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Earnings Management and Privatisations: Evidence from Pakistan

ABDULLAH MUHAMMAD IQBAL, IRAM KHAN, and ZEESHAN AHMED

This study examines the incidence of earnings management around the time of the privatisation of State Owned Enterprises in Pakistan during 1991-2005. Using the modified Jones model and a sample of large privatisations (minimum US\$1 million), it shows that the sampled firms experienced increase in earnings, decrease in cash flows, and increase in current discretionary accruals in the year prior to and/or in the year of privatisation. The SOEs used both short term and long term accruals to inflate reported earnings. These accruals were reversed in the post-privatisation period. These findings suggest that managers of the firms slated for privatisation were engaged in earnings management to inflate their firms' financial worth to maximise the privatisation proceeds. Hence, we cannot reject the incidence of earnings management during privatisations in Pakistan. The results imply that the investors should carefully evaluate the to-be-privatised firms and keep in view the possibility of earnings management by the SOEs.

JEL Classification: G14, G34, G38, L33, M41

Keywords: Earnings Management, Privatisations, SOEs, Pakistan, Accruals

1. INTRODUCTION

Earnings management involves manipulation of financial accounts by management to present a certain image of a firm's economic/operating performance [see, for example, Healy and Wahlen (1999); Kothari (2001); and other studies]. Financial accounts generally require judgment, and thus, provide managers with the scope for tampering [Schipper (1989)]. Recent evidence supports the incidence of earnings management around a diverse range of economic events [see, for example, Teoh, *et al.* (1998a, 1998b); Iqbal, *et al.* (2006, 2009)], and for a broad range of incentives during a firm's life cycle in both the developed (the US and the UK) and emerging markets (such as China and Malaysia) [see, for example, Teoh, *et al.* (1998); Ball and Shivakumar (2008); Cheng and Warfield (2005); Othman and Zegal (2006); Yanqiong (2011); Ahmad-Zaluki, *et al.* (2011)].

In addition, compared with outsiders, managers (insiders) know more about their business and its relevant risks and opportunities due to the existence of information

Abdullah Muhammad Iqbal <A.iqbal@kent.ac.uk> is Assistant Professor, Kent School, University of Kent, Medway, Chatham Maritime, UK and National University of Sciences and Technology, Islamabad, Pakistan. Iram Khan <iram.khan@fulbrightmail.org> is Joint Secretary, Cabinet Division, Cabinet Secretariat, Islamabad. Zeeshan Ahmed <ZeeshanA@lums.edu.pk> is Assistant Professor, Lahore University of Management Sciences (LUMS), Lahore.

asymmetries [Myers and Majluf (1984)]. Therefore, depending on the demands of the situation, their vested interests as well as the existence and/or the enforcement of relevant laws, it becomes possible for the insiders to manage earnings upwards or downwards or even smooth them.¹ The probability of such an occurrence is greater in Pakistan for several reasons, such as the inefficiency of judicial system and poor disclosure standards for the State Owned Enterprises (SOEs) [Guedhami and Pittman (2011)]. Furthermore, a critical event such as privatisation provides strong incentives to managers to either show their support (through upwards earnings management) or opposition (through downward earnings management) to it.

One can, therefore, hypothesise that strong incentives may exist for managing earnings at the time of privatising SOEs too.² Such a hypothesis derives rationale from the similarities between privatisations and Initial Public Offerings (IPOs), as one of the means for divestment of SOEs is through an IPO. Considerable amount of research, that tests the implications of earnings management hypothesis around the event of IPOs and seasoned equity offerings (SEOs), has been done [see for example, Aharony, *et al.* (1993); Teoh, *et al.* (1998); Ahmad-Zaluki, *et al.* (2011); among others]. However, to the best of authors' knowledge, this study is one of the few that tests earnings management hypothesis around the privatisation of SOEs. Thus, the main purpose of this study is to examine if the managers of SOEs manage earnings (upward or downward) around the privatisation of SOEs in Pakistan. The results of the study have important implications for policy makers and investors in view of the next wave of major privatisations that are expected during 2015-16 in Pakistan. These include Pakistan Steel, Pakistan International Airlines (PIA), and Oil and Gas Development Corporation (OGDC), to name a few.

