

Sosnowski, Tomasz

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**Earnings Management and the Floatation Structure: Empirical Evidence
from Polish IPOs**

Tomasz Sosnowski

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Earnings Management and the Floatation Structure: Empirical Evidence from Polish IPOs

Tomasz Sosnowski¹

Abstract

Research background: Firms use discretionary accounting choices to manage earnings disclosures around the time of certain types of corporate events. The IPO provides an opportunity to earnings management because of the significant information asymmetry between investors and issuers at the time of the offering.

Purpose of the article: The main aim of the study is to empirically investigate the links between the earnings management and the portions of primary and secondary shares sold in IPO.

Methodology/methods: In order to investigate whether the earnings management influences the issue of new shares and the sale of secondary shares I use Tobit and logit regressions, where discretionary accruals are the proxy for earnings management.

Findings & Value added: Using a sample of 221 firms from WSE between 2005 and 2015 I do not find evidence that the increase of pre-IPO discretionary accruals positively affects the sale of primary shares in the IPO, but the analysis revealed that the reporting less limits the probability of the new shares issuance. In turn, the sale of secondary shares in the IPO is more likely in companies using a conservative earnings management. Furthermore, negative discretionary accruals increase the portion of secondary shares in the IPO.

Keywords: *Initial public offering, IPO, Primary shares, Secondary shares, Earnings management*

JEL Classification: *G14, G32, G23*

Introduction

Initial public offering (IPO) as a strategy of shaping the size and structure of the company's equity is determined by a number of different factors. In this context motives for going public are particularly important. As Huyghebaert and Hulle (2006, p. 318) indicate, the source of the shares sold in the IPO, that is newly created shares sold by the company and the outstanding shares sold by existing shareholders, actually distinguish subgroups of firms with different objectives for listing. The sale of primary shares provides an opportunity to increase the company's resources. In turn, offering the secondary shares allows original shareholders to reduce their capital commitment in the company and receive the proceeds.

The main aim of this study is the empirical evaluation of the relationship between earnings management in the year prior to the first listing of the company's shares on the stock exchange and the decision on the sale of primary and secondary shares in the IPO. In both situations, when the purpose of the IPO is to raise additional funds to the company, as well as if existing shareholders want to sell shares in order to cash out and cut back their holdings, earnings management can be put into action.

In this paper I address two central questions. The first one regards the source of shares sold in the IPO. Specifically, whether the use of earnings management prior to going public determines the type of shares sold in the IPO. I investigate the links between earnings management and the general motives for going public such as raising additional capital to the company or execute the divestment process. The second research question expressed in this

¹ University of Lodz, E-mail: tomasz.sosnowski@uni.lodz.pl.

study refers to the scale of the sale of primary and secondary shares in the IPO, than it is: how earnings management affects the scale of the issuance of new shares and the scale of the secondary shares sale by shareholders in the IPO. Therefore, it can be expected that the extent to which earnings were managed before the IPO will be associated with the demand for additional capital into the company submitted by the managers and the shareholders' desire to exit their earlier investment in this firm. Thus, an expression of these needs intensity is the portion of primary and secondary shares sold in the IPO.

Earnings management in IPO: evidence from prior research and hypotheses development

Numerous empirical studies have investigated the use of earnings management by IPO firms, but their mixed results do not allow to draw clear conclusions. On one hand, prior studies of Teoh et al. (1998, pp. 1935-1974), DuCharme et al. (2004, pp. 27-49) suggest that earnings management tend to be used in companies around the IPO in order to raise reported results. Issuers adopt such accounting accrual adjustments, because inflated earnings are translated directly into a higher offering price. On the other hand, a growing body of literature indicates that the pre-IPO abnormal accruals are not the result of the opportunistic behavior of insiders but arise from the growth potential of such companies (Armstrong et al., 2016, pp. 1316-1338). Moreover, because financial information in prospectuses are an object of intense scrutiny, it makes that IPOs are likely to report less and more conservatively in this crucial period (Ball & Shivakumar, 2008, pp. 324-349; Venkataraman et al., 2008, pp. 1315-1345; Roosenboom et al., 2003, pp. 243-266).

