**EQUILIBRIUM**
**Quarterly Journal of Economics and Economic Policy**
**Volume 13 Issue 4 December 2018**
p-ISSN 1689-765X, e-ISSN 2353-3293
www.economic-policy.pl

**ORIGINAL PAPER**

**Citation:** Sosnowski, T. (2018). Earnings management in the private equity divestment process on Warsaw Stock Exchange. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, *13*(4), 689–705. doi: 10.24136/eq.2018.033

Contact: tomasz.sosnowski@uni.lodz.pl, Department of International Finance and Investments, Faculty of Economics and Sociology, University of Lodz, 41 Rewolucji 1905 r. St., 90-214 Lodz, Poland
Received: 12 July 2017; Revised: 4 May 2018; Accepted: 28 May 2018

**Tomasz Sosnowski**
*University of Lodz, Poland*

# Earnings management in the private equity divestment process on Warsaw Stock Exchange

**JEL Classification:** *G24; G32; G34*

**Keywords:** *initial public offering, private equity, earnings management*

**Abstract**
**Research background:** Prior studies suggest that companies which go public manage earnings in order to inflate the issue price. However, for private equity funds the use of such activity can be costly in terms of the reputation capital as they are repetitive stock market players. The results of previous research on the effect of private equity fund on the quality of pre-IPO reported earnings are mixed and inconclusive.
**Purpose of the article:** The main aim of the study is to empirically investigate the use of pre-IPO earnings management by private equity funds in the process of divestment conducted on a stock exchange.
**Methods:** I provide comparisons between PE-backed companies and firms with a similar initial market value and growth potential, using the method of single-linkage clustering to build the study sample. In order to assess the scale of pre-IPO earnings management, I apply the discretionary accruals model of Larcker and Richardson [2004].
**Findings & Value added:** Using a sample of companies conducting IPO on WSE between 2005 and 2015 I do not find evidence that the presence of private equity fund among the shareholders of the company in the period preceding first listing of shares on a stock market constrains the use of earnings management prior to the IPO. The difference between the discretionary accruals in PE-backed and matched companies, when controlling for the market value and book-to-market ratio, is statistically insignificant. To be specific, companies with private equity funds in their shareholder structure do not exhibit lower scale of earnings management prior to the IPO in comparison to other new stock companies.

## Introduction

The stock exchange enables private equity (PE) funds to implement the divestment process and to sell shares of companies from their investment portfolio. Although the final sale of the company's shares may occur even several years after the first listing on the stock market, this type of exit from investment is known as the initial public offering (IPO) (Cumming & MacIntosh, 2003, pp. 511–548). However, the stock exchange is not just a place where PE funds can cash out their best and successful investment, but also a place to create and accumulate good reputation. This non-financial capital is the key asset that enables the PE funds to successfully continue their activities in the competitive market (Black & Gilson, 1998, p. 254). Prior to the IPO, managers and shareholders take various actions aiming at attracting the attention of stock market investors, creating appropriate demand for the offered shares to receive the expected proceeds from the sale of their holdings. A large stream of studies suggests that companies conducting the initial public offering (IPOs) engage in the earnings management in order to inflate the issue price (Teoh *et al.*, 1998, pp. 1935–1974). However, while such activities may generate benefits for sellers of shares at a going public event, in the long run they will result in the subsequent negative changes in the company's performance and value (DuCharme *et al*., 2004, pp. 27–49; Xie, 2001, pp. 357–373). Borrowing profits from the future has its limitations, and reporting higher earnings preceding the IPO results in their excessive decline in the subsequent period. Thus, the use of earnings management is beneficial only for a selected group of stakeholders. Especially for PE funds that are repetitive, stock market players who accumulate the reputation capital such a strategy of the wealth transfer from less informed stock investors may be very risky.

The main aim of this study is to investigate the use of pre-IPO earnings management by PE funds in the process of divestment conducted on a stock exchange. Some studies suggest that PE funds may take advantage of the privileged position, preferring their own needs above the interests of other groups of shareholders, both present and future (Liu, 2014, p. 173; Cohen & Langberg, 2009, p. 171–190; Sieradzki & Zasępa, 2016, pp. 261–289). Due to the significant information asymmetry, the time around IPO is ideal to take this type of action (Teoh *et al*., 1998, p. 1937). Thus, in this paper I address the question whether the presence of a PE fund in the company's ownership affects the scale of earnings management prior to the IPO. Due to the significance of profit in taking action on the capital market (Graham *et al*., 2005, p. 5; Meluzín *et al*., 2018, pp. 471–503), the incentive to manage earnings in order to increase the sale price is particularly high. Earnings

