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Impact of IPO grading on earnings management

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Abstract

Purpose – This paper aims to examine the impact of initial public offering (IPO) grading on earnings management by Indian companies in their IPOs. Specifically, it investigates whether earnings management significantly differs in the pre-IPO grading regime and post-IPO grading regime. Further, it examines whether earnings management significantly differs between high-graded and low-graded IPOs.

Design/methodology/approach – The cross-sectional modified Jones model is used to obtain the discretionary accruals, a proxy for earnings management. The impact of IPO grading on earnings management is assessed using multiple regression analysis.

Findings – Earnings management is significantly lower in graded IPOs as compared to the ones that are not graded. Further, among the graded IPOs, the high-graded IPOs exhibit lower earnings management as compared to the low-graded IPOs. The findings are robust to the use of an alternative measure for discretionary accruals.

Originality/value – IPO grading in India is a unique certification mechanism, introduced for the first time in any market. This paper establishes the efficacy of this mandatory certification mechanism in reducing earnings management. The findings could be valuable to issuer companies, investors and market regulators.

Keywords IPO, Discretionary accruals, Earnings management, IPO grading

Paper type Research paper

1. Introduction

As theoretically defined by Schipper (1989), earnings management is a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process). According to Healy and Wahlen (1999), earnings management is said to occur when managers use judgement 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.

Earnings management has been an area of concern for researchers and investors alike, for a long time now. While the existing listed companies also resort to earnings management, the practice is more rampant in the case of companies coming out with their initial public offerings (IPOs). This is largely due to the fact that not much information on the financial health and performance of the company is available in the public domain prior to the public issue. Also, the price at which shares can be issued is predominantly a function of the perceived value of the shares of the company. Thus, this

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results into information asymmetry between the IPO firms and the potential investors. The companies therefore have the motivation to engage in income-increasing earnings management to raise the proceeds from the offering. They tend to report stable and better financial results, though still complying with the prevailing accounting principles and standards. Several surveys and studies have confirmed that companies are under intense pressure to report better earnings.

While underpricing is a more common phenomenon in IPOs, to our mind, overpricing is a larger concern when it comes to wealth erosion of retail investors. This applies more so to a retail investor who is not properly equipped to analyse the financial health of the issuing company. Primary markets in an emerging economy like India are known to have institutional voids in various forms of their markets. This, coupled with the fact that investor education in such nations is not quite satisfactory, certification of IPOs is important so as to reduce the information asymmetry that otherwise exists in the market.

In India, the securities market regulator, the Securities and Exchange Board of India (SEBI), is primarily mandated to protect the interests of small investors. To ensure that such investors do not fall prey to overpricing of IPOs, it has from time-to-time introduced several measures. This is more so given the fact that they do not have the expertise and the wherewithal to properly analyse the financial statements of companies to make a more informed investment decision.

IPO grading has been one such initiative where an external credit rating agency analyses the financial statements and other relevant data of an issuer company and assigns a grade to the IPO of equity shares or any other security that may be converted into equity shares at a later date. The grade indicates a relative assessment of the fundamentals of an offering. The commonly used grades at this point in time are IPO Grade 1, IPO Grade 2, IPO Grade 3, IPO Grade 4 and IPO Grade 5, representing poor, below average, average, above average and strong fundamentals, respectively. As per the applicable SEBI guidelines, it is mandatory for a company that has filed a draft offer document with SEBI on or after May 1, 2007, to obtain a grade for its IPO from at least one credit rating agency. Grades once assigned cannot be rejected by a company. However, if dissatisfied with the grade(s), it can get its IPO rated by another credit rating agency. In such instances, the company has to disclose all the grades.

The IPO grading process is expected to analyse the future of the industry to which the company belongs, the competitive strengths and weaknesses of the company and the financial position and performance of the company. The IPO grading does not consider the price of the offering. While an IPO grade is not a recommendation to subscribe to the IPO, it is aimed at providing an investor with an informed and objective opinion of a professional rating agency on the offering.

Sufficient empirical evidence exists to show how several alternative certification mechanisms such as underwriters, auditors and venture capital investors impact earnings management practices of firms during IPOs, by way of reducing information asymmetry between the issuers and the investors. However, such voluntary certification mechanisms are sometimes not completely objective and unbiased. Studies show that these mechanisms might involve the reputation of the certifying entity on one hand and self-selection bias of the issuers on the other (Brau and Johnson, 2009; Chang *et al.*, 2010). Consequently, the authenticity of such certification mechanisms in reducing earnings management in IPOs may be questionable.

On the contrary, IPO grading in India is a unique certification mechanism, introduced for the first time in any market. Being a mandatory certification mechanism enforced by a regulatory body, it provides an independent, objective and unbiased opinion on the quality of the IPO. IPO grading is expected to play both preventive as well as operative roles in reducing earnings management. The companies coming out with an IPO are aware of the fact that they will have to seek grading, wherein a professional credit rating agency would take a normalized view at their financial statements. If they still go ahead with earnings management, they face the risk of receiving a lower grade.