The rest of the paper is organised as follows. Section 2 reviews the privatisation policy in Pakistan, while Section 3 explains the concept of earnings management, draws parallels between IPOs and privatisations, and develops the testable hypotheses. Section 4 outlines the criteria for sample selection and discusses the methodology. Section 5 presents empirical results followed by conclusion in the last section.

2. THE NATURE OF PRIVATISATION AND ITS OBJECTIVES IN PAKISTAN

This paper attempts to explore earnings management around the SOEs privatisation, a term defined in Megginson and Netter (2001) as the 'deliberate sale by a government of state-owned enterprises (SOE) or assets to private economic agents'. Privatisation programmes emerged in the 1960s, with the Adenauer government in Germany divesting a major stake in Volkswagen, followed by the massive privatisation invoked by the Thatcher government in the UK in 1980s. This policy then began to spread worldwide, adopted by the Latin American and European countries (especially Eastern Europe). The popularity of privatisation establishes its credibility as an event of

¹Managers may use 'big bath accounting' [Jiang (2007)] or 'cookie jar reserves' [Badertscher, *et al.* (2009)] as possible tools to manage earnings. They may also defer current earnings to future years or recognise revenues earlier [Lin and Shih (2002)]. Barth, *et al.* (1999) argue that managers may have incentives to smooth income over different time periods.

²We provide details of earnings management incentives and the types of firms involved in managing earnings upwards or downwards in Section 3.

sufficient significance to be studied independently. This unique policy is not specific to a region but is present and practised around the world.

Cameroon (1997) and Kemal (1996) point out that the privatisation policy was adopted in Pakistan as an essential component of the structural adjustment programme, when the Privatisation Commission (PC) was established as part of the 1988 IMF/World Bank structural adjustment package [Cameroon (1997); Paddon (1997)]. Though Kemal (1996) claims that there was not much conviction behind its initiation on the part of the government, privatisation has continued to persist as a preferred economic policy option despite governments having different ideological hues and political dispensations [Kemal (2000); PC (1996a, 1997, 2000); Qureshi (1992)]. The fact is that in Pakistan, international financial aid was conditioned on the privatisation and restructuring of SOEs. Mirza (1995) gives a number of examples that highlight the role of international donors in privatisation in Pakistan.

According to Khan (2003), since privatisation was an imported phenomenon in Pakistan, it had no clearly spelled out objectives initially. The government reports on privatisation do not list even a single objective until 1992 [Qureshi (1992)]. It was as late as 1996, that the broad contours of privatisation policy and its objectives emerged [PC (1996b)].

According to the ex-Chairman, Privatisation Commission, the government programme for privatisation is based on “the principle of reducing its direct participation in commercial activities” and ensuring “equity and economic justice” [Asif (1998)]. PC (2000), states: “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 substandard goods and services, and contributed to fiscal bleeding”. By privatising, the government intends to remove these impediments.

By the end of May 2011, the GOP had completed or approved 167 transactions.³ This number also included some multiple transactions for the same unit. The gross privatisation proceeds stood at Rs 476.421 billion. Telecom and power sectors alone account for around 50 percent of all the proceeds.

3. EARNINGS MANAGEMENT OPPORTUNITIES

According to Healy and Wahlen (1999), earnings management occurs when managers use judgment and discretion in financial reporting and choose accounting methods to structure transactions to alter financial reports. This enables them to mislead stakeholders about the underlying economic performance of a company or to “influence contractual outcomes that depend on reported accounting numbers” (p. 8). Managers can exercise their discretion in case of discretionary part of the accruals, which involve estimation by the management and thus serve as a proxy for determining the level of earnings management [Healy and Wahlen (1999)].

3.1. Incentives for Upward Earnings Management

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

³[http://www.privatisation.gov.pk/about/Completed%20Transactions%20\(new\).htm](http://www.privatisation.gov.pk/about/Completed%20Transactions%20(new).htm). Accessed on September 10, 2013.

(IPOs and SEOs—Seasoned Equity Offerings), increasing manager's compensations when they are linked to year-end earnings (e.g. bonus plans), and avoiding violating clauses within lending contracts, etc.

