and contributed to fiscal bleeding." By privatizing, government intends to reverse the shortcomings outlined above. Kemal (2000) points out that from 1985 to the present, six regular and six caretaker governments have been in power and privatization has been the cornerstone of the economic program of each government (PC

1997; Qureshi 1992; PC 1996a, 2000). A comparison of different brochures published by these governments show that the privatization objectives have more or less enjoyed a national consensus.

3.3 Privatization methods

In Pakistan, the method of sale has varied with the units being sold off, the extent to which the transfer of management occurred, and the proportion of shares being offered for privatization (Privatization Commission Annual Report, 2006). Bokhari (1998) classified these methods into three broad categories,

1. Invitation of bids from the private sector, including opened and sealed bidding, with or without prequalification of bidders. It was used primarily for the sale of small and medium SOEs.
2. Sale of shares through the stock exchange for prices determined through a valuation process, to ensure broad share ownership and participation of foreign investors. This has been used for large industrial units, utilities, and development projects.
3. The industrial units have been privatized by hiring Financial Advisory Consortium consisting of reputable investment banks to sell a minimum stake of 26% with management control to a set of pre-qualified strategic investors.

In addition to strategic sales, the government has also privatized SOEs by offering shares to the public to widen share ownership and perpetuate the development of stock markets. Shares have also been sold to overseas investors in the form of GDRs (Global Depository Receipts) as in the case of Oil and Gas Development Company Limited. Other methods include capital market transactions involving the placement of sell orders with stock exchange brokers adopted in the case of Pakistan Oilfields Limited and DG Khan Cement Company Limited. Such measures have been designed to encourage the influx of foreign capital and develop Pakistani securities markets.

4. Earnings management incentives around privatizations and hypotheses development

In this section, we compare the incentives for earnings management in IPOs and SOEs and develop testable hypotheses. We propose two hypotheses: the first supporting upward earnings management and the second supporting downward earnings management.

4.1 Incentives for upward earnings management

Ahmad-Zaluki, Campbell, and Goodacre (2008) argue that periods of economic crisis had a significant impact on IPO companies not only in terms of their operations but also in terms of their accounting practices. They report that during the East Asian crisis in 1997 and 1998, IPO companies recorded a higher amount of discretionary accruals than they would do so otherwise. They argue that due to a general slowdown of the economy and specifically the equity market crash in 1997, managers felt pressurized to maintain investors' confidence in the IPOs which affected the choice of the accounting methods that they applied. Thus, their study establishes a positive relationship between upward earnings management in IPOs and periods of economic stress. Smith, Kestel and Robinson (2001) also find that in times of an economic downturn there is an external pressure on firms to react by using income increasing accounting methods.

Putting these studies in the context of Pakistan and the period under review, we find that Pakistan's economy has not been faring very well. For example, Arby (2001) noted that the recession in Pakistan started in the early 1990s, was expected to continue till 2004-05. The period of our study from 1991 to 2005 coincides with this period of economic downturn. Depressed economic activity in Pakistan is further highlighted by the chronic fiscal budget deficit problem it had faced and is still facing. In 1993, the fiscal deficit reached its peak and led to a financial and exchange market crisis.

Thus, the economic rationale would dictate that due to the economic downturn and a chronic fiscal budget deficit, SOEs may make use of income increasing accounting policies and positive discretionary accruals to get a higher value for the firms that they are privatizing, just as IPO firms manage earnings upward in order to retain investors' confidence and avoid minimal stock trading. However, the political rationale may show a different perspective. The firms may resort to downward earnings management which would enable the government to dispose-off the state owned enterprise as quickly as possible to meet the donor conditionality and also show-off success of its economic policy (see Section 4.2).

Yarrow (1999) argues that the most common trigger for privatization and SOE reform is fiscal pressure. This statement clearly applies to Pakistan where the government can use the privatization proceeds as a substitute for taxes and to compensate for the pervasive tax evasion. This makes intuitive sense as we already know that one of the reasons for privatization of state owned companies is the revenue that such a divesture would create.

Pinheiro and Schneider (1994; 1995), however, find from their analysis of Latin American countries that ownership transfers are neutral from fiscal perspective and the privatization proceeds are often too little and arrive too late to help in times of economic crisis.