Given the absence of any empirical evidence on how a unique certification mechanism such as IPO grading might affect earnings management, we are motivated to investigate this issue. This study investigates whether IPO grading has a significant impact on the earnings management by Indian companies in their IPOs. Specifically, it seeks to examine whether earnings management significantly differs in the pre-IPO grading regime and post-IPO grading regime. Further, it examines whether earnings management significantly differs between high-graded and low-graded IPOs.

The remaining paper is structured into five sections. Section 2 is an extensive survey of the literature that has related to the research that has gone into earnings management so far. Section 3 outlines the data and methodology used by us in this study. This is followed by a succinct discussion on the results derived from the study in Section 4. Finally, in Section 5, the paper builds these results into the valid conclusions.

2. Literature review

In this section of the paper, an attempt is made to review the existing research work on earnings management relating to different constituent factors in IPOs. The review has been done around some prominent themes relating to earnings management, as they have evolved over a period. Some such themes have been:

- existence of earnings management in IPOs;
- causal factors for earnings management;
- impact of audit quality on earnings management;
- correlation of earnings management with underwriters' reputation;
- role of venture capital investors in restraining earnings management; and
- efficacy of IPO grading mechanism.

One of the earliest works establishing the evidence for earnings management in IPOs has been that of Friedlan (1994), which reports that IPO issuers made income-increasing discretionary accruals (DAs) in the financial statements released prior to the offering. In the absence of market-determined prices for IPOs before such shares are sold to investors, the offering price got decided by issuers and underwriters on the basis of non-price information relating to the firm. Accounting-based measures were found to be particularly useful in valuing such securities. In contrast to this, Ball and Shivakumar (2008) show that IPO firms report more conservatively. This was attributed to higher-quality reporting requirements, higher stakeholder monitoring and greater regulatory scrutiny. The results showed that firms inflated earnings to influence IPO pricing and upward-biased estimates of DAs occurred in a broad genre of studies on earnings management around similar large transactions and events.

When reviewing the existing research work for understanding the causal factors for earnings management, it is found that there are a range of factors that might motivate firms to engage in earnings management. Chaney and Lewis (1995) explain as to why firms manage the disclosure of accounting information. Earnings management is found to affect firm value when value-maximizing managers and investors are asymmetrically informed. In equilibrium, the strategic management of reported earnings influences investors' assessment of the market values of the shares of the firm. DuCharme *et al.* (2001) also examine the motives for firms to engage in earnings management prior to their IPOs. The pre-IPO abnormal accruals were found to be positively related to initial firm value. Such firms may seek to increase their offerings proceeds by deceiving investors with manipulated earnings. The post-offer performance of the firm would then accordingly bear a negative relationship with abnormal accruals around the offer date. This would imply that aggressive pre-IPO earnings management increases IPO proceeds and decreases subsequent returns to investors.

In a follow-up study, DuCharme *et al.* (2004) find abnormal accounting accruals to be unusually high around the stock offers, more so for firms whose offers subsequently attract lawsuits. Accruals reversed after stock offers and were negatively related to post-offer stock returns. Such reversals were more pronounced and stock returns were lower for sued firms than for those that are not sued. The incidence of lawsuits involving stock offers and settlement amounts was found to have a significant positive relation to abnormal accruals around the offer and significant negative relation to post-offer stock returns. This would have implied that some firms opportunistically manipulate earnings upward before stock issues, rendering themselves vulnerable to litigation. Fan (2007) investigates the relationship of earnings management with ownership retention, and the manner in which these two factors together affect the equilibrium valuation of IPO firms given the information asymmetry in the markets. An efficient signalling equilibrium was derived wherein reported earnings and ownership retention were endogenously chosen to convey the issuer's private information. Despite the fact that either ownership retention or reported earnings were found to communicate the issuer's type to the market unambiguously, the issuer strategically used both the signals to achieve separation from potential lower-quality imitators at minimal cost.

Huang and Lin (2007) test the hypothesis that the timing of lockup expiration is crucial to earnings management behaviour in the period after an IPO. DAs were found to exist during the period till the expiration of the first-stage lockup. These were significantly positive in the quarter of the second-stage lockup expiration. The evidence showed that the lockup provision was key in the findings of significant earnings management in the IPO year and the following year. The DAs in first-stage lockups positively related to subsequent insider selling activity, building the premise that insiders' selling after lockup expiration accounts for earnings management in the lockup period. In the same year, Nagata and Hachiya (2007) investigate impact of earnings management on IPO prices. The study based on a sample of JASDAQ IPO firms found that the offer price reflected earnings management to some extent. While firms with conservative earnings management were associated with higher offer prices, those managing earnings aggressively got discounted when they failed to exhibit smooth earnings growth.