are one of the most frequently cited firm performance statistics, and it is widely believed that accounting earnings convey information about firm values to investors (Ducharme *et al.*, 2004, p. 27). Without doubt, PE funds have the purpose, opportunity and ability to undertake such activities (Cadman & Sunder, 2014, p. 1299–1328). Nevertheless, literature emphasizes the key role of PE funds in the supervisory process and their beneficial effect on the applied corporate governance standards (Masulis & Thomas, 2009, p. 227; Hochberg, 2012, p. 430). Moreover, the significance of divestments undertaken by the IPO in building reputation capital of PE funds is highlighted (Krishnan *et al*., 2011, p. 1296; Nahata, 2008, p. 127–151).

In general, this article fits in the stream of current and important research on the concept of financial reporting quality and the use of the information superiority by the specific groups of shareholders in the IPO process. Although the issue of earnings management is located in the center of interest of scientists around the world, knowledge about the use of such practices by companies in the course of the IPO is still limited, and the results obtained so far are not conclusive.

To fulfill the aim of the paper I posit the hypothesis that the scale of earnings management in the period preceding the IPO in the PE-backed companies is lower in comparison to the non-PE-backed companies that go public. For PE funds the good reputation is essential to build a stable and strong position in the very competitive private equity market (Black & Gilson, 1998, p. 254). The market evaluates the achievements of individual funds through the track record of the portfolio companies. Since the increase in the share price triggered by the earnings management is only temporary and does not cause a lasting increase in the value of the company (DuCharme *et al*., 2004, pp. 27–49; Xie, 2001, pp. 357–373), engaging in upward window dressing around the IPO may negatively affect how the PE fund is perceived by the market participants. The loss of trust and positive opinion can significantly hinder, or even prevent the divestments on the public securities market in the future. Thus, it is in the interest of the fund to establish the appropriate corporate governance solutions, oriented towards accumulation of the reputation capital and preventing the use of aggressive earnings management prior to the introduction of the company's shares to the stock trading (Hochberg, 2012, p. 430).

The rest of the article is organized as follows. The next section briefly discusses the issue of earnings management and reviews the prior research on the role of PE funds in managing earnings prior to the IPO. Section 3 describes methodological issues, especially the selection of the research sample and the measurement of earnings management in the studied com-

panies. Section 4 presents empirical results. Section 5 summarizes and concludes the paper.

## Literature review

Earnings management is the leading issue in the financial accounting literature (Zarowin, 2015, p. 2) and an important element of the analysis that focuses on the identification of the instruments and mechanisms of making certain financial decisions throughout the world. The possibility to manage earnings is mainly due to the accrual basis, the need to apply accounting estimates and professional judgment as well as the possibility of the firm to establish its accounting policy in some areas (Grabiński, 2016, p. 33). Although earnings management is widely discussed in literature, there is no agreement among researchers about the essence and purpose of such activities. Schipper (1989, p. 92) points out that earnings management is a purposeful intervention in the external financial reporting process with the intent of obtaining some private gain. In turn, Healy and Wahlen (1999, p. 368) emphasize that this practice occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers. Both approaches highlight the tendency of managers to make decisions aiming to obtain some private gains and maximize their personal interests and well-being. Therefore, this practice can be useful in reducing the cognitive value of reported earnings and may lead to the wealth transfer in favor of better-informed groups, mainly managers and original shareholders, at the expense of other users of financial statements (Grabiński, 2016, p. 33).

In spite of the fact that earnings management is mainly seen as if sneaky managers pulling the wool over the eyes of naive owners by manipulating accruals (Wójtowicz, 2015, p. 142), such actions may not always be perceived negatively and result from opportunistic actions. It can be used to increase the informativeness of the company's financial results, so that the internal information, true and important for external users is provided to the public (Subramanyam, 1996, pp. 249–281; Arya *et al*., 2003, pp. 111–116).

For participants of the capital market the leading role of PE funds in corporate governance is widely known, and numerous studies indicate that PE funds actively get involved in monitoring the companies they invest in (Kaplan *et al*., 2007, p. 273–311; Sosnowski 2017, p. 23–38). Generally, as a result of the PE fund's investment the corporate governance is strength-

ened and the favorable changes in this area are considered as one of the main sources of growth in the value of portfolio companies (Masulis & Thomas, 2009, p. 227). PE funds are intensively involved in the monitoring of their portfolio companies and have an impact on managerial decisions and actions through their capital involvement, personal relationships, participation in supervisory boards and influence on management remuneration (Ertimur *et. al*., 2016, pp. 1–2).