Earnings management is likely to influence the floatation structure. Considering issues of new shares, the managers of IPOs may deliberately report high earnings in order to raise additional capital to the company from the stock market. Linck et al. (2013, pp. 2117-2143) indicate that the reducing the firm's financial constraints may be the goal of the earnings management. Managers can adopt aggressive earnings management to raise extra funds and achieve adopted goals in the future without the threat of occurrence of significant financial constraints. Based on this I posit the following hypothesis:

H1: The sale of primary shares in IPO is positively related to the earnings increasing management activity.

As far as the sale of secondary shares in the IPO is concerned, creation of the firm's initial value by earnings management may have a significant impact on the decisions of the original shareholders. The implied increase in the IPO offer price makes that implementation of exit strategy becomes more attractive at this point. For example, Darrough and Rangan (2005, pp. 1-33) show that decline of current reported earnings before IPO due to an increase in R&D spending is negatively correlated with insider selling. Klein and Li (2009, pp. 1194-1212) provide evidence of positive correlation of window-dressing with secondary share offerings. This leads me to posit the following hypothesis:

H2: The sale of secondary shares in IPO is positively related to the earnings increasing management activity.

However, the research shows that for shareholders seeking to sell their holdings the IPO only starts the divestment process and the relevant reduction of the capital commitment in company occurs later (Paeglis & Veeren, 2013, pp. 104-123). The offering of secondary shares in the IPO aims mainly at increasing the liquidity of shares (Huyghebaert & Hulle,

2006, p. 313-314). A too aggressive earnings management before the IPO can generate negative effects, because the implied increase in the initial value of the company is not sustainable (Xie, 2001, s. 357–373). The opportunistic strategy could spoil the market reputation and would prevent a later profitable sale of shares held by original owners. The issue is of particular importance for such market participants as private equity funds (Nahata, 2008, pp. 127-151). Thus, the bigger incentives to inflate earnings do not arise before IPO, but it will occur after the IPO, when the lockup expires and subsequent sale of secondary shares is possible. Given that borrowing from future earnings encounters significant limitations and cannot be pursued indefinitely, you can expect that before the IPO, the company will report less, not more aggressively. Taking into account this argumentation I posit an alternative to the H2 following hypothesis:

H3: The pre-IPO use of conservative earnings management is positively related to secondary shares sale in IPO.

Research Methodology

The study sample consists of Warsaw Stock Exchange (WSE) IPOs that satisfy the following criteria:

- a) their shares were listed on the main market of the WSE for the first time between 2005 and 2015,
- b) their offer does include the sale of primary, secondary or both primary and secondary shares,
- c) the company's shares were not previously publicly traded (e.g. NewConnect, MST-CeTo),
- d) foreign companies, banks and insurance companies are excluded.

Then I exclude 14 companies for which it was not possible to obtain the required figures. The final sample includes 221 IPOs.

The leading research methods used in the study for the diagnosis of links between earnings management and the sale of primary and secondary shares in the IPO are:

- a) logistic regression model in which the endogenous variable is a dummy variable PRIMARY (SECONDARY) that takes the value of one when new shares are issued in IPO (the original owners sell secondary shares in IPO) and zero otherwise,
- b) Tobit regression model in which the dependent variable is PRIMARY (SECONDARY) PORTION, that is the ratio of number of the new issued (secondary) shares sold in the IPO relative to the total pre-IPO number of shares.

First, as a proxy of earnings management, I directly use information about the level of discretionary accruals for each company (DACC). I apply Larcker and Richardson (2004, pp. 634) model, which is more appropriate for the assessment of accruals in growing companies. To eliminate the heterogeneity of analyzed firms I follow Ecker et al. (2013, pp. 190-211) and estimate accruals models separately in the cross-section for each decile group of a similar size, measured by lagged total assets.

However, because reducing or increasing of earnings may differently affect the decision on the sale of primary and secondary shares in the IPO, I follow Teoh et al. (1998, p. 1948) to assess the type of earnings management strategy in individual firms. The first group consists of companies with the lowest discretionary accruals (below the first quartile) i.e. applying the conservative earnings management strategy. As a proxy of such a strategy I use a dummy variable DACC <Q1 that is set 1 when firm is classified to this group and 0 otherwise. I act in the same way identifying companies with the strategy of aggressive earnings management. As

previously, as a proxy I use $DACC > Q3$ that is dummy variables and equals 1 for firms in this group and 0 otherwise.

