



## ORIGINAL PAPER

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## Earnings forecasts errors in prospectuses: evidence from initial public offerings on the Warsaw Stock Exchange

**JEL Classification:** G10; G32; G39

**Keywords:** earnings forecasts; initial public offerings; IPO; Warsaw Stock Exchange

### Abstract

**Research background:** Several studies investigated the issue of accuracy of earnings forecasts disclosed in IPO prospectus because of its importance in the investor's decisions. Disclosing earnings forecasts can reduce information asymmetry and encourage potential investors to buy offered shares. The accuracy of earnings forecasts, and especially its determinants, was explored by some researchers, but for Polish companies such studies have not been conducted.

**Purpose of the article:** The first objective of this study is to examine the bias and accuracy of earnings forecasts disclosed in IPO prospectuses by Polish companies attempting to be listed on the main market of the Warsaw Stock Exchange. The second aim of this paper is to identify the relationship between the absolute forecast error employed as a measure of earnings forecast accuracy and a number of company specific characteristics such as company's size, leverage, forecast horizon, managerial ownership, number of shares offered to investors (in relation to total shares before IPO).

**Methods:** The empirical analysis were conducted on a sample of 102 domestic companies that performed IPOs on the main market of the Warsaw Stock Exchange during 2006-2015 and disclosed earnings forecasts in IPO prospectus. The forecast error (FER) and absolute forecast error (AFER) were adopted as a measure of accuracy of earnings forecasts. The parametric and non-parametric tests and multiple regression model were employed to achieve the adopted aims.

**Findings & Value added:** The results show that, on average, the forecasted earnings exceed the actual earnings (i.e. the earnings forecasts are optimistic) and forecasts are inaccurate.

Moreover, the optimistic forecasts are more inaccurate than pessimistic ones. The findings of multiple regression model show that three independent variables may affect the level of absolute forecast error: the company's size, managerial ownership and forecast horizon.

## **Introduction**

The paper concerns the issue of earnings forecast accuracy revealed in IPO prospectuses by Polish companies seeking to be listed on the main market of the Warsaw Stock Exchange. In some countries, like the United Kingdom, Canada, France, or Greece, decision to include forecasts of future earnings in prospectus is voluntary.

In Poland prospectuses published by companies issuing securities should meet the requirements identified in Commission Regulation (EC) No 809/2004 of 29 April 2004 and Commission Delegated Regulation (EU) No 862/2012 of 4 June 2012 amending Regulation (EC) No 809/2004. According to those regulations, an issuer may choose to include a profit forecast. Although disclosure of profit forecast is not mandatory, a profit forecasts “should be presented in a consistent and comparable manner and accompanied by a statement prepared by independent accountants or auditors” (Commission... No 809/2004).

As the company prospectus is a source of important information for investors, the problem that management faces is to decide whether to disclose information on earnings forecasts in it (see Mak, 1994, pp. 141–158; McGuinness, 2016, pp. 70–83).

The forecasts on future earnings appear to be important for investors since it helps them to value the company and decide whether to invest in shares (Chen *et al.*, 2001, pp. 225–240). Especially individual investors have to rely on public information provided by the issuer, due to their lower capability to obtain information on IPO relative to institutional investors (Lonkani & Firth, 2005, pp. 269–286). Disclosing earnings forecasts seems to be useful in mitigating information asymmetry between managers and investors (Chen *et al.*, 2001, pp. 225–240).

Hartnett and Romcke (2000, pp. 101–132) point out that studies on earnings forecast accuracy improve the understanding of the IPO underpricing phenomenon (Ritter, 1984, pp. 215–240). The existing research confirm the positive association between earnings forecasts and market value measured at the end of the first day of listing, which means that the earnings forecasts are used by companies to signal IPO value (Firth, 1998, pp. 29–39; Keasey & McGuinness, 2008, pp. 642–662 ).