Kao *et al.* (2009) examine whether government IPO regulatory initiatives may have contributed to the issuers' opportunistic behaviour. Considering evidence from China, two sets of IPO regulations were studied. These were pricing regulations that stipulated IPO prices to be a function of accounting performance and penalty regulations that penalized IPO firms for overly optimistic forecasts. IPO firms that report better pricing-period accounting performance were found to have larger declines in post-issue profitability, lower first-day stock returns and worse long-run post-issue stock performance. Using non-core earnings as the proxy for earnings management, it is documented that IPO firms that report higher pricing-period accounting performance engage in more income-increasing earnings management. Hence, pricing regulations may have induced IPO firms to inflate pricing-period earnings and affect the post-issue performance negatively. On the other hand, penalty regulations have deterred IPO firms from making overoptimistic earnings forecast and therefore have a positive impact on the behaviour of IPO firms.

For a sample of Chinese IPO firms, Aharony *et al.* (2010) show that related-party sales of goods and services could be used opportunistically to manage earnings upwards in the pre-IPO period. It is also evidenced that such behaviour may be motivated by the prospect of tunnelling opportunities in the post-IPO period. The results attempt to explain the motives for and consequences of earnings manipulation during the IPO process. Around the same time, Xiong *et al.* (2010) test the market performance of a zero-investment trading strategy, comprising two-firm portfolios that took short positions in the IPOs and long positions in control firms matched by industry and market capitalization, based on the knowledge of IPO underperformance and estimates of pre-IPO earnings management. It was shown that significant positive abnormal returns could be earned trading on the knowledge of IPO underperformance. However, the relationship between the level of abnormal returns and the level of pre-IPO earnings management was not found to be significant. The results suggested that existent pre-IPO earnings management plays important roles, although these may not be measurable.

Ahmad-Zaluki *et al.* (2011) find evidence of income-increasing earnings management in IPOs, more so during periods of severe economic stress. Within the high-ownership concentration Malaysian market, concerns for post-issue control were found to constrain IPO earnings management, as owners seem willing to accept reduced IPO proceeds and signalling opportunities to increase the likelihood of retaining control of the company after the issue. The requirement to provide a profit guarantee did not affect earnings management substantially. IPO firms engaged in aggressive income-increasing earnings management had significantly worse market-based performance than their more conservative counterparts. Building on expectations of managerial agency and control, Aerts and Cheng (2011) examine the association of earnings management and narrative impression management in Chinese IPO prospectuses. Anticipated earnings management concerns are argued to be a significant incentive for causal disclosures on earnings to rationalize and legitimize earnings outcomes. Earnings of these IPO firms are found to be closely aligned to management propensity and its use of tactical causal disclosures. Stronger earnings management is associated with more intense assertive causal disclosures, while avoiding the use of explicit defensive causal disclosure tactics.

Boulton *et al.* (2011) examine the impact of country-level earnings quality on IPO underpricing. IPOs are found to be underpriced less in countries where public firms produce higher-quality earnings information. This held true even after controlling for other deal- and country-specific factors that affect IPO underpricing, and was driven neither by the large and relatively transparent markets in the USA and UK nor by the relatively opaque Japanese market. The impact of low earnings quality on underpricing was partially offset by the use of a top-tier underwriter.

The third theme for literature review considered the audit quality and its impact on earnings management. Specialists such as auditors, underwriters, attorneys and venture capital investors are also known as third-party certifiers in an IPO process. Brau and Johnson (2009) document a significant negative and robust correlation between IPO firms' earnings management and the presence of prestigious third-party certifiers, and test if this correlation is driven by IPO firms attempting to signal firm quality or third-party certifiers mitigating earnings management in the issuing firm. Using a two-stage multivariate model, this work found empirical support for the signalling hypothesis that IPO firms self-select prestigious certifiers for IPOs but not for the post-engagement mitigation hypothesis that after engagement, third-party certifiers do not significantly impact earnings management in IPOs. Taking the specific case of auditors, Michaely and Shaw (1995) investigate the relationship between auditor reputation and the characteristics of the IPOs that auditors take to the market. Consistent with its hypotheses, it was found that more prestigious auditors were associated with IPOs that seem a priori less risky, the IPOs that are associated with more prestigious auditors were perceived to be less risky by the market, and the long-run performance of IPOs was related to the prestige of the auditor employed.