Public debt also provides an incentive for upward earnings management; the goal would be to maximize the revenue that will be generated per unit that is privatized which can then be used to finance the public expenditure. In case of debt obtained for SOEs, government will be able to show through upward earnings management the efficiency of its management. However, as discussed earlier, political considerations to sell the enterprise will eventually override economic ones and the overall effect on earnings management may be either neutral or downwards.

Furthermore, there is also an incentive in place for management to use income increasing methods when they themselves have some amount of ownership in a firm. Marquardt and Weidman (2004) investigated earnings management in firms issuing secondary stock and found that management often participated in secondary offerings by selling their own stock and thus were more inclined to increase earnings measures in order to increase their own payoffs. This inclination of maximizing payoffs can materialize given their position within the firm to influence the company's financials. Thus not only does management with an ownership stake in the company have an incentive to manage earnings upwards but it also has the opportunities to do so.

The reasons outlined above provide sufficient incentives for upward earnings management in the years before privatization. This leads to our first hypothesis,

H1: the management of state-owned enterprises (SOEs) is likely to engage in upward earnings management.

4.2 Incentives for downward earnings management

On the flipside, there is an abundance of literature on IPO firms that supports our alternative hypothesis of conservative earnings management. According to Teoh *et al* (1998a), IPO firms that have positive abnormal accruals see their stock performance decline in the long run. There are other studies that have found a negative relationship between pre-offer accruals and post-offer stock performance (for example, Teoh et al. 1998a and 1998b; Iqbal *et al*, 2006 and 2009). This negative relationship could be especially important when the privatization firms under consideration plan an IPO and SEOs in the long run. Ball and Shivakumar (2008) argue on the same lines and hypothesize that IPO firms who need

subsequent rounds of financing tend to be conservative in their earnings management practices. They argue that IPOs are monitored by auditors, analysts, rating agencies and the press. These firms face the risk of regulation and litigation if higher reporting standards are not met. Considering such arguments, we have framed our alternative hypothesis to take into account the possibility that there may be incentives for firms to be more prudent and conservative in the use of their accounting policies in the pre-privatization period. .

Another possible reason for conservative earnings management could be the political incentives of the state, for example, politicians might want privatization units to be underpriced so that they can gain political favor with the investors. In countries where the privatization process is not very transparent, conservative earnings management and consequently underpricing may be used to bribe and buy investors who can lend political clout to the government. Laurin, Boardman and Vining (2004) point out that political motives play an important role in the underpricing of share issue privatizations. They argue that politicians maximize the number of votes, the plurality of votes, the probability of winning reelection or, more generally, political power. Some of the companies being privatized may be politically sensitive and the government may want to negotiate a favorable deal with goodwill investors rather than with other bidders. Thus, politicians trade off higher sale proceeds for a more beneficial allocation. Conservative earnings management resulting in underpricing can then be used as a tool designed to overcome political obstacles standing in the way of a successful privatization (Megginson and Netter, 2001).

The privatization process in Pakistan entails hiring a Financial Advisor (FA) and if a FA is not hired then a valuator is appointed.[2] Considering that the privatization process gets scrutinized by a third party, the incentive could be to follow conservative accounting processes in order to avoid any bad publicity. The financial advisers and chartered accountants themselves would be concerned with loss of their reputation that might occur if they allow aggressive management of earnings.

In addition to this, Zhou and Elder (2003) found that big auditing companies and industry specialist auditors have a high correlation with conservative earnings management in IPO firms. Their study highlights the importance of audit quality in the whole earnings management process and how specifically auditors specializing in an industry tend to act as a constraint upon aggressive earnings management.

[2] The valuator is a qualified Chartered Accountant in case of large transactions.

Ahmad-Zaluki *et al*. (2008) hypothesize that older companies do not engage in upward earnings management as they are based on sound business practices and have a reputation to be run on sound accounting practices. Since these companies have been around for so long, they are also scrutinized by analysts and media that gives them little leeway for upwards or downwards earnings management. This argument can also be applied to privatizations where SOEs usually have a long history of existence. Nagata and Hachiya (2006) theorize that retained ownership by management in IPO firms creates competing motives between control and wealth creation. On the one hand, aggressive earnings management would lead to an overpriced IPO and wealth creation for shareholders. Whilst on the other hand, conservative earnings management would lead to underpricing of the IPO, oversubscription and a broader allocation of shares to the public which would enable the management to retain control. This argument can be applied to units being privatized in stages as retained ownership in such firms would be with the state.