The findings of Jelic for IPOs in United Kingdom show that managers may reduce the underpricing by disclosing earnings forecasts (Jelic, 2011).

Also evidence from the Toronto Stock Exchange suggests that companies issuing earnings forecasts in IPO prospectuses record a significantly lower degree of underpricing (Jog & McConomy, 2003, pp. 125–167). It allows to conclude that investors rely on earnings forecasts.

However, the usefulness of earnings forecasts depends on their accuracy. Inaccurate forecasts can mislead investors and other users, and consequently undermine the credibility of issuer. For example, Jog and McConomy (2003, pp. 125–167) show significantly lower long-run performance of firms whose forecasts turned out to be over-optimistic.

Many researchers analysing the issue of earnings forecasts published in IPO prospectuses indicate that earnings forecasts are inaccurate and managers are optimistic in their forecasts, i.e. generally actual earnings exceed their predicted values (Firth & Smith, 1992, pp. 239–247; Jog & McConomy, 2003, pp.125–167). This evidence is a motivation for conducting the research on factors explaining the level of earnings forecast accuracy. Previous research (Jelic *et al.*,1998, pp. 57–72; Hartnett & Romcke, 2000, pp. 101–132; Hasan *et al.*, 2016, pp. 2–12) indicate determinants influencing magnitude of forecast errors, i.e. firm's size, age, forecast horizon, managerial ownership, and others.

To date, according to the author's knowledge, the accuracy of earnings forecasts issued in prospectuses by Polish companies has not been studied. Therefore, the first objective of this study is to examine the bias and accuracy of earnings forecasts disclosed in IPO prospectuses by Polish companies attempting to be listed on the main market of the Warsaw Stock Exchange. To achieve this aim, this study applies two commonly used measures of earnings forecast accuracy in related literature (Firth & Smith, 1992, pp. 239–247): forecast error (FER) and absolute forecast error (AFER). The first measure reflects the bias of forecasts (pessimistic or optimistic), while the second one is a measure of earnings forecast accuracy.

The second aim of this paper is to identify the relationship between the absolute forecast error employed as a measure of earnings accuracy and a number of company specific characteristics like company's size, leverage, forecast horizon, managerial ownership, number of shares offered to investors (in relation to total shares before IPO).

This study is based on earnings forecasts revealed in IPO prospectuses by 102 domestic companies that conducted IPOs on the main market of the Warsaw Stock Exchange between 2006 and 2015.

The paper is organized as follows. After discussing the literature on earnings forecasts accuracy, the sample and research method are presented.

The next part reports the empirical results. Finally, the conclusions with a direction for future research are made.

## **Literature review**

The issue of earnings forecasts accuracy contained in IPO prospectus has attracted attention of some researchers. In the United Kingdoms, this issue was examined by Jelic (2011) who analysed 1600 IPOs on London Stock Exchange from 1981 to 2004. He reports the average forecast error and absolute forecast error at 5.51% and 10.7%, respectively.

The evidence from New Zealand IPO prospectuses show mean forecast error at -5% and extremely large absolute forecast error at 141% (Firth & Smith, 1992, pp. 239–247). This analysis was conducted on a sample of 86 companies. A high level of inaccuracy is also reported by Hartnett & Romcke (2000, pp. 101–132) for a sample of 134 Australian companies during the period 1991–1996 — the mean forecast error and mean absolute forecast error are at -30.35% and 88.29%, respectively.

Gounopoulos *et al.* (2015) investigated the IPO prospectuses of 306 firms listed on the Athens Stock Exchange. The analysed data came from the long period of 1993–2014, which consists of two sub-periods: before and after the year 2001. This division results from the fact that until 2001 companies had been obliged to issue forecasts in IPOs prospectuses and after this year the inclusion has been voluntary. Their results indicate that before 2001 the earnings forecasts were, on average, pessimistic, and optimistic after this date.