Becker *et al.* (1998) examine the relation between audit quality and earnings management. Audit quality was considered as a dichotomous variable with an assumption that big-six auditors are of higher quality than non-big-six auditors. Earnings management was captured by DAs. Firms employing non-big-six auditors reported DAs that increased income relatively more than the DAs reported by those having big-six auditors. Also, consistent with earnings management, the mean and median of the absolute value of DAs were found to be greater for firms with non-big-six auditors. Following this up, Chen *et al.* (2005) investigate the relationship between audit quality and earnings management for Taiwan IPO firms. Such firms with higher-quality auditors were found to engage less in earnings management in the IPO process. The firms with big-five auditors were related to less earnings management in the IPO-year. The high-quality auditors constrained earnings management and provided more precise information.

Research also exists on exploration of the correlation of earnings management with underwriters' reputation. Investigating the impact of underwriter reputation on earnings management, Chang *et al.* (2010) argue that prestigious underwriters protect their reputation by carefully monitoring and certifying financial information on IPO firms, thereby limiting any potential earnings manipulation. As a result, IPO firms having more prestigious underwriters are likely to exhibit substantially less-aggressive earnings management. Conversely, this work found the existence of a negative relationship between earnings management and the post-offer stock performance of IPO firms, only for those firms associated with less-prestigious underwriters. This is followed by Sun *et al.* (2010), who examine whether underwriters play any systematic and significant role for IPO issuers. More specifically, a negative relation between underwriter reputation and earnings management before an IPO and a positive relation between underwriter reputation and firm operating performance after an IPO were hypothesized. High-reputation underwriters were found to be associated with less earnings management before an IPO, and IPO issuers with high-reputation underwriters exhibited better post-IPO operating performance after controlling for pre-IPO earnings management.

Moral hazard and asymmetric information have both been proposed to be the motives behind the use of IPO lockup provisions in the literature. Rather than consider them to be mutually exclusive motivations, Yung and Zender (2010) show that each is dominant for a different set of firms. The underwriter certification hypothesis found support and was then used to categorize the firms in the sample. Firms that were certified by reputed underwriters had lower severity of asymmetric information relative to other firms and were more likely to have moral hazard as the friction that motivated the use of the lockup provision. Lee *et al.* (2012) while studying the relationship between underwriter reputation and earnings management of IPO firms find these firms to engage in less earnings management if their issues were underwritten by prestigious investment bankers. This role of prestigious underwriters in restraining earnings management did not change even during the Internet Bubble period or after the passage of the Sarbanes–Oxley (SOX) Act. The findings supported the certification role of underwriters in the IPO process. Also, the earnings management was found to be lesser for firms going public in the post-SOX as compared to the pre-SOX period.

The fifth theme related to research work done for understanding the role of venture capital investors in restraining earnings management. Morsfield and Tan (2006) find that IPO-year abnormal accruals are lower in the presence of venture capitalists. The results of the study were robust to controls for the endogenous choice of venture capital financing. The venture capital effect held even when controlling for IPO lock-up provisions, venture capitalists' partial cashing out subsequent to the IPO and alternative proxies for earnings management. Earnings management at the time of the IPO can lead investors to pay unrealistic prices for their shares. Building this up further, Gioielli *et al.* (2008) investigate the dynamics of earnings management in IPOs and the role of venture capitalists in hampering such practice. It was found that earning inflation occurred only in the IPO period and deflation started thereafter. Comparing IPOs backed by venture capitalists to those that were not, it was observed that venture-backed IPOs presented no significant evidence of earnings management in any of the phases around the IPO.

Yoon and Kim (2009) empirically investigate earnings management practices for venture firms when they go public. It hypothesized that the different institutional listing requirements had different earnings management implications for IPO firms and used the mean difference tests and graphic approaches to test the differences in earnings management practices of such firms and two control samples. The results indicated that the former employ more aggressive earnings management practices than the latter in the IPO-year. Taking a more generalized approach, Lee and Masulis (2011) investigate the role of financial intermediaries participating in the IPO process in restraining earnings management. While no evidence was found in general that venture capitalists significantly restrained earnings management by IPO issuers, the more reputable venture capitalists and investment banks were associated with significantly less earnings management, in line with their implicit certification of the issue quality. Moreover, a stronger reduction in earnings management was found when more reputed investment banks and venture capitalists were matched.

Chahine *et al.* (2012) examine the extent to which principal–principal agency conflicts within venture capital syndicates lead to additional principal–agent conflicts in IPO firms in two institutional contexts. The diversity of a venture capital syndicate was found to increase pre-IPO discretionary current accruals, used as a proxy for earnings management. Also, firms with higher earnings management and venture capital diversity were associated with higher underpricing and lower aftermarket performance. Hu *et al.* (2012) analyse the effect of venture capital participation on accounting information quality. Venture capitalists were found to have a significant effect on earnings management, with reduced DAs before the expiration and enhanced DAs after the expiration of equity lock-up period. The findings supported the moral hazard hypothesis of venture capital, but not their certification/monitoring role in IPOs.