Ahmad-Zaluki, *et al.* (2011) and Smith, *et al.* (2001) argue that in times of an economic downturn, there is external pressure on firms to choose income increasing accounting methods. During the East Asian crisis in 1997-98, IPOs recorded a higher amount of discretionary accruals than they would have done otherwise. The managers were under pressure to maintain investors' confidence in IPOs, which affected the choice of accounting methods that showed upwards earnings. Thus, their studies establish a positive relationship between upward earnings management in IPOs and the periods of economic stress.

Earnings management is common during privatisation introduced at times of economic stress. Karatas (1995) finds instances of data manipulation in Turkey in the pre-privatisation period. Such data falsification is more likely to be present in situations where government is facing opposition to its privatisation policy and wants it to look good.

Putting these studies in the context of Pakistan and the period (1991-2005) under review, we find that Pakistan's economy was not faring very well. Arby (2001) noted that the recession in Pakistan started in the early 1990s and was expected to continue till 2004-05. Burki (2000) also argues that "the economy and state of Pakistan are in crisis... Pakistan has not faced a crisis of this magnitude in its entire 60-year history" (p. 152). Thus, the economic rationale would dictate that due to the economic downturn and a chronic fiscal budget deficit, the government should quickly privatise as many SOEs as possible. To achieve this, the government had the incentives to use income increasing accounting policies and positive discretionary accruals to achieve higher value for the firms, just as IPO firms would manage earnings upward in order to retain investors' confidence and avoid reduced stock trading. In such a situation, managers are expected to get along with the government rather than resist and face the consequences of refusing orders. The economic incentives apart, the political will behind a privatisation programme is also likely to affect the earnings management perspective.

Yarrow (1999) argues that the most common trigger for privatisation and SOE reform is fiscal pressure. This statement clearly applies to Pakistan where the government had a clear incentive to use privatisation 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 the privatisation of SOEs is the revenue that such a divestiture would generate.⁴ Weak democratic regimes followed by military rule made it even more difficult for the successive governments to introduce a stringent tax system.

Public debt also provides an incentive for upward earnings management; the goal would be to maximise the revenue to be generated from the privatised unit, which can then be used to finance public expenditure. In case of debt financing for SOEs, government could show through upward earnings manipulation the efficiency of its management.

⁴Pinheiro and Schneider (1994, 1995), however, show that ownership transfers are neutral from fiscal perspective and the privatisation proceeds are often too little and arrive too late to help in times of economic crisis. Hemming and Mansoor (1987) and Mansoor (1988b, 1988a) also argue that ideally, the change of ownership should have no effect on fiscal deficit due to the fair market price of SOEs.

Khan (2003) has also concluded that managers had incentives for upwards earnings management to increase the probability of privatisation. This is because after the initial shock of privatisation was over, they benefitted both in terms of better wages and increased employment opportunities. This is also evident from the study by De Luca (1997) and Martin and Parker (1997) which shows that managers mostly benefit from it, enjoying better pay and perks in the post privatisation period. According to Harris (1995), they either advocate it or at least show less stress and low uncertainty level [Nelson, *et al.* (1995); Cam (1999)].

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

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

3.2. Incentives for Downward Earnings Management

A number of studies on IPOs and SEOs have found a negative relationship between pre-offer accruals and post-offer operating and stock returns performance [for example, Teoh, *et al.* (1998a) and (1998b); Iqbal, *et al.* (2006, 2009)]. This negative relationship (or conservative earnings management) can be important when privatised firms plan an IPO/SEO in the long run. For example, Ball and Shivakumar (2008) argue that the IPO firms which need subsequent rounds of financing tend to be conservative in their earnings management practices.

Another possible reason for conservative earnings management can be political dimension normally associated with privatisation. For example, politicians might want units under privatisation to be underpriced to gain political favours from investors. Thus conservative earnings management (i.e. underpricing) may be used to overcome political obstacles standing in the way of a successful privatisation [Megginson and Netter (2001); Laurin, *et al.* (2004); and Farinos, *et al.* (2007)]. Similarly, the state would like to avoid the risk of failure of privatising its SOEs. Its primary motive could be to sell rather than to maximise the sale proceeds. Thus, firms may resort to downward earnings management, which would enable the government to dispose-off SOEs as quickly as possible to show the success of its economic policy [Jones, *et al.* (1999); Chen, *et al.* (2011)]. Conservative earnings management may also be used as a means to convince unions and labor that privatisation is the only viable option [Boubakri and Cosset (1998)]. The political dimension has been a broad consideration in Pakistan through different regimes. The sale/divestment of public assets has generally been construed as an indicator for the success of a privatisation effort. It is the output, not the outcome, which has mattered the most.