Lonkani & Firth (2005, pp. 269–286) report the earnings forecast errors for 175 Thailand companies conducting IPOs between 1991–1996. Their results show the negative mean forecast error at -6.86% and absolute forecast error at the level 35.76%, which means that on average actual earnings were lower than predicted.

A large body of research was conducted for Malaysian IPO companies, where issuance of forecasts in prospectus is mandatory. The findings documented by the researchers disagree with other studies suggesting that managers are over-optimistic in their forecasts. For example, the research carried out by Yau & Chun (1999, pp. 89–108) for 111 companies conducting IPOs during 1985–1992 show the positive mean forecast error at 1.74% and absolute forecast error at 38,33%. Also the forecast error reported by Jelic *et al.* (1998, pp. 57–72) for 122 companies that conducted IPOs on Kuala Lumpur Stock Exchange between 1984 and 1995 is positive at 1.34% (with absolute forecast error at 21%). The similar results are report-

ed by Ammer & Ahmad-Zaluki (2015, pp. 68–77) for 190 Malaysian companies seeking to be listed from 2002 till 2012. The mean forecast error for the total sample is 3.36% with absolute forecast error at 24.94%. However, Ibrahim & Ismail (2015, pp. 233–238) report the mean forecast error of -6.30% and absolute forecast error of 22.11% for the sample of 185 companies making IPOs between 2001 and 2008.

The research of Chen *et al.* (2001, pp. 225–240) conducted for Hong Kong and Chinese companies seeking to list on the Stock Exchange of Hong Kong during the period 1993–1996 shows the mean forecast error at 9.94% and mean absolute forecast error of IPO profit forecasts at 21.96%.

As many studies on earnings forecasts show that the actual earnings are significantly different from those disclosed in IPO prospectuses, the researchers try to find variables associated with the level of forecast accuracy (see Jelic *et al.*, 1998, pp. 57–72; Yau & Chun, 1999, pp. 89–108; Hartnett & Romcke, 2000, pp. 101–132; Lonkani & Firth, 2005, pp. 269–286). They have identified many potential determinants that may affect earnings forecast error: size, age, percentage of retain ownership, forecast horizon, leverage, the reputation of auditing firm, underwriter, industry, macroeconomic conditions, profit volatility, type of issue, float year. As Hartnett and Romcke (2000, pp. 101–132) point out, with the exception of the independent variable forecast horizon, most of the variables analysed by researchers usually turned out to be not-significant in explaining the absolute forecast error. The results of findings on the relationship between independent variables and earnings forecast errors are discussed in detail in the next section of this paper.

## **Research methodology**

The empirical analysis was conducted on a sample of 102 domestic companies that performed IPOs on the main market of the Warsaw Stock Exchange during 2006–2015 and disclosed earnings forecasts in IPO prospectuses. The total number of domestic companies that went public on the main market during research period was 278. Then, from this sample the following companies were excluded: banks, insurance companies, companies going public, but not conducting public offers, firms previously listed on the New Connect and firms for which annual reports are not available.

The companies included in the final sample revealed in their prospectus forecasts of net profit after tax for the year in which the IPO took place, i.e. the year  $t$  (companies that issued forecasts only for the year preceding IPO were excluded). Some companies provided profit forecasts for the first and

next years after IPO, but those figures were not taken into account in calculation.

This study uses hand-collected data from IPO prospectuses and annual (separate or consolidated) financial statements, which have been provided by Notoria Serwis SA through EMIS database. Prospectuses were the source of information about forecasts of separate or consolidated net profits after tax. Both prospectuses and separate annual reports were used to compute dependent and independent variables employed in this study.

This research applies two measures of earnings forecasts accuracy that are commonly used in related studies, i.e. forecast error (FER) and absolute forecast error (AFER), which have been calculated as follows:

$$FER_{it} = \frac{(AE_{it} - FE_{it})}{|FE_{it}|} \quad (1)$$

$$AFER_{it} = \frac{|AE_{it} - FE_{it}|}{|FE_{it}|} \quad (2)$$

where:

$FER_{it}$  is the forecast error of company  $i$  for the period  $t$ ,

$AFER_{it}$  is the absolute forecast error of company  $i$  for the period  $t$ ,

$AE_{it}$  is the actual earning (net profit) of company  $i$  for the period  $t$ ,

$FE_{it}$  is the forecast earning (net profit) as given in the prospectus of a company  $i$  for the period  $t$ .