Not much work seems to have been done on the efficacy of the IPO grading mechanism. Deb and Marisetty (2010) argue that the IPO grading mechanism provides a better opportunity to test the well-established certification hypothesis, especially in the context of emerging markets with institutional voids. IPO grading is found to decrease IPO underpricing and positively influence the demand of retail investors. While grading reduced secondary market risk and improved liquidity, it did not affect long-run performance of the offerings. IPO grading successfully captured firm size, business group affiliation and firm's quality of corporate governance.

3. Data and methodology

3.1 Sample selection and description

The sample for this study consists of IPOs by Indian firms from the calendar year 2002 to 2012. Grading of IPOs became mandatory in May 2007. So, the study period has been selected such that there are almost equal periods for the pre-grading and post-grading regimes. Consequently, the period from January 2002 to April 2007, i.e. when IPO grading was not mandatory, is considered as the pre-grading regime, and the period from May 2007 to December 2012, i.e. when IPO grading became mandatory, is considered as the post-grading regime. The issue-specific data relating to the IPOs have been collected from the National Stock Exchange website, and data relating to the accounting variables have been collected from the Centre for Monitoring Indian Economy Prowess database. The year-wise and industry-wise distribution of the sample are presented in Tables I and II, respectively.

3.2 Methodology

The impact of IPO grading on earnings management is assessed using multiple regression analysis. For this purpose, the dependent variable is DAs, which is taken as a proxy for earnings management. DA_t, represents the DAs of the firms in the IPO year t. DA_t is estimated using the cross-sectional modified Jones model. For this purpose, separate industry-wise regressions have been run to estimate the parameters of the following model:

$$TA_t/A_{t-1} = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t)/A_{t-1} + \alpha_3 PPE_t/A_{t-1}$$

where,

TA_t = Total accruals in year t, estimated as excess of net income in year t (NI_t) over cash flow from operations in year t (CFO_t)

Year	No. of IPOs
2002	2
2003	4
2004	12
2005	32
2006	57
2007	79
2008	27
2009	18
2010	53
2011	29
2012	5
Total	318

Table I.
Year-wise distribution of IPOs

A_{t-1} = Total assets in year t−1
ΔREV_t = Change in revenues from year t−1 to year t
ΔREC_t = Change in receivables from year t−1 to year t
PPE_t = Property, plant and equipment in year t

The non-discretionary accruals (NDA_t) for the sample firms are obtained by inserting the estimated parameters, α_1, α_2 and α_3, in the aforesaid equation. Discretionary accruals (DA_t) are then obtained as:

$$DA_t/A_{t-1} = TA_t/A_{t-1} - NDA_t/A_{t-1}$$

The independent variables comprise dummy variable for IPO grading and certain control variables that are likely to affect earnings management. The control variables are drawn from the existing literature on earnings management. These variables are described as below:

- *Firm size*: The size of the issuer firm is likely to affect the extent of earnings management both positively as well as negatively. As argued by Lee and Masulis (2011), firms with larger sizes are in a better position to manage earnings by usimg complex financial structures. On the other hand, such firms are also subject to higher scrutiny by analysts and hence tend to refrain from engaging in higher earnings management. Other studies that use firm size as control variable include Hu *et al.* (2012) and Morsfield and Tan (2006).
- *Leverage*: The degree of leverage is also likely to impact earnings management both positively and negatively. Tendency to avoid violations of debt covenant by highly levered firms might result in higher earnings management by such firms. However, higher monitoring by creditors can lead to lesser incentives for earnings management (Lee and Masulis, 2011). Leverage has also been used in other studies such as Morsfield and Tan (2006), Sun *et al.* (2010), Hu *et al.* (2012) and Lee *et al.* (2012).
- *Sales growth*: Firms with high growth might lack cash and, thus, accruals in these firms are likely to be higher (Hu *et al.*, 2012). Sales growth has also been used in other studies such as Morsfield and Tan (2006) and Sun *et al.* (2010).

Industry	NIC code[a]	No. of IPOs
Crop and animal products	01	4
Food products	10	7
Beverages	11	4
Textiles	13	13
Wearing apparel	14	11
Paper products	17	5
Chemical products	20	17
Pharmaceuticals	21	14
Rubber and plastic products	22	6
Non-metallic mineral products	23	6
Basic metals	24	16
Fabricated metal products	25	7
Computer and electronic products	26	4
Electrical equipment	27	9
Machinery and equipment	28	7
Other transport equipment	30	8
Other manufacturing	32	10
Diversified	34	9
Electricity, gas and steam supply	35	13
Construction of buildings	41	6
Civil engineering	42	33
Wholesale trade	46	12
Air transport	51	4
Warehousing	52	9
Accommodation	55	3
Publishing activities	58	6
Motion picture and video production	59	9
Telecommunication	61	3
Computer programming and consultancy	62	26
Information service activities	63	16
Real estate activities	68	14
Education	85	3
Human health activities	86	4
Total		318