Regarding the conclusions from the priori research on factors affecting the sale of primary and secondary shares in the IPO, I use a set of additional exogenous variables, controlling the influence of other factors on the floatation structure (see Table 1).

Table 1. Symbols and description of the control variables

Variable	Description
DR	The debt-to-assets ratio.
ROA	Return on assets*.
TC	Total assets* [in millions of PLN].
AGE	Age of the company at the IPO.
MV/BV	Market capitalization scaled by the book value of equity before IPO
HOT	Dummy variable which takes the value of 1 if in the year of the firm's IPO there is more new companies on the WSE than the average in the whole study period, and 0 otherwise.
PE	A dummy variable that takes the value 1 when the private equity fund is a shareholder of the company at the time of the IPO, and 0 otherwise.
STATE	A dummy variable that takes the value 1 when the State Treasury is a shareholder of the company at the time of the IPO, and 0 otherwise.

*In logit and Tobit regressions I use natural logarithm (Ln) of this variable.

Source: own study.

Empirical results

Empirical research on the practice of IPO in the Polish stock market indicates that the decision to go public is connected with the wish to implement a variety of strategic goals. Table 2 presents descriptive statistics on the types of shares (primary and secondary shares) offered in the IPO. The information indicates that the dominant reason for going public on WSE is the need to raise new capital to the company.

Table 2. Summary statistics for offering types and proceeds

Specification	Mean	Median	Std. dev.	Min	Max	Q1	Q3
Pure primary offerings N=120							
Primary portion	0,3383	0,2649	0,2741	0,0034	1,8956	0,1751	0,4322
Primary proceeds	124.08	26.72	599.49	0.14	5968.8	1	13.36
Pure secondary offerings N=27							
Secondary portion	0,4044	0,3629	0,2379	0,0587	1,0000	0,2520	0,4888
Secondary proceeds	704.82	178.20	1290.4	3	5371.4	8	58.72
Combined offerings N=74							
Primary portion	0,2525	0,2000	0,1981	0,0504	1,1896	0,1255	0,3250
Primary proceeds	57.55	29.60	66.70	3.75	370.50	18.54	70.54
Secondary portion	0,1890	0,1507	0,1586	0,0082	1,0000	0,0801	0,2628
Secondary proceeds	60.01	26.56	113.78	0.74	689.00	10.33	46.46

Proceeds in total	117.56	67.42	167.01	5.43	1059.5	0	31.25	103.75
Whole sample N=221								
Primary portion	0,2682	0,2086	0,2554	0,0000	1,8956	0,1000	0,3569	
Primary proceeds	86.64	22.50	444.79	0.00	5968.8	1	9.61	52.50
Secondary portion	0,1127	0,0000	0,1854	0,0000	1,0000	0,0000	0,1660	
Secondary proceeds	106.20	0.00	501.94	0.00	5371.4	8	0.00	34.79
Proceeds in total	192.85	43.05	661.13	0.13	5968.8	1	20.00	97.38

Proceeds is the number of shares times the offer price [in million PLN].
Source: own calculations.

Table 3 presents some descriptive statistics of the characteristics used in the study as variables for the full sample of 221 IPOs. The data indicates that the going public strategy is adopted by firms with the diversified profitability, varied size and structure of liabilities, often using various strategies of earnings management.

Table 3. Descriptive statistics of the explanatory variables

Specification	Mean	Median	Std. dev.	Min	Max	Q1	Q3
DACC	0,0090	0,0011	0,1239	0,3377	0,6094	0,0520	0,0683
DR	0,5157	0,5458	0,2559	0,0058	2,3219	0,3399	0,6699
TC	541.15	76.21	2237.45	0.29	21762.0	9	28.82
ROA	0,1226	0,0871	0,1274	0,0984	0,8170	0,0451	0,1595
AGE	23,47	15,00	25,44	3,00	149,00	9,00	23,00
HOT	0,6063	1,0000	0,4897	0,0000	1,0000	0,0000	1,0000
PE	0,1719	0,0000	0,3782	0,0000	1,0000	0,0000	0,0000
STATE	0,0860	0,0000	0,2810	0,0000	1,0000	0,0000	0,0000
MV/BV	7,08	3,77	13,95	103,63	88,30	1,83	8,31

Source: own calculations.