The forecast error (FER) shows if the company is optimistic or pessimistic about its future earnings. The over-estimation for future earnings results in negative value for FER while positive FER stands for the under-estimation for future net profit. A negative value for the mean forecast error implies that, on average, predicted net profits exceed the actual ones, so the bias in the forecast is optimistic. Similarly, a positive mean forecasts error indicates the pessimistic bias in the forecasts.

Absolute forecast error is another measure of earnings forecast accuracy. It expresses the relative magnitude of the error, regardless of its sign. By calculating the mean AFER it is possible to indicate how close the forecast were to the actual earnings in absolute terms.

When computing these measures of accuracy, care was taken in order to match properly the type of predicted net profit after tax (separate or consolidated) with the type of profit after tax (separate or consolidated) reported in an annual report.

The simple parametric (t-test) and non-parametric (Wilcoxon test) tests were used to test if the forecasts are unbiased and accurate. If the forecast

are unbiased and accurate, the mean or median of forecast measures should not be significantly different from zero (Jelic *et al.*, 1998, p. 61).

In order to compare pessimistic with optimistic forecasts of IPOs the non-parametric Mann-Whitney U test was employed. The similar procedure was applied to state if earnings forecasts accuracy measures for IPOs made before the crisis (during 2006–2008) are different from those presented after the crisis (during 2009–2015).

To establish the relationship between earnings forecast accuracy and some independent variables, the multiple linear regression model was applied, which is defined by the following equation:

$$AFER_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LEVERAGE_{it-1} + \beta_3 HORIZON_{it} + \beta_4 MANAGE\_OWN_{it} + \beta_5 SHARES_{it} + \varepsilon_{it} \quad (3)$$

where:

$AFER_{it}$  is absolute forecast error of company  $i$  for the period  $t$

$SIZE_{it-1}$  is natural logarithm of total assets in the year  $t-1$

$LEVERAGE_{it-1}$  is the long-term debt divided by total assets in the year  $t-1$

$HORIZON_{it}$  is the number of days between the prospectus date (the date of approval of a prospectus by the Polish Financial Supervision Authority) and the end of a fiscal year in which IPO takes place

$MANAGE\_OWN_{it}$  is the number of shares owned directly and indirectly by managers (i.e. chairman and members of the board) and members of their families divided by the total number of shares at the time of the prospectus date

$SHARES_{it}$  is the number of primary and/or secondary shares offered to investors during IPO divided by the total number of shares before the IPO

$\varepsilon_{it}$  is error term for firm  $i$  in year  $t$

Previous research suggest that larger firms are able to prepare more accurate forecasts than smaller ones. Diversification makes their growth pattern more stable and less volatile. Moreover, they can afford to employ more professional expertise. Therefore, the negative correlation between company's SIZE and absolute forecast error is expected. The empirical findings reported by Yau & Chun (1999, pp. 89–108), Jelic *et al.* (1998, pp. 57–72), Hartnett & Romcke (2000, pp. 101–132) indicate a negative, but not significant, relationship between the absolute forecast error and a natural logarithm of total assets. The negative and significant correlation was observed by Abrokwa & Nkansah (2014) for companies listed on the Ghana Stock Exchange. However, contrary to these findings, some researchers report a positive, but not significant relation between these variables: Ibra-

him & Ismail (2015, pp. 233–238) for Malaysian IPOs, Lonkani & Firth (2005, pp. 269–286) for Thailand IPOs.