Notes: [a]Refers to the National Industrial Classification code up to the first two-digit level

Table II. Industry-wise distribution of IPOs

- *Offer size*: With larger offer sizes, issuers might have incentives to increase the wealth of existing shareholders at the expense of new shareholders and hence tend to engage in higher earnings management (Lee and Masulis, 2011). This variable has also been used in Sun *et al.* (2010) and Lee *et al.* (2012).
- *Firm Age*: Older firms tend to have well-established management and accounting systems than younger firms, and hence lesser incentives to manage earnings (Lee and Masulis, 2011). Sun *et al.* (2010) and Hu *et al.* (2012) also use firm age as a control variable.

To ascertain the impact of grading on earnings management, three regression models have been used. The first regression model is estimated using the full sample of IPO firms. This model uses a grade dummy to test whether earnings management differs between graded and ungraded IPOs. As a certification mechanism, grading is expected to reduce earnings management. Consequently, graded IPOs are expected to exhibit lower earnings management as compared to ungraded IPOs. Hence, a priori, the grade dummy should take a negative sign. Model 1 is as follows:

$$DA_t = \alpha + \beta_1 F\_Size + \beta_2 Lev + \beta_3 S\_Growth + \beta_4 Off\_Size + \beta_5 Age + \beta_6 Grade\_dummy$$

where,

DA_t	= Discretionary accruals in the IPO year t, estimated using the cross-sectional modified Jones model
F_Size	= Firm size measured by ln(total assets) in year t
Lev	= Leverage, measured by total liabilities/total assets in year t
S_Growth	= Sales growth, measured as (change in sales between years t and t−1)/ sales in year t−1
Off_Size	= Offer size, measured by ln(total proceeds from the offer)
Age	= Age of the issuer firm, measured as ln(number of years between founding year and IPO year)
Grade_dummy	= Dummy variable that equals 1 if the IPO is graded and 0 otherwise

The second regression model is used to ascertain how the actual grade assigned impacts the earnings management. This regression model is estimated using a sub-sample of graded IPOs. Model 2 is as follows:

$$DA_t = \alpha + \beta_1 F\_Size + \beta_2 Lev + \beta_3 S\_Growth + \beta_4 Off\_Size + \beta_5 Age + \beta_6 Grade\_assgnd$$

The dependent and the control variables are the same as in Model 1, except that the Grade_dummy variable has been replaced by Grade_assgnd, which refers to the IPO grade assigned. Higher actual grades certify better quality of the IPOs, and such IPO firms are expected to engage in lesser earnings management. Hence, a priori, the variable Grade_assgnd should take a negative sign.

The third regression model tests whether there is significant difference in the earnings management of high-graded and low-graded IPOs. This regression model is also estimated using a sub-sample of graded IPOs. Model 3 is as follows:

$$DA_t = \alpha + \beta_1 F\_Size + \beta_2 Lev + \beta_3 S\_Growth + \beta_4 Off\_Size + \beta_5 Age + \beta_6 High\_Grade$$

The dependent and the control variables are the same as in Model 1 and Model 2. The Grade_assgnd variable has been replaced with High_Grade dummy variable. This variable takes the value of 1 if the grade assigned is greater than or equal to 3 and 0 otherwise. Similar to the argument for the Grade_assgnd variable, a negative relationship is expected between the High_Grade dummy variable and earnings management. Hence, a priori, the High_Grade dummy variable should take a negative sign.

4. Results and discussion

Table III reports the descriptive statistics for the dependent and independent variables used in the study. The descriptives for the full sample are reported in Panel A. The mean DAs for the full sample are positive, suggesting presence of income-increasing earnings management in the IPOs. Panel B reports the descriptives for the graded sub-sample. The DAs for the graded sample are also positive but lower than the full sample. The mean grade assigned is 2.692. The grades are assigned by the grading agencies on a five-point scale of 1 to 5, with 1 indicating poor fundamentals and 5 indicating strong fundamentals. However, in the graded sample, the maximum grade assigned is 4.

4.1 Univariate results

Table IV presents the results of univariate tests for mean difference in DAs between graded and ungraded IPOs (Panel A) and high-graded and low-graded IPOs (Panel B). The results suggest that earnings management, as measured by DAs, is significantly lower in graded IPOs as compared to ungraded IPOs. Furthermore, among the graded IPOs, high-graded IPOs exhibit lower earnings management as compared to low-graded IPOs. Firms with lower grades are aggressive in managing their earnings upwards. On the other hand, firms with higher grades have stronger fundamentals and lesser incentives to manage their earnings upwards. Hence, they are conservative in reporting earnings.