The privatisation process in Pakistan entails hiring a Financial Advisor or a valuator.⁵ If the privatisation process is scrutinised by a third party, the incentive could be to follow conservative accounting practices to avoid any bad publicity. Financial advisers and chartered accountants themselves would be concerned with the loss of their reputation or risk facing civil law suits [Guedhami and Pittman (2011)] if they allow aggressive management of earnings. Zhou and Elder (2003) find that big auditing firms

⁵The valuator is a qualified Chartered Accountant in case of large transactions.

and industry specialist auditors have a high correlation with conservative earnings management.

Ahmad-Zaluki, *et al.* (2008) hypothesise that older companies do not engage in upward earnings management as they follow sound business practices and have a reputation for following prudent accounting practices. Since SOEs usually have a long history of existence, and are subject to public scrutiny by analysts and media, which reduces their scope for upwards or downwards earnings management.

Nagata and Hachiya (2006) argue 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 privatised in stages as retained ownership in such firms would remain with the state and its agents, the managers.

Meggison, *et al.* (2004) study share issue privatisations (SIPs) and find that governments aim to establish and strengthen their equity markets through public market privatisations. While our study does not differentiate between asset sale and IPO privatisations, it can be hypothesised that in the light of the efficiency gains made by privatised firms, there may be an incentive to underprice units being privatised through lower discretionary accruals. A lower priced firm would seem a good investment by investors and would maintain capital investments within the country (like Pakistan) and discourage the flight of capital abroad.

Finally, in case of Pakistan where managers were not provided job security in the post-privatisation period, they may not want their companies privatised so as not to risk losing their jobs [Fluck, *et al.* (2007)].

Thus we argue that there may be incentives for firms to be more prudent and conservative in their use of accounting policies in the pre-privatisation period. Hence, our second hypothesis is,

H2: the management of state-owned companies manages earnings downwards before privatisation as a result of conservative accounting practices.

Our study combines H1 and H2 to formulate a single Hypothesis, H*, i.e. 'earnings management exists around privatisations in Pakistan'. In addition, Privatisation Commission of Pakistan considered privatising both profit making (supposedly with inflated earnings) and loss making (supposedly with deflated earnings) SOEs [Naqvi and Kemal (1991)]. Therefore, we conduct an un-directional test for this hypothesis and evaluate the significance of (both upward/downward) earnings management.

4. METHODOLOGY AND DATA SELECTION

Prior to testing earnings management hypothesis (H*), we examine abnormal changes in earnings at or around privatisation of SOEs. For this purpose, we use return on assets (ROA), return on sales (ROS), and asset-scaled cash flow from operations (ACFO) of SOEs and of their matched firms [Barber and Lyon (1996)] from two years before to

two years after the privatisation. The matched firm is chosen from the same industry with the closest ROA from year -1 (the year preceding privatisation). While choosing a matched firm, we exclude firms that have been privatised in the previous two years to avoid any contamination effects.

Following the estimation of abnormal earnings (if any) in the years around the privatisation year, we estimate total accruals by subtracting CFOs from net earnings for each year. We use modified Jones model to estimate discretionary accruals that are an important tool for manipulating earnings and hence, to detect earning management.

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 an 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. We, therefore, use the accruals of the matched firm to ascertain whether the discretionary accruals of SOEs are significantly different from those of the matched firms.

The accrual-based model developed by Jones (1991) and modified by Dechow, *et al.* (1995) aims to measure earnings management by segregating total accruals (both short and long-term) into the discretionary and non-discretionary components. In this model, first coefficients for the components that are susceptible to managerial discretion (such as 'change in sales revenue' for current accruals and 'property, plant, and equipment' and 'change in sales revenue' for total accruals) are estimated for each industry using ordinary least square regressions. These coefficients are then used to calculate non-discretionary current and long-term accruals. Finally, the difference between the total current (long-term) accruals and the non-discretionary current (long-term) accruals provides discretionary current (long-term) accruals. This is explained in more detail in Appendix I. The 'discretionary component' is expected to be affected by the management's choice of accounting practices, and changes in this component are used as the basis for estimating earnings management around privatisations.