LEVERAGE was the next variable used in the regression model. In the related literature, it is accepted that the net profit of companies with a higher level of debt is more volatile and difficult to predict (Jelic *et al.*, 1998, pp. 66). Thus, a positive correlation between LEVERAGE and absolute forecast error is expected. Some studies report a positive association between leverage and absolute forecast error, but this association is not statistically significant (Lonkani & Firth, 2005, pp. 269–286).

The earnings forecast accuracy is expected to increase as the horizon decreases, which means that the longer the interval between the prospectus date, the less accurate forecasts are. Thus, the positive relationship between the HORIZON and AFER is expected. Also the existing studies report that the horizon is positively associated with the earnings forecast measure (Yau & Chun, 1999, pp. 89–108; Ibrahim & Ismail, 2015, pp. 233–238; Lonkani & Firth, 2005, pp. 269–286).

Another independent variable MANAGE\_OWN was used as a proxy for the type of ownership. Existing research suggest that the type of ownership seems to be relevant in the process of preparing earnings forecasts. The study of Ibrahim & Ismail (2015, pp. 233–238) analyses the association between different types of ownership and forecast accuracy measure in Malaysia. The researchers distinguished three types of ownership: institutional, management and active-family ownership. The results indicate a positive influence of institutional and active-family ownership on forecast accuracy and a negative impact of management ownership. This evidence is in contrast with the reputation cost theory, which states that managers are likely to issue more accurate forecast in order to preserve their reputations. On the other hand, this result is in line with other related research which indicates that managers tend to be optimistic about forecasting (Ibrahim & Ismail, 2015, p. 237).

Due to the fact that this research employs an independent variable that is calculated in a different way than those used in other studies, and previous research provide mixed results, it is difficult to indicate the expected sign of the correlation between the variable MANAGE\_OWN and absolute forecast error.

In some previous research a variable retained ownership was employed. It reflects the proportion of shares retained by the existing owners of the company (Gounopoulos *et al.*, 2015; Jelic *et al.*, 1998, pp. 57–72). A negative association between the proportion of shares retained by owners and absolute forecast error is expected, since a higher proportion of retained ownership may suggest higher confidence and ability to achieve the fore-

casts. The findings of Gounopoulos *et al.* (2015) show a negative and significant relationship between forecast accuracy and retained ownership, while studies conducted by Jelic *et al.* (1998, pp. 57–72) indicate an insignificant negative correlation, although some researchers report positive, but not significant correlation.

Instead of variable retain ownership, this research uses variable SHARES that was calculated as the number of primary and/or secondary shares offered to investors during IPO divided by the total number of shares before the IPO. A positive association between this variable and absolute forecast error is expected.

The existing research applies another two variables: AUDIT as a proxy for auditor quality and AGE calculated as a number of years from the company's incorporation to the IPO date. It is widely accepted that earnings forecasts are more accurate if they are audited by one of the biggest audit firms (Clarkson, 2000, pp. 595–622). Thus, the negative relationship between the variable AUDIT and absolute forecast error is expected. Empirical evidence on whether audit firms may affect the accuracy of earnings forecasts is mixed. Another variable AGE is expected to be negatively associated with absolute forecast error, like in existing studies (see Yau & Chun, 1999, pp. 89–108, Ibrahim & Ismail, 2015, pp. 233–238). Initially, these variables were employed in a regression model, but due to the multicollinearity problem, the above two measures were removed from a multiple regression model.

## Results

Table 1 presents descriptive statistics of IPO's earnings forecast accuracy. The mean forecast error of -23.78% shows that, on average, the forecasts of net profit exceeded the realized earnings. The parametric and non-parametric tests indicate that the mean (t-value test) and median (Wilcoxon test) of forecast error is significantly different from zero, which suggests that management systematically over-predict net profits (Jelic *et al.*, 1998, p. 61). It means that the bias in the forecast earnings were optimistic. These results are in line with other international studies that report over-estimation of the earnings forecasts.