4.2 Multivariate results

The results of multiple regression are reported in Table V. Model 1 is estimated with the full sample of graded as well as ungraded IPOs. Model 2 and Model 3 are estimated with graded IPOs only. The Grade_dummy is found to have a significant negative

Variable	Mean	SD	Minimum	Maximum
Panel A: Full sample				
Discretionary accruals	0.026	0.203	−1.088	1.157
Total assets (in Rs mn)	11,506.694	49,389.445	124.400	67,3868
Total liabilities/total assets	0.469	0.227	0.003	1.280
Sales growth	1.043	4.340	−1	59.545
Offer size (in Rs mn)	3,409.026	9,767.830	27.130	102,600
Age (in yrs)	14.987	11.253	2	92
Panel B: Graded sample				
Discretionary accruals	0.001	0.192	−1.088	0.554
Total assets (in Rs mn)	11,221.581	34,951.799	165	360,306
Total liabilities/total assets	0.480	0.244	0.003	1.280
Sales growth	0.522	1.139	−1	8.438
Offer size (in Rs mn)	3,731.024	10,545.389	105.562	102,600
Age (in yrs)	14.587	12.340	2	92
Grade assigned	2.692	0.865	1	4

Table III.
Descriptive statistics

relationship with DAs. This implies that graded IPOs exhibit significantly lower earnings management as compared to ungraded ones. It suggests that earnings management has significantly reduced in the post IPO grading regime. Grade_assgnd is found to be negative and significant in Model 2. This shows that highly graded IPO firms engage in lesser earnings management. The results of Model 3 are also consistent with this finding. The High_Grade dummy has a significant negative relationship with DAs. This implies that IPO firms with high grade (equal to or greater than 3) engage in lesser earnings management as compared to IPO firms with lower grade (less than 3). These results are consistent with the univariate tests.

The results are also consistent with studies that highlight the role of other certification mechanisms such as auditors, underwriters, venture capital backing and private equity backing in reducing earnings management by IPO firms. Brau and Johnson (2009) find a negative association between the presence of third-party certifiers such as auditors, underwriters, attorneys and venture capitalists and IPO firm earnings management. Chang *et al.* (2010) and Sun *et al.* (2010) find lesser earnings management by IPO firms that are associated with more prestigious underwriters. Chen *et al.* (2005) find that higher-quality auditors and earnings management by IPO firms are inversely related. Morsfield and Tan (2006) and Gioielli *et al.* (2008) show that venture

Table IV. Univariate tests of discretionary accruals

Panel A: Discretionary accruals (full sample)			
Mean	Ungraded IPOs	Graded IPOs	Mean difference (*t*-statistic)
	0.047	0.001	0.046** (2.040)
Panel B: Discretionary accruals (graded sample)			
Mean	Low Graded IPOs	High Graded IPOs	Mean difference (*t*-statistic)
	0.046	−0.033	0.079** (2.464)

Note: **Statistical significance level of 5%

Table V. IPO grading and discretionary accruals regression results

	Model 1		Model 2		Model 3	
Variable	Coefficients	*t*-value	Coefficients	*t*-value	Coefficients	*t*-value
Intercept	0.011	0.096	0.111	0.622	0.087	0.472
F_Size	0.000	0.019	0.018	0.901	0.020	0.970
Lev	0.118**	2.303	0.127*	1.885	0.140**	2.076
S_Growth	0.002	0.600	0.009	0.624	0.008	0.594
Off_Size	0.006	0.441	−0.011	−0.427	−0.019	−0.775
Age	−0.032*	−1.868	−0.010	−0.412	−0.017	−0.701
Grade_dummy	−0.051**	−2.234				
Grade_assgnd			−0.056**	−2.435		
High_Grade					−0.076*	−1.971
Adjusted R^2	0.025		0.067		0.053	
N	318		143		143	

Notes: *Statistical significance level of 10%; **statistical significance level of 5%

capital-backed IPOs exhibit lesser earnings management as compared to non-venture-backed IPOs. Katz (2009) shows that private equity-backed IPO firms are associated with lesser earnings management as compared to non-private equity-backed IPO firms. Lee and Masulis (2011) find a negative association between venture capital investors and investment banks' reputation and earnings management in IPOs. Lee *et al.* (2012) also find support for the certification role of underwriters in the IPOs.

Among the control variables, Lev is found to be positive and significant in all the three models. As argued by Morsfield and Tan (2006) and Lee and Masulis (2011), leverage is expected to have a positive relationship with earnings management when highly levered firms tend to engage in higher earnings management to avoid violations of debt covenants. Hence, there is a positive relationship between leverage and earnings management. The second control variable found to be significant is Age. Firm age is found to have a significant negative relationship with earnings management in Model 1. Lee and Masulis (2011) argue that older firms have well-established management and accounting systems and hence lesser incentives to manage earnings as compared to younger firms. Other control variables such as F_Size, S_Growth and Off_Size are not found to be significant in affecting earnings management.