Based on the levels of actual total accruals, we deduct the non-discretionary portion to calculate the discretionary portion of the accruals. This is done separately for both the current and long term components to derive the level of discretionary current and long-term accruals for each event-year for the sample and the matched firms. The difference between the levels of accruals of two types of firms is the observations that we use to conduct the analysis and perform various tests.

$$\text{Test observations} = \begin{array}{l} \text{Level of discretionary accruals in sample firm} \\ \text{less} \quad \quad \quad \text{Level of discretionary accruals in matched firm} \end{array}$$

Using this method, we obtain 'positive' or 'negative' values for each year. A positive value indicates a higher level of accruals for the event firm compared to the matched firm. This implies that the firm has recognised 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 as compared to its matched firm. This would result in higher levels of expenses being recognised by the

event firm and/or delayed revenue recognition policies. This indicates 'downward' earnings management.

We use January 1991 to June 2005 as our sample period. Privatisation Commission privatised 158 state owned units during this period.⁶ We also use the following additional criteria for sample selection,

- (1) The privatised unit is a non-financial company;
- (2) The minimum sale price of the unit is Rs 60 million (approximately US\$1 million);
- (3) The minimum ownership stake sold is 5 percent;
- (4) Accounting data is available to apply the modified Jones model for the years – 1 and 0.

The first criterion is imposed due to the distinct financial reporting requirements of financial companies that lead to the exclusion of 17 firms. In order to draw meaningful conclusions from the event of privatisation, 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 is the incentive for earnings manipulation as the management would have lesser control over future decisions of the firm. The application of these two criteria further reduces our sample to 67 event firms. No information was available on the privatisation of two companies that left us with 65 event firms.

Prior studies [such as Teoh, *et al.* (1998)] use a limit of 10 firms to form the relevant industry sample to estimate the regression coefficients from the modified Jones model. Given the low levels of public listing in Pakistan, this is a difficult condition to satisfy for each and every sample firm. To address this, we form broader industry groups similar to Level-3 SIC codes used in the U.S. This classification allows us to increase the size of the relative industry and helps in easing the data restrictions we face. We impose the restriction of minimum six firms [Iqbal, *et al.* (2006, 2009)] in each industry to apply the modified Jones model. This restriction further reduces our sample size to 40 firms. Table 1 and Table 2, respectively, report the distribution of sample firms by industry and year, and the industrial and yearly distribution of the amount raised from privatising SOEs.

We examine earnings and accruals over a five year period around the event year, that is, two years before to two years after privatisation. Hence, we test the hypotheses by analysing the time-series of earnings and discretionary accruals from event years –2 to +2 for all the firms. It is for this reason that we examine the operating and accruals performance from 1989 till 2007.

⁶List of Privatisations from 1991 to 2005, available at <http://www.privatisation.gov.pk/>. In addition, according to the Privatisation Commission of Pakistan website (checked on 18 March 2015), there are only five further privatisation transactions over the period 2006-2014 in the non-financial sectors. This further suggests that our study did not leave out significant amount of data. We would not have gained significant information even if we had extended our sample period to 2012, as we needed two further years of accounting data after the privatisation to examine their performance.

Table 1

Distribution (Industrial and Yearly) of Sample Firms, 1991–2005

Year	Industry						% age of Sample	Total
	Auto	Cement	Chemical/Fertiliser	Fuel/Energy	Edible Oil			
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 of the sample	15%	32.5%	17.5%	25%	10%			100%
Total	6	13	7	10	4		100%	40

The table provides yearly and industrial distribution of the 40 selected sample firms that were privatised during the period January 1991 to December 2005. It also reports the percentage of the privatised firms in each year and industry.