Furthermore, Nash, Netter, Megginson, and Poulsen (2004) study share issue privatizations (SIPs) and establishes that governments aim to establish and strengthen their public equity markets through public market privatizations. While our study concentrates on asset sale privatizations, it can be hypothesized that in the light of the efficiency gains made by privatized firms, there may be an incentive to underprice units being privatized through lower discretionary accruals. A lower priced firm would be deemed as a good investment by investors and would maintain capital investments within the country and discourage flight of capital abroad. In a developing country like Pakistan, where investments are direly needed, it would be in the governments self-interest to make the investment climate more favorable.

The above arguments lead us to our second hypothesis,

H2: the management of state-owned companies manage earnings downwards before privatization as a result of conservative practices.

This paper combines the above two hypotheses, H1 and H2 to formulate a single hypothesis, H*, that ‘earnings management exist around privatizations in Pakistan’. We therefore conduct an un-directional test for this hypothesis and the evaluating the significance of upward/downward earnings management in the case of privatizations.

5. Methodology and data selection

In order to test the earnings management hypothesis (H*), we first establish whether the SOEs experience any abnormal increase or decrease in their earnings at or around privatisations. For this purpose, we examine return on assets (ROA), return on sales (ROS), and asset-scaled cash flow from operations (ACFO) of the SOE and of a matched firm, as suggested by Barber and Lyon (1996). The matched firm is chosen from the same industry with the closest ROA in the year t-1 (the year preceding the privatisation year). While choosing the matched firm, we exclude the firms that were privatised in the previous two years to avoid any contamination effect.

Following the determination of abnormal earnings (if any) in the year around the privatisation, we can estimate total accruals by subtracting CFO from net earnings. The accruals, specially the discretionary component, are an important tool for manipulating income and are estimated using different models to identify the degree of earnings management in a company. Several models have been developed in order to detect earnings management. However, the modified Jones model has been used in most of the recent studies. We also adopt the same model.

Due to differences in the nature and operations of industries, a variation may exist in the ‘normal’ levels of discretionary accruals. Given the particular cycle the industry may be passing through, the industry wide ‘normal’ levels may also change and the absolute level of discretionary accruals may not tell us much about the existence of earnings management. Thus we use the accruals of the matched firm to ascertain whether the discretionary accruals of SOEs are significantly different from those of the matched firms.

5.1 The modified Jones model

The accrual based model developed by Jones (1991) and further modified by Dechow, Sloan, and Sweeney (1995) aims to gauge earnings management by segregating accruals, both short and long-term, into the discretionary and non-discretionary components. The discretionary component is theorized to be affected by management choices and accounting manoeuvring and hence changes in this are used as the basis for determining the existence of earnings management. Used in cross-section, by aligning the time period around the specific event for all firms, this model allows us to test if statistically significant earnings management takes place around privatizations.

The modified Jones model segregates the accruals into its current and long term components. Each of these components is then tested via a two-step process to determine the level of discretionary current and long term accruals for each event-year. The first step involves estimating the coefficients through regressions on the data for each industry. The regressions for the current and long term portions respectively are shown below (see Appendix 1 for regression results):

$$\frac{CAC_{j,t}}{TA_{j,t-1}} = \alpha\left(\frac{1}{TA_{j,t-1}}\right) + \beta\left(\frac{\Delta REV_{j,t}}{TA_{j,t-1}}\right) + \varepsilon_{j,t} \quad \text{-------- (1)}$$

where:

$CAC_{j,t}$ = Current accruals, scaled by beginning total assets for firm j in year t,

$TA_{j,t-1}$ = firm j's book value of total assets at the beginning of year t,

$\Delta REVj,t$ = firm j's change in revenues from year t-1 to year t.

$$\frac{TAC_{j,t}}{TA_{j,t-1}} = a\left(\frac{1}{TA_{j,t-1}}\right) + b_1\left(\frac{\Delta REV_{j,t}}{TA_{j,t-1}}\right) + b_2\left(\frac{PPE_{j,t}}{TA_{j,t-1}}\right) + \varepsilon_{j,t} \quad \text{-------- (2)}$$

where:

$TAC_{j,t}$ = Total accruals, scaled by beginning total assets for firm j in year t,

$PPE_{j,t}$ = firm j's gross value of property, plant and equipment at the end of year t