Overall, the results suggest that IPO grading significantly reduces earnings management. The findings contribute to the literature on earnings management in IPOs. It establishes the efficacy of a unique IPO certification mechanism in reducing earnings management. The results have important implications for the market regulators, companies and investors. For the market regulators, it shows that the costs of enforcing a mandatory certification mechanism are justified by the benefits derived from reducing information asymmetries in the market. Given that the IPO grades are expected to reflect the true fundamentals, companies or IPO firms that have relatively weak fundamentals are likely to refrain from engaging in aggressive earnings management not justified by the fundamentals. This also has economic significance for naïve retail investors who can rely on IPO grading as a reliable certification mechanism to make a more informed decision. The interests of such investors are protected in terms of reducing adverse selection costs due to the unavailability of adequate information about the issuing firm in the public domain.

4.3 Sensitivity analysis

In this section, we conduct a sensitivity analysis using an alternative measure for DAs to check if our results vary significantly. DAs have been estimated using the original unmodified version of the Jones model as follows:

$$TA_t/A_{t-1} = \alpha_1(1/A_{t-1}) + \alpha_2\Delta(REV_t/A_{t-1}) + \alpha_3(PPE_t/A_{t-1})$$

where,

TA_t = Total accruals in year t, estimated as excess of net income in year t (NI_t) over cash flow from operations in year t (CFO_t)

A_{t-1} = Total assets in year $t-1$

ΔREV_t = Change in revenues from year $t-1$ to year t

PPE_t = Property, plant and equipment in year t

The non-discretionary accruals (NDA_t) for the sample firms are obtained by inserting the estimated parameters, α_1, α_2 and α_3, in the aforesaid equation. Discretionary accruals (DA_t) are then obtained as:

$$DA_t/A_{t-1} = TA_t/A_{t-1} - NDA_t/A_{t-1}$$

All the three regression models have been re-estimated using the DAs estimated as described above. The results of the regression are reported in Table VI. As shown by the results, Grade_dummy, Grade_assgnd and High_Grade continue to have a significant negative relationship with the earnings management proxy, i.e. DAs. This shows that the findings are robust to the use of an alternative measure for DAs.

5. Conclusion

This paper investigates the impact of IPO grading on earnings management by Indian IPO firms. Considering offerings both before and after the introduction of grading mechanism, it is found that earnings management is significantly lower in graded IPOs as compared to ungraded IPOs, suggesting that earnings management has significantly reduced in the post-IPO grading regime. Among the graded IPOs, high-graded IPOs exhibit lower earnings management as compared to low-graded IPOs. Firms with lower grades aggressively manage their earnings upwards, whereas firms with higher grades have stronger fundamentals and hence are conservative in reporting earnings. The findings are robust to the use of an alternative measure for DAs.

This study provides empirical evidence on how a unique certification mechanism such as IPO grading affects earnings management. The research findings have important implications for naive investors who do not have the requisite skills to discern the quality of accounting information disclosed by the companies in their IPOs. Such investors are largely benefitted by the opinion of a professional rating agency with regard to the quality of the offering, while making investment decisions. The study also has important implications for the capital market regulators, as it throws some light on how firms engage in reporting the earnings in the presence of a mandatory certification

	Model 1		Model 2		Model 3	
Variable	Coefficients	*t*-value	Coefficients	*t*-value	Coefficients	*t*-value
Intercept	0.042	0.393	0.057	0.337	0.025	0.144
F_Size	0.000	0.031	0.010	0.528	0.012	0.618
Lev	0.114**	2.342	0.117*	1.889	0.124**	2.029
S_Growth	0.002	0.712	0.006	0.424	0.006	0.424
Off_Size	0.004	0.292	−0.009	−0.371	−0.014	−0.570
Age	−0.038**	−2.338	0.010	0.418	0.006	0.262
Grade_dummy	−0.041*	−1.856				
Grade_assgnd			−0.040*	−1.813		
High_Grade					−0.064*	−1.760
Adjusted R^2	0.027		0.036		0.035	
N	318		143		143	

Notes: *Statistical significance level of 10%; **statistical significance level of 5%

Table VI. Regression results: IPO grading and discretionary accruals (original unmodified Jones model) mechanism. IPO firms with relatively weak fundamentals are likely to refrain from engaging in aggressive earnings management not justified by the fundamentals.

As shown herein above, earnings management practices of IPO firms are affected by IPO grading. However, the study has certain limitations with respect to the measurement of certain variables. The study uses accruals as a proxy for earnings management. However, earnings can be managed through other means such as changes in accounting policies, changes in capital structure, use of non-core earnings, etc. Future research might explore how earnings management practices of IPO firms change in the years subsequent to the IPO and how such practices affect the post-IPO stock performance.

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