While growing literature shows the use of it by the IPO firms, only a few studies directly investigate the role of PE funds in financial reporting quality. Examining the quality of profits in PE-backed IPOs, Morsfield and Tan (2006, pp. 1119–1150) document that the presence of funds among company owners is associated with the lower level of discretionary accruals, which are generally used as proxy of earnings management. They suggest that PE fund's involvement in the company and the incentives to monitor its business effectively constrains the earnings management actions. Also, Hochberg (2012, pp. 429–480) points out that the PE fund's presence reduces the level of window dressing in the firm at IPO, and such companies are more likely to be conservative and less aggressive in terms of earnings management than similar non–PE-backed firms. Furthermore, studies of Katz (2009, pp. 623–658), Gioielli *et al.* (2013, pp. 30–64), as well as Ertimur *et al.* (2016), provide similar conclusions.

Although many papers emphasize the positive certification and monitoring the roles played by PE funds, there is also a growing body of literature, which seems to question that findings. The study of Darrough and Rangan (2005, pp. 1–33) shows that the portfolio companies of PE funds strive to present higher reported earnings to the public by reducing R&D expenditures in the year of the IPO. Also, the specific characteristics of the individual PE fund's investment processes are important for the accounting information quality of IPO firms. For example, Chahine *et al.* (2012, pp. 179–192) find evidence that the diversity of PE funds involved in a PE syndicate increases the extent of the pre-IPO earnings management measured by the discretionary current accruals. Wongsunwai (2013, pp. 296–324) emphasizes the importance of reputational concerns for the financial reporting strategy and points that only portfolio companies of higher-quality PE funds, which are willing to protect the standing they have, constrain aggressive earnings management prior to the IPO. Hu *et al.* (2012, pp. 251–268) stress the importance of timing and divestment motive behind earnings management activities in the PE-backed companies conducting IPO. They provide evidence that the participation of the PE fund lowers earnings management in the period preceding IPO, and increases earnings management

in the post-IPO year in order to increase the accounting earnings in the time in which the lock-up period expires.

## Methodology

### *Study sample*

Empirical studies undertaken in order to verify the hypothesis of a different scale of earnings management in the IPO process of the PE funds' portfolio and other firms have been conducted on a group of companies whose first listing of shares on the Warsaw Stock Exchange took place between 2005 and 2015. The analyzed firms have their headquarters in Poland and their IPO includes the sale of primary or secondary shares. In the first stage, out of all companies that met the above selection criteria I identify those, in which IPO is conducted because of the divestment process of the PE funds. In total, 38 companies meet this criterion. Table 1 presents the procedure of the study sample selection and its results.

In the next stage of research, I distinguish companies, which constitute the control sample. I use the following criteria for selecting these companies:

– the initial market value of the company (MV),
– the company's initial book-to-market ratio (BV/MV).

According to the Fama and French, three factors model these two characteristics differentiate companies in terms of the systematic risk (Fama & French, 1996, p. 55). Given the limited availability of information on the market value of companies in the period preceding IPO, the problematic issue in the study is to gather the required data on MV. In my research, I follow Huyghebaert and Hulle (2006, p. 308) and use the pre-IPO number of shares times the offer price plus the book value of debt as a proxy of the firm's market value.

Then I use cluster analysis in order to assign companies similar to those which are backed by PE funds. I use the method of single-linkage clustering on a set of standardized data, where the distance between the grouped objects is expressed by the Euclidean metric. The application of these procedures allows me to identify companies with a similar initial market value and growth potential (see Table 2). As a result, I select, for further empirical analysis, a total of 76 companies, which are divided into two equal groups, namely:

- PE sample – a group of 38 portfolio companies of PE funds divested through the IPO;
- matched sample – a group of 38 similar companies, constituting a control sample.

In the group of PE funds' portfolio companies, the average MV amounts to 327196.5 thousand PLN, with a median of 266145.5 thousand PLN. In the matched group these values are slightly lower and amount to 287112.8 thousand PLN and 211670.9 thousand PLN, respectively. The BV/MV ratio in both groups is also quite alike, although the mean and median are slightly higher in the matched sample than in the PE group. However, which is especially important, p-values corresponding to the Kolmogorov-Smirnov Z test of difference in the distribution cross pairwise subsamples do not indicate that these two groups, in terms of both MV and BV/MV ratio, differ from each other in a statistically significant way.