The second step involves using the same variables for our event firms and matched firms to estimate their levels of non-discretionary accruals based on the industry coefficients determined in the first step. The modified Jones model adjusts for the changes in the levels of accounts receivables. The equation used to find the firm's non-discretionary accruals is shown below for the current and long-term portions respectively (see Appendix 2 for regression results):

$$NDCAC_{j,t} = \hat{\alpha}\left(\frac{1}{TA_{j,t-1}}\right) + \hat{\beta}\left(\frac{\Delta REV_{j,t} - \Delta REC_{j,t}}{TA_{j,t-1}}\right) \text{------- (3)}$$

where:

$NDCAC_{j,t}$ = Non-discretionary current accruals, scaled by beginning total assets for firm j in year t,

$\Delta REC\,j,t$ = Net receivables in year t minus net receivables in year t-1, and

$\hat{\alpha}$, $\hat{\beta}$ = Estimates of α, β_1 obtained from Equation (1).

$$NDTAC_{j,t} = \hat{a}\left(\frac{1}{TA_{j,t-1}}\right) + \hat{b}_1\left(\frac{\Delta REV_{j,t} - \Delta REC_{j,t}}{TA_{j,t-1}}\right) + \hat{b}_2\left(\frac{PPE_{j,t}}{TA_{j,t-1}}\right) \text{------- (4)}$$

where:

$NDTAC_{j,t}$ = Non-discretionary total accruals, scaled by beginning total assets for firm j in year t, and

$\hat{a}$, $\hat{b}_1, \hat{b}_2$ = Estimates of a, b_1, and b_2 obtained from equation (2).

Based on the levels of actual accruals we deduct the non-discretionary portion to calculate the discretionary portion of accruals. This is done separately for both the current and long term portions to derive the level of discretionary current and long-term accruals for each event-year for the sample and the matched firm. The difference between the levels of accruals in the sample and the matched firm are the observations that we use to conduct the analysis and performs various tests.

Test observation = Level of discretionary accruals in sample firm less
Level of discretionary accruals in matched firm

Through this formula we obtain 'positive' or 'negative' values for each event-year. On this basis, a 'positive' observation indicates a higher level of accruals for the event firm compared to the matched firm. This implies that the firm has recognized lower levels of expenses this year and/or has engaged in accelerating revenue recognition policies. The firm has, therefore, managed its earnings in an 'upward' direction.

Similarly a 'negative' observation indicates that the firm has lower levels of discretionary accruals compared to its relative firm. This would result in higher levels of expenses being recognized by the event firm and/or delayed revenue recognition policies. This indicates 'downward' earnings management.

5.2 Sample selection

During the period January 1991 to June 2007, 165 privatizations were made by the Privatization Commission of Pakistan.[3] Since we examine accruals from two years before to two years after the privatisation, we restrict our sample period from January 1991 to December 2005 during which 158 privatisations took place. We use the following additional criteria for sample selection,

1. The privatised unit is a non-financial, non-banking company;

[3]List of Privatisations from 1991 to 2007, available at http://www.privatisation.gov.pk/

2. The minimum sale price of the unit is Rs. 60 million;
3. The minimum ownership stake sold is 5%;
4. Accounting data is available to apply the modified Jones model for the year t-1.

The first criteria is imposed due to the distinct financial reporting requirements of financial and banking companies, that leads to an exclusion of 17 firms reducing the sample to 141 firms.

In order to draw a meaningful conclusions from the event studied, it is vital to keep two main characteristics of the sample in mind i.e. materiality and controlling ownership as noted in criterion 2 and 3 above. The larger the amount of the transaction, the greater is the incentive for manipulation. Similarly the larger the stake being sold, the greater the incentive for earnings management as the management would have lesser control over future decisions of the firm. The application of these two criteria reduces our sample to 67 event firms. No information was available on privatisation of two companies that left us with 65 event firms.

Most of prior studies using the modified Jones model have set a limit of 10 firms to form the relative industry sample in order to estimate the regression coefficients. Given the low levels of public listing in Pakistan, this is a difficult condition to satisfy for each and every event firm. To address this, we form broader industry groups similar to level-3 SIC codes used in the US. This classification allows us to increase the size of the relative industry and helps in easing the data restrictions we face in this study. We impose a restriction of a minimum of six firms (Iqbal et al., 2006, 2009) in each industry to apply the modified Jones model. This restriction reduces our sample size to 40 firms.

We examine earnings and accruals over a five year period around the event date, that is, two years before to two years after the privatisation year itself (year t). Hence we test the hypotheses from t-2 to t+2 (t being the event year itself) for all the events that form our sample. It is for this reason that we examine the accruals performance till 2007 as this allows us to derive data points for t-2 to t+2 years around the event.