In order to recognize, which of the characteristics used as explanatory variables affect the type of shares offered to investors I estimate six logit models, that are presented in Table 4.

Table 4. Determinants of the likelihood of primary and secondary shares sale in the IPO - Logit regression results

Specification	Sale of primary shares			Sale of secondary shares		
Intercept	21,0118 (4.2014) *	27,2524 (4.3416)	20,6000 (4.2682)	-10,6321 (-4.6936)	-11,8087 (-5.0261)	-10,1716 (-4.6637)
DACC	1,9341 (0.4955)			-1,7798 (-0.9280)		
DACC<Q1		-2,7649 (-2.7037)			0,9603 (2.3480) *	
DACC>Q3			0,4913 (0.6697)			-0,2134 (-0.5055)

	0,4854	1,5232	0,5468	-0,7989	-0,8304	-0,7113
DR	(0.3283)	(0.9519)	(0.3673)	(-0.8565)	(-0.8877)	(-0.7645)
	-11,2486	-14,5114	-11,2137	8,2264	8,8751	7,6842
	(-2.6635)	(-3.3635)	(-2.8294)	(3.6482)	(4.1585)	(3.5467)
ROA	***	***	***	***	***	***
	-1,3433	-1,7657	-1,3344	0,6582	0,7148	0,6280
Ln(TC)	(-3.6654)	(-3.9757)	(-3.7694)	(3.7062)	(3.9962)	(3.6361)
	***	***	***	***	***	***
	-0,3914	-0,4985	-0,3431	0,5631	0,6283	0,5501
Ln(AGE)	(-0.9295)	(-1.1358)	(-0.7920)	(2.2718)	(2.4651)	(2.2188)
				**	**	**
	-0,0717	-0,0808	-0,0694	0,1048	0,1103	0,1018
MV/BV	(-1.1848)	(-1.2370)	(-1.1388)	(2.9969)	(3.1260)	(2.9258)
				***	***	***
	1,7963	2,0398	1,7817	-0,0120	-0,0336	-0,0211
HOT	(2.6654)	(2.8748)	(2.6464)	(-0.0326)	(-0.0895)	(-0.0574)
	***	***	***			
	-2,3850	-3,0500	-2,3281	1,9561	2,0086	1,9370
PE	(-3.5522)	(-3.8667)	(-3.5117)	(4.1168)	(4.2260)	(4.0661)
	***	***	***	***	***	***
	-1,0947	-1,0275	-1,0579	-0,6528	-0,5950	0,6132
STATE	(-1.2324)	(-1.1306)	(-1.1850)	(-0.9849)	(-0.8956)	(-0.9257)
LR stat	74.3537	82.5265	74.5648	65.5874	70.4098	64.9751
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Numbers in parentheses are z-statistics. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: own calculations.

The use of earnings management before the IPO affects the likelihood of the sale of the specified type of shares only in certain cases. Across the proxies for earnings management only coefficients on $DACC < 0$ are statistically significant. For the issuance of new shares, the coefficient on $DACC < 0$ is negative. It indicates that the intentional reporting less in the period preceding IPO reduces the likelihood of the sale of primary shares in the IPO. In turn, there is a positive relationship between negative discretionary accruals and the reduction of the original shareholders' holdings. Consistent with hypothesis 3, the coefficient on $DACC < 0$ is positive and significant at the 0.05 level.

The data show that the issuance of new shares is more likely in the case of smaller companies with lower profitability. In turn, in the case of older, larger, characterized by the higher profitability and market-to-book ratio firms there is a greater likelihood of the sale of secondary shares in the IPO. If a private equity fund is one of the original shareholders, it increases the probability of the sale of secondary shares and, in turn, limits the likelihood of creating new issued shares in the IPO.

The next part of the research focuses on the analysis of the links between the use of discretionary accruals and the scale of sale of secondary shares, as well as newly created shares. Table 5 presents the results of analysis using Tobit regression.