*Earnings management detection*

In order to investigate the application of earnings management in a given firm I use the discretionary accruals (DACC). First, it is necessary to disaggregate total accruals (TACC), which is the difference between the net earnings and cash flow from operation, into two components: the discretionary and non-discretionary part. The scale of non-discretionary accruals is directly related to the specific characteristics of the firm, such as the adopted structure, applied business model, and the sector in which it operates. In contrast, discretionary accruals are the result of deliberate actions of managers, who through proper shaping of financial statement seek to present particular financial results (Zarowin, 2015, p. 2).

In most empirical studies on earnings management, to estimate the value of discretionary accruals, the model developed by Jones (1991, pp. 193–228) is applied, which assumes that non-discretionary accruals result from the changes in sales (ΔSALES) and gross property, plant and equipment (PPE), or its modified formula of Dechow *et al.* (1995, pp. 193–225), which additionally takes into account fluctuations in trade receivables (ΔAR). However, Ball and Shivakumar (2008, pp. 324–349) emphasize the significant limitations of these models and note that this approach is not the best choice for the analysis of companies conducting IPO. They point out that these companies are not selected to the research sample randomly, but because of the internal development processes occurring within, and are likely associated with the significant growth potential whose use creates accruals automatically. In such cases models commonly used for detecting earnings management are insufficient and their application leads to an

overestimation of discretionary accruals. Therefore, I use Larcker and Richardson (2004, p. 634) extension of a modified Jones (1991, pp. 193–228) model, which is more suitable for assessing accruals for fast-growing companies. They add the company's BV/MV ratio to the standard model, which refers to the growth option and allows for mitigating the effect of the discretionary accruals overvaluation resulting from it and cash flows from operations (OCF) to control the influence of the firm's operating performance on its accruals. In general, the model is estimated as follows:

$$\frac{TACC_t}{TA_{t-1}} = \beta_0\left(\frac{1}{TA_{t-1}}\right) + \beta_1\left(\frac{\Delta SALES_t - \Delta AR_t}{TA_{t-1}}\right) + \beta_2\left(\frac{PPE_t}{TA_{t-1}}\right) + \beta_3\left(\frac{BV_t}{MV_t}\right) + \beta_4\left(\frac{OCF_t}{TA_{t-1}}\right) + \varepsilon_t$$

and the residual value from this model is discretionary accruals. $TA_{t-1}$ is the total assets at the beginning of the year t, $\beta_0, \ldots, \beta_4$ are the regression coefficients, and $\varepsilon_t$ is the error term in a regression equation, while t refers to the fiscal year before the IPO year.

Previous empirical studies on earnings management are dominated by the approach in which, to eliminate the heterogeneity of the sample, the structural parameters of the accruals models are estimated using a time series approach for each firm or cross-sectional for a given industry (Subramanyam, 1996, pp. 249–281). The use of both approaches encounters significant limitations, as the time series approach accepts the temporal stationarity of coefficients and the cross-sectional approach posits the homogeneity among companies in the same industry. Moreover, both approaches lead to the reduction in the study sample size because it is required to eliminate the small subgroups, usually containing less than 10 observations. Taking that into account, I follow Ecker *et al.* (2013, pp. 190–211) and combine companies into a relatively homogeneous sets of observations according to their size measured by lagged total assets. Thus, in this study to determine the discretionary accruals, first, I divide all 221 new stock companies into 10 subsamples of firms of a similar size, and then I estimate the structural parameters of the accruals model separately for each decile group. Table 3 provides the results of these estimates.

The information necessary to conduct the empirical research is hand-collected from prospectuses of analyzed companies and their financial statements available in the *Notoria Service* database.

## Results

As an overall view, I first report the mean and median of some characteristics of the companies included in the study sample and comparison results. Reporting such statistics for separate samples provides initial information of the impact of PE funds among shareholders on the IPO company profile. Table 4 indicates that there are some differences between the two groups of companies.

The information in Table 4 indicates that the IPOs conducted due to the divestment process of PE funds are on average slightly bigger, generate higher sales, operating cash flow and net income, as well as have less liabilities in the financing structure. As far as the median among these characteristics is concerned, these companies outperform the matched sample only from the point of view of achieved net profit and total assets. In terms of age and profitability, there is almost no difference between these groups. However, it should be noticed that all these differences lack statistical significance.