The sample size of 40 privatisations seems relatively small as compared to the population of 158 privatisations. Despite this limitation, we have nevertheless used this to best help us understand the phenomenon of earnings management around privatizations in Pakistan. Appendix 3 reports the distribution of sample firms by industry and year. It shows that most (45%) of our sample firms were privatised in 1992 and most (32.5%) of the privatisations were made in the Cement sector with the second largest (25%) concentration in

the Fuel/Energy sector. The sample is fairly evenly distributed across other three industrial sectors.

Appendix 4 reports the industrial and yearly distribution of the amount raised from privatising SOEs. It shows that most of the proceeds are raised through privatising Fuel/Energy (43%) and Cement (39%) related units. In addition, most of the amount was raised in the year 1996 (about 42%) that contrasts with the statistics reported in Appendix 3 which shows that the largest number of SOEs were privatised in the year 1992. This implies that an event study on privatisations should not just focus on the frequency but also on the amount raised at the time of privatisations.

6. Results and findings

We report the operating performance results in Table 1 for 33 SOEs, as we could not find suitable matched firms for seven SOEs. The results show that SOEs start to experience an improvement in their operating performance from year –1, with a peak in year 0 and then a deterioration in year +1. This pattern is observed for the matched firm adjusted ROA and ROS measures of operating performance. At the same time, matched firm adjusted asset-scaled cash flow from operations (ACFO) do not show any pattern. This suggests that SOEs may be using income increasing accounting accruals to inflate reported earnings at the time of privatization, as the increase in earnings measures is not supported by ACFO. These results clearly indicate that SOEs experience abnormal increase in earnings at the time of privatisations. This warrants further analyses of accruals and its components.

The test observations that we derive from the modified Jones model can be used to decipher the presence or otherwise of earnings management around privatisations. Table 2 shows that out of the 153 sample observations that are available over the testing period we find that, for discretionary current accruals, 66 are negative and 87 are positive. This shows that there is no real pattern that can be interpreted. However, if we break this down into event years, we see a tendency towards upward earnings management. In the year t-1 (year prior to privatisation), we find that 73% (24) out of the total 33 points show ‘upward’ earnings management (positive level of difference between the sample and its matched firm). This pattern is reversed in the year t+1 (year following privatisation) where only 33% of the 30 firms show upward earnings management and more importantly 67% show downward earnings management. This ties in with the general observation that earnings management

that takes place before an event needs to be reversed in future years which is reflected in the downward earnings management in the post-event years.

Table 1. Operating performance of SOEs around privatisations

Year (t)	-2	-1	0	1	2
Performance matched non-issuer's adjusted ROA					
Median	–0.43	0.89*	1.45**	–1.24*	–1.18**
Mean	–1.83	1.88*	2.28*	–1.93*	–2.63**
N	29	33	33	30	28
Performance matched non-issuer's adjusted ROS					
Median	–0.36**	0.77**	1.08*	0.45	–1.24*
Mean	–1.21*	1.87*	2.06*	–1.96*	–1.51
N	29	33	33	30	28
Performance matched non-issuer's adjusted ACFO					
Median	0.91*	0.73	0.54	1.06**	1.17*
Mean	1.17**	1.08	0.89	1.65**	1.98*
N	29	33	33	30	28

Mean is tested using conventional t-test and medians are tested using Wilcoxon sign-rank test. ***** *and ** represent significance at the 5% and 10% levels.*

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Similarly, if we analyse the long term portion, the pattern is more towards downward earnings management through the long-term component of discretionary accruals. Out of the total of 153 sample observations available, 57% (85) show negative earnings management. In the event year t-1 we find that 20 out of the 33 sample points are negative. This could be explained as an attempt to overstate the book value of assets in the years preceding privatisation. However in the year t+1 we see that 20 out of 30 sample points show downward earnings management. Long term discretionary accruals comprise of provisions for depreciation and provision for bad debts, those accruing after a year, amongst other things. Downward management of these components will have a positive effect on the value of assets in the balance sheet. Generally, firm try to avoid using long term accruals to manipulate earnings as they are relatively easier to indentify.