Table 5. Determinants of the portions of primary and secondary shares - Tobit regression results

Specification	Primary portion			Secondary portion		
	1,1371	1,2127	1,1379	-1,1606	-1,2807	-1,1213
	(6.5983)	(6.9755)	(6.8585)	(-4.9870)	(-5.4692)	(-4.9079)
Intercept	***	***	***	***	***	***
DACC	0,0341			-0,1855		
	(0.2126)			(-0.9195)		

DACC<Q				0,1120		
1	-0,0530			(2.7543)		***
	(-1.5768)					
DACC>Q			0,0362		-0,0175	
3			(0.9958)		(-0.3912)	
	0,2207	0,2242	0,2303			
	(2.8241)	(2.9062)	(2.9479)	0,0021	-0,0027	0,0095
DR	***	***	***	(0.0216)	(-0.0282)	(0.0967)
	-0,4357	-0,4956	-0,4863	0,8727	0,9502	0,8159
	(-2.4082)	(-2.9536)	(-2.7789)	(3.8253)	(4.4507)	(3.6855)
ROA	**	***	***	***	***	***
	-0,0773	-0,0813	-0,0786	0,0721	0,0775	0,0694
	(-5.5043)	(-5.8685)	(-5.7279)	(3.9719)	(4.3581)	(3.8801)
LnTC	***	***	***	***	***	***
				0,0056	0,0632	0,0558
	-0,0174	-0,0211	-0,0152	(2.1418)	(2.4451)	(2.1142)
LnAGE	(-0.8317)	(-1.0093)	(-0.7245)	**	**	**
	-0,0100	-0,0103	-0,0102			
	(-3.5271)	(-3.6759)	(-3.6238)	0,0056	0,0057	0,0054
MV/BV	***	***	***	(1.5839)	(1.6460)*	(1.5152)
	0,0659	0,0669	0,0659			
	(2.0739)	(2.1143)	(2.0786)	-0,0134	-0,0128	-0,0147
HOT	**	**	**	(-0.3355)	(-0.3249)	(-0.3667)
	-0,1211	-0,1236	-0,1184	0,2391	0,2461	0,2377
	(-3.2440)	(-3.3214)	(-3.1711)	(5.5130)	(5.7599)	(5.4392)
PE	***	***	***	***	***	***
	0,0452	0,0456	0,0512	0,0398	0,0443	0,0429
STATE	(0.7324)	(0.7469)	(0.8305)	(0.5698)	(0.6524)	(0.6114)

Numbers in parentheses are z-statistics. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: own calculations.

The results explaining the primary portion in Table 5 do not indicate the existence of the relationship between the scale of the issuance of new shares and the use of discretionary accruals before the IPO. In contrast, the figures indicate that the adoption of conservative reporting strategy prior to the IPO results in the increased scale of secondary shares sale.

The data in Table 5 provide additional evidence that smaller companies, characterized by lower profitability and lower growth potential offer the larger proportion of primary shares in the IPO. Moreover, the growth of the firm's debt and favorable market conditions promote the increase of the issuance scale. In contrast, the presence of private equity fund among the shareholders negatively affects the primary shares portion. Regarding the sale by original shareholders, there is a statistically significant, positive link between the firm size, age and portions of secondary shares sold in the IPO. Furthermore, the higher profitability also positively affects the growth of the secondary portion.

Conclusions

In this paper I investigate the links between earnings management in the period preceding the company's going public and the decision on the sale of primary and secondary shares in the IPO. Among the surveyed IPOs there are companies which, by earnings management, tried to improve the financial results presented to the public, as well as firms with negative discretionary accruals.

The empirical research allows me to formulate the following conclusions. Firstly, the data do not show that managers of new stock companies use an aggressive strategy of earnings management prior to the IPO to raise additional financing to the company. However, although

I do not find evidence that the increase of pre-IPO discretionary accruals positively affects the sale of primary shares and its scale in the IPO, the analysis revealed that the deliberate conservative reporting limits the probability of the new shares issuance. Secondly, as far as selling actions of initial shareholders is concerned, inflating earnings do not encourage reducing their shareholding in the company. On the contrary, the sale of secondary shares occurs in companies with the lowest discretionary accruals before the IPO i.e. the ones using a conservative earnings management strategy. This suggests that shareholders with the intention of cut back their holdings tend to report less before the IPO, anticipating the possible negative consequences of window-dressing. Furthermore, intentional conservative reporting increases the portion of secondary shares sold in the IPO. This is possibly due to the fact that such IPOs may struggle with the negative consequences of reduced liquidity of the stock, as the negative discretionary accruals decrease the probability of the primary shares offering.

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