The mean absolute forecast error of 40.83% reveals that, on average, the realized earnings were lower or bigger than forecasted at 40.83%. The mean and median of AFER are significantly different from zero, which shows that the forecasts were not accurate (AFER was significantly greater than zero).

The findings of this study (Table 1) reveal that 34 of the profit of forecasts were within 10% of the actual result, while 22 companies reported realized earnings that are more than 50% lower or bigger than forecasted.

Table 2. reports descriptive statistics of absolute forecast errors for pessimistic and optimistic earnings forecasts.

Out of the 102 companies, 56 companies were optimistic in their forecasts (a negative sign of forecast error), while 46 companies predicted profit below its value reported in financial statements, i.e. they issued pessimistic forecasts (positive sign of forecast error). The mean absolute forecast error for pessimistic forecasts is 18.9% and for optimistic 58.84%. The results of Mann-Whitney U test indicate that optimistic forecasts are more inaccurate than pessimistic ones and this result is statistically significant.

In order to show the changes in forecast accuracy through the period of this study, two sub-periods were identified: 2006–2008 (i.e. before the crisis) and 2009–2015 (i.e. after the crisis). Table 3 illustrates the summary statistics of forecast accuracy measures for two sub-periods.

The results presented in Table 3 show that both before and after the crisis the forecasts were over-estimated and there is no significant difference in forecasting accuracy between companies issuing forecasts before and after the crisis.

To achieve the second aim of this study, a multiple regression model was built. After preparing Pearson correlation matrix (not included in this study), five independent variables were examined to explain the earnings forecasts accuracy measured by absolute forecast error. The results of the multiple regression analysis presents Table 4.

Table 4 shows that the explanatory power of the model—adjusted R<sup>2</sup> of 29% and F of 9,252 (significant at 1% level) is similar to those reported in previous studies (see Hartnett & Romcke, 2000, p. 123).

The findings of multiple regression analysis show high significance (at 1%) of variables HORIZON and SIZE in explaining the accuracy of earnings forecasts. The significant and positive relationship between HORIZON and AFER suggests that the longer forecast horizon, the more inaccurate the forecasts. These findings are consistent with expectations. The negative sign of standardized coefficient for SIZE is consistent with related studies on determinants of earnings forecast accuracy (Jelic *et al.*, 1998, pp. 57–72, Hartnett & Romcke, 2000, pp. 101–132). It means that bigger companies issue more accurate earnings forecasts than smaller ones.

The independent variable MANAGE\_OWN is statistically related to the absolute forecast error at 10% level. The negative sign of standardized coefficient suggests that as the percentage of persons involved in the company management and their family members in ownership increases, the accura-

cy of earnings forecasts increases, too (i.e. absolute forecast error decreases).

Other variables, LEVERAGE and SHARES, are not significant in explaining the absolute forecast error, although the positive signs of standardized coefficients are corresponding to expectations.

## **Conclusions**

This paper reveals the problem of earnings forecast accuracy disclosed in IPO prospectuses of Polish companies seeking to be listed on the main market of the Warsaw Stock Exchange during the period 2006–2015. To achieve the first aim of this study, the investigation of the bias and level of earnings accuracy, the forecast error and absolute forecast error were applied. The findings provide a general conclusion that forecasts issued in IPO prospectuses by managers are on average optimistic (over-estimated) and not accurate (absolute forecast error of 40,83%). This result is consistent with some findings reported in related literature. The mean negative forecast error of -23.78% for Polish companies shows that earnings forecasts are more biased than those reported in most related studies.

Furthermore, the optimistic forecasts seem to be more inaccurate than pessimistic ones. Comparing the measures of earnings forecasts accuracy recorded before the financial crisis (during 2006–2008) and after the financial crisis (2009–2015), one should notice that there are no significant differences between the employed measures.

The second purpose of this paper concerns the possible determinants explaining the level of absolute forecast error. The multiple regression analysis employed in this research allows to indicate three independent variables that may affect the level of absolute forecast error: size, managerial ownership and forecast horizon. The signs of standardized coefficients received for these variables are in line with expectations and prior studies.