Table 2. Mean and standard deviations of test observations

	Discretionary Current Accruals		Discretionary Long-Term Accruals	
Year	Mean	SD	Mean	SD
t-2	0.041	0.161	0.043	0.062
t-1	0.049	0.111	-0.073	0.211
T	0.055	0.162	-0.197	0.318
t+1	-0.121	0.332	-0.148	0.271
t+2	-0.042	0.127	0.169	0.195

Given a relatively smaller sample size available in year t-1, we did not draw our results on conventional tests (for example t-test) for methodological reasons. As an alternative, we use Wilcoxon's sign-rank test. The results of this test are reported here in Table 3. It shows that discretionary current accruals are positive and significant in year t-1 and negative and significant in year t+2, which is an indication of reversal of pre-privatisation discretionary current accruals. The significance in t-1 of discretionary current accruals is directly in line with our earlier discussion that the incentives for earnings management are most intense in the year before privatisation. Even with a one-tail test for upward earnings management the above value is significant. This shows that there is strong evidence of earnings management via current discretionary accruals in the year prior to privatisation.

In addition, discretionary long term accruals are significantly negative at 10% level in

years t-1 and t and positive at 5% level in year t+2 without showing any specific pattern of earnings management. This positive significance of the long term accruals is however harder to understand. This could primarily be attributed to the reversal of previous long term accruals or to the discretion available to the post-privatisation management while restructuring long term provisions. In Pakistan, the intention to privatize is made clear in advance, so that such provisions which are created provide ample time and scope for earnings management. Thus it is not only the current accruals which may be tampered with, but also long term accruals which provide an opportunity for earnings management.

Table 3. Results of Wilcoxon's Sign-Rank test

Year (t)	–2	–1	0	1	2
Discretionary current accruals					
Z	1.16	1.953*	0.842**	–1.846**	–1.431*
N	29	33	33	30	28
Discretionary long term accruals					
Z	0.892	–1.937**	–1.863**	–1.41	1.767*
N	29	33	33	30	28

***** and ** represent significance at the 5% and 10% levels.*

Finally we perform Spearman rank correlation test between the performance matched ROA from years t, t+1, and t+2 and discretionary current and long term accruals from t-1. The untabulated results show that the pre-privatisation discretionary current accruals are significantly negatively related to performance adjusted ROA from years t, t+1, and t+2. This further strengthens our results that SOEs use discretionary current accruals in year t-1 to inflate reported earnings.

7. Conclusion

This study examines privatizations in Pakistan. Our results support the hypothesis that SOEs use upward earnings management before privatizations. Due to a smaller sample size, we have not been able to perform a regression analysis of pre-privatisation accruals and post-privatisation earnings. Nonetheless this paper makes a significant contribution to a field that has not been explored as yet. Future studies can draw upon the rationale that we have provided, as the incentives are in place for accounting manipulations by the management of SOEs. The limitations faced in our study can be attributed to the availability of relevant data

and the size of each industry being studied. Future research could be carried out to empirically test the hypothesis in other countries where such limitations can be addressed. Countries with nearly completed privatization programs would have a statistically superior sample from which one could draw conclusions and also make the findings more generalized rather than biased towards a particular region or country.

Our results show that earnings management does occur in the case of privatizations but it is somewhat different from the usual pattern of earnings management reported in prior literature. Numerous studies have established the current component of discretionary accruals as being the relevant indicator of earnings management, and time and again it has been the current accruals component that has been tampered with by the management. While this is the case for privatized firms as well, we find the long term accrual component to be understated in our sample which seemed to be puzzling at first. This mysterious occurrence may not be so baffling given the long term restructuring provisions that are created before privatization. Most firms only have the leeway to adjust the current portion of accruals in their books but the case of privatizations seems different. In privatizations, the state shortlists firms for divesture a few years in advance. This is in line with their long term privatization plans. Given a longer time frame and the demand made on the short-listed firms to prepare for privatization, a substantial amount of restructuring could be undertaken. These factors naturally affect the long term portion of accruals instead of just the current accruals portion. The management makes sufficient provisions for restructuring and exercises its discretion in estimating these amounts. Thus, our paper establishes earnings management in the case of Pakistani privatizations via manipulation of both short term and long term accruals.

The ability to manage earnings depends strongly on the regulatory structure and the degree of information asymmetry. Stricter scrutiny of firms undergoing privatization by autonomous regulatory bodies will ensure that it is more difficult for firms to succeed in managing their earnings and hence window dress their financial statements. Decision makers need to be aware of the potential for firms to misrepresent their financial situation and engage in closer assessment at the time of sale. Establishing an independent review committee and subjecting public firms to greater accountability could also reduce the degree of earnings management that these firms can engage in, reinforcing public investor confidence in the SOEs and in the privatization policy itself.