Table 2

Distribution (Industrial and Yearly) of Proceeds (Millions of Pakistan Rupees) Raised from Privatisations during 1991–2005

Year	Industry						% age of Sample	Total
	Auto	Cement	Chemical/Fertiliser	Fuel/Energy	Edible Oil			
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							14.90%	
2003		255.00	2150.90	2259.40	94.00		0.8%	4504.30
2004		793.00			80.70		2.89%	873.70
2005		3204.90					10.60%	3204.90
% age of total sample	3.57%	39%	13.08%	43.06%	1.29%			100%
Total	1079.60	11792.40	3958.30	13023.80	391.00		100%	30245.10

The table provides yearly and industrial distribution of the proceeds raised from the 40 sample firms that were privatised during the period January 1991 to December 2005. The proceeds are reported in millions of Pakistani Rupees. It also reports the percentage of the amount raised from the sample firms in each year and industry.

5. RESULTS AND DISCUSSION

We report operating performance (median and mean) results in Table 3 for 33 SOEs, as we could not find suitable matched firms for the remaining seven. The results show that the SOEs start to experience an improvement in their matched-firm adjusted operating performance from year -1 , with a peak in year 0 and then deterioration in year $+1$. This pattern is observed for the matched firm adjusted ROA and ROS (mean and median) measures of operating performance. At the same time, matched firm adjusted asset-scaled cash flow from operations (ACFO) do not show any such pattern. This suggests that SOEs may be using income increasing accounting accruals to inflate reported earnings at the time of privatisations, as the increase in earnings measures is not supported by ACFO. These results are consistent with Teoh, *et al.* (1998a, 1998b) for U.S equities and Iqbal, *et al.* (2006, 2009) for U.K. equity issues. This warrants further analyses of accruals and its components.

Table 3

Operating Performance of SOEs Around Privatisations

Year	-2	-1	0	+1	+2
Performance Matched Non-issuer's Adjusted ROA					
Median	-0.43	0.89 ^b	1.45 ^c	-1.24 ^b	-1.18 ^c
Mean	-1.83 ^c	1.88 ^b	2.28 ^b	-1.93 ^b	-2.63 ^c
Observations	29	33	33	30	28
Performance Matched Non-issuer's Adjusted ROS					
Median	-0.36 ^c	0.77 ^c	1.08 ^b	0.45	-1.24 ^b
Mean	-1.21 ^b	1.87 ^b	2.06 ^b	-1.96 ^b	-1.51
Observations	29	33	33	30	28
Performance Matched Non-issuer's Adjusted ACFO					
Median	0.91 ^b	0.73	0.54	1.06 ^c	1.17 ^b
Mean	1.17 ^c	1.08	0.89	1.65 ^c	1.98 ^b
Observations	29	33	33	30	28

The table reports mean and median values of three matched-firms adjusted operating performance measures based on time series. These are return on assets (ROA—net income divided by beginning of year total assets); return on sales (ROS—net income over total sales); and asset-scaled cash flow from operations (ACFO—cash flow from operations divided by beginning of year total assets). Matched firm is chosen from the same industry as the privatised firm, with the closest ROA from year $t-1$ (the year preceding the privatisation year). While choosing a matched firm, we exclude firms that have been privatised in the previous two years to avoid any contamination effects. Mean values are tested using conventional t-test and medians are tested using Wilcoxon sign-rank test. Superscripts b and c represent significance at the 5 percent and 10 percent levels.

Panel A of Table 4 reports average matched firm adjusted discretionary current and long term accruals during two years after and before the privatisation year (year 0). It shows that discretionary current accruals are positive and statistically significant in the year prior to privatisation (at 1 percent level) and in the year of privatisation (at 5 percent level). However, this trend is reversed in the two years after privatisation, which is consistent with the reversal of these accruals. Long term accruals are negative and marginally significant in years -1 , 0 and $+1$ and show a trend opposite to that of current accruals.