In this research independent variables: leverage and numbers of shares offered to investors are not essential for explaining earnings forecasts accuracy.

This study is not free from limitations. The set of independent variables used in this study does not include variables that reflect general economic conditions and the industry of the issuer. As the research period covers the years 2006–2015, the question is whether and how changes of economic conditions affected the earnings forecast accuracy.

From this fact arises a possible direction for future research — to investigate the impact of other variables on earnings forecast accuracy. Also, interesting findings may be achieved by comparing the characteristics of firms disclosing and not-disclosing earnings forecasts in IPO prospectuses.

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## Annex

**Table 1.** Summary statistics of IPO earnings accuracy

<b>Panel A: Descriptive statistics of dependent variables (total sample <math>n=102</math>)</b>					
	Mean	Median	Standard Deviation	Minimum	Maximum
FER (%)	-23.78	-4.07	70.58	-323.6	87,7
AFER (%)	40.83	17.3	62.2	0.11	323.6
<b>Panel B: parametric and non-parametric tests</b>					
	One-sample t-test		Wilcoxon test		
	t-test	p-value	p-value		
FER (%)	-3,403	0,001***	0,011**		
AFER (%)	6,629	0,000***	0,000***		
<b>Panel C: Distribution of AFER</b>					
AFER (%)	Number of companies in error category		Cumulated number of companies in error category		
>100	8		8		
50 to 100	14		22		
40 to 49,99	8		30		
30 to 39,99	9		39		
20 to 29,99	11		50		
10 to 19,99	18		68		
0 to 9,99	34		102		
Total	102				

Note: \*\*\*significant at the 1% level, \*\*significant at 5% level, \*significant at 10% level

**Table 2.** Absolute forecast error categorization by pessimistic and optimistic forecasts

<b>Panel A: Descriptive statistics of absolute forecast error for pessimistic and optimistic forecasts</b>					
Trend of forecast	Number of IPOs	AFER Mean (%)	AFER Median (%)	AFER Standard Deviation (%)	
pessimistic IPO	46	18.9	13.41	20.12	
optimistic IPO	56	58.84	29.17	77.73	
<b>Panel B: Mann-Whitney U test</b>					
Trend of forecast	Number of IPOs	Mean Rank	Sum of Ranks	z	p-value
pessimistic IPO	46	40,46	1861,00	-3,416	,001***
optimistic IPO	56	60,57	3392,00		

Note: \*\*\*significant at the 1% level, \*\*significant at 5% level, \*significant at 10% level

**Table 3.** Earnings forecast accuracy of IPOs for two sub-periods

<b>Panel A: Descriptive statistics of absolute forecast error for two sub-periods</b>							
Sub-period	Number of IPOs	FER (%)			AFER (%)		
		Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
2006-2008	73	-19.92	-4.54	68.69	39.18	16.6	59.7
2009-2015	29	-33.49	-3.59	75.49	44.96	22.99	69.05

  

<b>Panel B: Mann-Whitney U test</b>			
Variable	z	p-value	
FER (%)	-1,413	0,158	
AFER (%)	-0,582	0,560	

**Table 4.** Absolute earnings forecast determinants using a multiple regression analysis (dependent variable – AFER)

Independent variables	Standardized coefficient	t-statistic	p-value
MANAGE_OWN	-0,148	-1,723	0,088*
SIZE	-0,269	-3,116	0,002***
LEVERAGE	0,120	1,379	0,171
SHARES	0,068	0,782	0,436
HORIZON	0,478	5,520	0,000***
R <sup>2</sup> (%)	32,5%		
Adjusted R <sup>2</sup> (%)	29%		
F-value (p-value)	9,252 (0,000)***		
n=102			

Note: \*\*\*significant at the 1% level, \*\*significant at 5% level, \*significant at 10% level