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Appendix 1: Summary of Regression Results of Discretionary Current Accruals

Year (t)		-2	-1	0	1	2
α	*Mean*	-33.412	16.858	26.739	-4.349	17.575
	SD	-104.453	25.592	38.876	7.418	37.561
t-statistic	*Mean*	-0.158	0.408	-0.164	-0.550	-0.185
	SD	1.574	0.997	1.607	1.002	1.180
β	*Mean*	0.026	-0.104	-0.142	0.140	0.008
	SD	0.106	0.106	0.106	0.106	0.106
t-statistic	*Mean*	0.157	-0.085	-0.177	0.707	0.048
	SD	0.738	0.738	0.738	0.738	0.738
R^2	*Mean*	0.250	0.215	0.435	0.182	0.239
	SD	0.261	0.261	0.261	0.261	0.261
Adj. R^2	*Mean*	-0.053	-0.118	0.214	-0.129	0.043
	SD	0.389	0.389	0.389	0.389	0.389
N	*Mean*	8.667	8.810	9.368	10.294	11.882
	SD	2.582	2.582	2.582	2.582	2.582

Appendix 2: Summary of Regression Results of Discretionary Long-term Accruals

Year (t)		-2	-1	0	1	2
A	*Mean*	-32.482	-0.423	17.291	-22.325	17.601
	SD	78.862	17.469	27.664	33.493	33.331
t-statistic	*Mean*	0.268	0.595	-0.634	-0.882	-0.275
	SD	1.146	1.302	1.666	0.534	0.939
b_1	*Mean*	0.164	0.015	-0.250	0.482	-0.033
	SD	0.420	0.119	0.410	0.369	0.128
t-statistic	*Mean*	0.350	0.538	-0.537	0.820	-0.044
	SD	0.518	0.204	1.502	0.288	1.386
b_2	*Mean*	0.299	0.154	0.066	0.422	0.125
	SD	0.469	0.260	0.208	0.513	0.094
t-statistic	*Mean*	0.518	0.456	0.311	0.497	0.460
	SD	0.928	1.179	1.092	0.632	0.710
R^2	*Mean*	0.403	0.280	0.561	0.403	0.246
	SD	0.226	0.212	0.091	0.151	0.115
Adj. R^2	*Mean*	-0.044	-0.456	0.222	0.012	-0.115
	SD	0.341	0.773	0.097	0.208	0.187
N	*Mean*	8.667	8.810	9.368	10.294	11.882
	SD	2.582	2.600	2.967	3.584	3.655

Appendix 3: Industrial and yearly distribution of privatisations, 1991-2005

Ind. / Year	Auto	Cement	Chemical/ Fertilizer	Fuel/ Energy	Edible Oil	%age of the Sample	Total
1991	1					2.5%	1
1992	4	8	4		2	45%	18
1993	1					2.5%	1
1994				1		2.5%	1
1995		1	1			5%	2
1996		1		2		7.5%	3
1997							
1998							
1999							
2000				1		2.5%	1
2001				1		2.5%	1
2002			2	5	1	20%	8
2003		1				2.5%	1
2004		1			1	5%	2
2005		1				2.5%	1
%age	15%	32.5%	17.5%	25%	10%		100%
Total	6	13	7	10	4	100%	40

Appendix 4: Industrial and yearly distribution of proceeds raised at privatisations, 1991-2005

Ind. / Year	Auto	Cement	Chemical/ Fertilizer	Fuel/ Energy	Edible Oil	%age of Sample	Total
1991	105.60					0.35%	105.60
1992	904.80	5013.70	1407.90		216.30	25%	7542.70
1993	69.20					0.22%	69.20
1994				102.40		0.34%	102.40
1995		110.00	399.50			1.68%	509.50
1996		2415.80		10151.00		41.55%	12566.80
1997							0.00
1998							0.00
1999							0.00
2000				369.00		1.22%	369.00
2001				142.00		0.47%	142.00
2002			2150.90	2259.40	94.00	14.90%	4504.30
2003		255.00				0.8%	255.00
2004		793.00			80.70	2.89%	873.70
2005		3204.90				10.60%	3204.90
%age	3.57%	39%	13.08%	43.06%	1.29%		100%
Total	1079.60	11792.40	3958.30	13023.80	391.00	100%	30245.10