Table 4

*Discretionary Current and Long Term Accruals of SOEs Around Privatisations***Panel A: Matched Firm Adjusted Discretionary Current and Long Term Accruals**

Year (t)	-2	-1	0	+1	+2
Discretionary Current Accruals					
Mean	0.041	0.049 ^a	0.055 ^b	-0.121 ^b	-0.042 ^c
SE	0.030	0.019	0.026	0.060	0.024
p-value	0.181	0.016	0.046	0.054	0.091
Discretionary Long-term Accruals					
Mean	0.043	-0.073	-0.197 ^c	-0.148 ^c	0.169 ^a
Standard Error	0.049	0.054	0.108	0.086	0.056
p-value	0.384	0.187	0.076	0.096	0.005

Panel B: Number of Positive and Negative Values of Matched Firm Adjusted Discretionary Current and Long Term Accruals

	-2	-1	0	+1	+2	Total
Discretionary Current Accruals						
No. of Observations	29	33	33	30	28	153
No. of Positive Observations	17	24	23	10	13	87
Percentage Positive	59%	73%	70%	33%	43%	56%
No. of Negative Observations	12	9	10	20	15	66
Percentage Negative	41%	27%	30%	67%	57%	44%
Discretionary Long-Term Accruals						
No. of Observations	29	33	33	30	28	153
No. of Positive Observations	16	13	13	10	16	68
Percentage Positive	55%	39%	39%	33%	57%	44%
No. of Negative Observations	13	20	20	20	12	85
Percentage Negative	45%	61%	61%	67%	43%	56%

Panel A of the Table reports mean values, standard errors, and p-values of matched-firm adjusted discretionary current and long term accruals, estimated using the modified Jones model (as explained in Appendix I), for 2 years before and after the privatisation event. Statistical significance of mean values is tested using conventional t-test. Superscripts a, b, and c represent significance at 1 percent, 5 percent, and 10 percent levels. Panel B reports the number and percentages of positive and negative observations of these matched-firm adjusted mean discretionary current and long term accruals for each event year.

Panel B of Table 4 shows that out of the 153 sample observations that are available over the testing period, we find that, for discretionary current accruals, 87 values are positive and 66 are negative. Further examination for each event years shows a tendency towards upward earnings management. For example, in year -1 (year prior to privatisation), we find that 73 percent (24 out of 33 points) show 'upward' earnings management (positive level of difference between the sample and its matched firm). This pattern is reversed in year +1 (year following privatisation) where only 33 percent of firms show upward and 67 percent show downward earnings management. This ties in with the general observation that earnings management that takes place before an event is reversed in the future years, which is reflected in the downward earnings management in the post-event years [Teoh, *et al.* (1998a,1998b)].

Similarly, if we analyse the long term discretionary accruals (those accruing after one year) comprising of provisions for depreciation and bad debts, the pattern is pointed more towards downward earnings management through the long-term component of discretionary accruals. Out of total 153 sample observations, 56 percent (85) show negative earnings management. In year -1 , we find that 20 (61 percent) 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 year $+1$, we see that 20 out of 30 sample points show downward earnings management. Downward management of these components will have a positive effect on the value of assets in the balance sheet. Generally, firms try to avoid using long term accruals to manipulate earnings as they are relatively easier to identify.

Given a relatively smaller sample size, we do not draw our results only using mean values and conventional tests (for example t-test). As an alternative, we use median values of matched-firm adjusted (discretionary current and long term) accruals and Wilcoxon's sign-rank test. The results of this test are reported in Panel A, Table 5. It shows that discretionary current accruals are positive and significant in year -1 and year 0, and negative and significant in year $+1$, which is an indication of the reversal of pre-privatisation discretionary current accruals. The significance in year -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. These findings are consistent both with the information asymmetry model of Mayers and Majluf (1984) and the implications of studies by Healey and Wahlen (1999) and Kothari (2001).

Table 5

*Results of Wilcoxon's Sign-rank Test and Spearman Rank Correlation***Panel A: Wilcoxon Sign-rank Test**

Year	-2	-1	0	+1	+2
Discretionary Current Accruals					
Z-score	1.16	1.963 ^b	1.842 ^c	-1.846 ^b	-1.431 ^c
Observations	29	33	33	30	28
Discretionary Long Term Accruals					
Z-score	0.892	-1.937 ^b	-1.863 ^b	-1.410	1.767 ^c
Observations	29	33	33	30	28

Panel B: Spearman Rank Correlation

	ROA		
	0	+1	+2
DCA_{-1}	-0.198 ^a	-0.236 ^a	-0.228 ^a
$DLTA_{-1}$	-0.103 ^c	-0.128 ^b	-0.082

Panel A of the table reports z-scores and relevant significance using Wilcoxon sign-rank test for matched-firm adjusted discretionary current and long-term accruals for five years around the privatisation year (year 0). Panel B reports Spearman rank correlation between discretionary current and long term accruals for year -1 and change in matched-firm adjusted return on assets (ROA) for years 0, $+1$, and $+2$. Superscripts a, b, and c represent significance at the 1 percent, 5 percent, and 10 percent levels.

In addition, discretionary long term accruals are significantly negative in year -1 and year 0 , and positive and significant in year $+2$ but without showing any specific pattern of earnings management. This positive significance of the long term accruals in year $+2$ 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 privatisations, the state shortlists firms for divestiture a few years in advance. Given a longer time frame and the demand made on the short-listed firms to prepare for privatisation, a substantial amount of restructuring can be undertaken. These factors naturally affect the long term portion of accruals instead of just current accruals. The management makes sufficient provisions for restructuring and exercises its discretion in estimating these amounts. Thus, it is not only the current accruals, which may be tampered with, but also the long term accruals which provide an opportunity for earnings management.

Finally, we perform Spearman rank correlation test between discretionary current and long term accruals from year -1 and the change in performance matched ROA from years 0 , $+1$, and $+2$. The results reported in Panel B of Table 5 show that the pre-privatisation discretionary current accruals are significantly negatively related to change in performance adjusted ROA from years 0 , $+1$, and $+2$. This further strengthens our results that SOEs use discretionary current accruals in year -1 to inflate reported earnings.

It is important to note that Pakistan's economy did not undergo any structural change during the period 2005–2013 [Pakistan (2014)]. The share of agriculture and manufacturing in the GDP was 23 percent and 20.6 percent during 2005-06, which slightly changed to 21 percent and 20.8 percent during 2013-14 respectively. Following a similar pattern, the share of service sector increased from 56 percent to 58.1 percent during the same period. This shows that the results presented and discussed above are current and relevant even today.

6. CONCLUSION

This study tests earnings management hypothesis around privatisations in Pakistan. Our results support the hypothesis that SOEs use upward earnings management around the privatisation event. Due to a smaller sample size, we have not been able to perform a regression analysis of pre-privatisation accruals and post-privatisation earnings. In addition, though our study covers a period from 1991-2005, there have been only five further non-financial-sector related privatisations. We feel that the results of our study, though limited to a certain time period, are still pertinent to the future cases of privatisations. The paper highlights an entirely different dimension in the context of privatisation and should help the Government of Pakistan in better valuation of its public sector units offered for privatisation. None the less, this paper makes a significant contribution to a field that has not been explored as yet, especially in the context of Pakistan. 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, the size of each privatised unit, and the number of firms in the industry being studied. Future research could be carried out to empirically test the hypothesis in other countries where such limitations can be addressed.

Our results show that earnings management occurs around privatisations, 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 privatised firms as well, we also find the long term accrual component to be understated in our sample. This is due to the long term restructuring provisions that are created before privatisation. Most firms have the leeway to adjust the current portion of accruals, but in the case of privatisations, the intention to privatise is made clear in advance, so that such provisions provide ample time and scope for earnings management. Thus, our paper establishes earnings management in the case of Pakistani privatisations via manipulation of both the short term and the long term accruals.

The ability to manage earnings depends strongly on the regulatory structure and the degree of information asymmetry. Stricter scrutiny of firms identified for privatisation (such as OGDC, Pakistan Steel, and PIA to name a few) by autonomous regulatory bodies can ensure that it is more difficult for firms to manage their earnings and hence, window dress their financial statements. Decision makers (bidders) need to be aware of the potential for firms to misrepresent their financial situation and engage in closer assessment at the time of sale (purchase). Establishing an independent review committee and subjecting public sector firms to greater accountability could also reduce the degree of earnings management thereby, reinforcing public investor confidence in SOEs and in the privatisation policy.

APPENDIX I

THE MODIFIED JONES MODEL

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 year. The first step involves estimating the coefficients through regressions (1) and (2) on the data for each industry and the results for the current and long term portions are presented in Table 4:

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

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

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

- $TAC_{j,t}$ = 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 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:

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

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).

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

$NDTAC_{j,t}$ = 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).

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