Table 4 suggests that the size of the primary and secondary portion as well as corresponding proceeds are significantly different between PE-backed IPOs and the matched sample. The average (median) primary portion is bigger for companies that are not financed by the PE fund and amount to 25.95% (26.08%) of shares outstanding pre-IPO. These companies, through the issuance of new shares, increase their capital by 39.98 million PLN on average, with a median of 29.19 million PLN. In turn, in the sample of PE-backed companies it is clear that the decision to go public is linked to the divestment incentive. In this group, the secondary shares sold to public represents on average 22.40% of pre-IPO outstanding shares, with the median of 21.76%. Although the percentage of primary and secondary shares placed in public varies between the analyzed samples, the difference in the total amount of money collected is statistically insignificant.

To analyze whether the presence of a PE fund among the company's shareholders affects the quality of financial reporting of companies conducting IPO, which is expressed in earnings management, first, I estimate the value of discretionary accruals for all 221 IPOs qualified for the study sample. Figure 1 shows the results of these calculations.

The scale of earnings management is diversified among the whole sample, although it is dominated by companies in which the ratio of discretionary accruals scaled to total assets varies between -0.1 and 0.1, i.e. a unimodal distribution is observed in the histogram. Then one can see the small

advantage of companies deliberately reporting lower financial results, i.e. with negative discretionary accruals.

Next, I turn my attention strictly to the issue of earnings management in PE-backed companies and the matched sample. Table 5 presents descriptive statistics and results of the analysis.

In the PE-backed IPOs the average discretionary accruals scaled to total assets amount to 0.0129 and it is slightly smaller as compared to the matched sample in which the mean is at the level of 0.0218. In turn, the median of discretionary accruals is lower in the matched sample and amounts to -0.0025 in comparison to PE-backed companies with the median of 0.0094. However, both the t-test and the Wilcoxon test show the lack of the statistical significance of the observed differences. In the matched sample I observe greater differentiation of the analyzed category. In this group of IPOs DACC varies between -0.2266 and 0.5974 and from -0.0976 in the first quartile to 0.0967 in the third quartile. Overall, my findings do not indicate that the presence of PE funds among the shareholders of the company in the period preceding the process of going public has a significant impact on the scale of earnings management prior to the IPO and are not in line with the hypothesis I posit.

It is worth adding that the general picture of the scale of earnings management obtained in the analysed Polish listed companies does not differ significantly from the results reported for companies from other European countries (Cerqueira & Pereira 2015, pp. 638–661; Narzo *et al.*, 2018, pp. 37–54), or more precisely from the Central and Eastern European countries (Cherkasova & Rasadi, 2017, pp. 441–468; Lindahl & Schadéwitz, 2017, pp. 24–49).

## Conclusions

The assessment of intentional action aiming at the presentation of a certain financial result in the period preceding the first listing of company's shares on the stock exchange is important for a number of capital market participants, especially managers, original and future shareholders who making financial decisions in a situation of substantial information asymmetry have to consider their later consequences.

In this paper, I investigate the issue of the PE funds' impact on the quality of financial reporting in the companies that go public and I draw the following main conclusion. In contrast to previous studies, I do not provide evidence that companies using PE financing have less aggressive financial reporting. The analysis shows that the difference between the level of dis-

cretionary accruals in PE-backed and other companies, when controlling for the market value and book-to-market ratio, is statistically insignificant.

It is an important fact from the point of view of investors who make decisions about their capital involvement in a company going public under the conditions of information asymmetry. Although, in general, it is indicated that PE funds contribute to the improvement of the quality of financial reporting, investors in the Polish stock market should be cautious in this area, and the reported financial results should be interpreted carefully.

However, there are several limitations to the results presented in this study. First, the Polish private equity market is relatively small in comparison to the developed markets of Western Europe and the US, so the study sample size is considerably reduced. Then, I analyze earning management using only the discretionary accruals. The issue of the real earnings management activities used by managers of PE-backed and other companies in the period preceding IPO is an interesting research area, however, very difficult to investigate because of the limitation in data availability. Moreover, for the future research, it becomes important to find answers to the question about timing of earnings management around the IPO. The quarterly data may be especially useful in this respect.

## References

Arya, A., Glover, J. C., & Sunder, S. (2003). Are unmanaged earnings always better for shareholders? *Accounting Horizons, 17*(S-1). doi: 10.2308/acch.2003.17.s-1.111.

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of Accounting and Economics, 45*(2-3). doi: 10.1016/j.jacceco.2007.12.001.

Black, B. S., & Gilson, R. J. (1998). Venture capital and the structure of capital markets: banks versus stock markets. *Journal of Financial Economics, 47*. doi: 10.1016/S0304-405X(97)00045-7.

Cadman, B., & Sunder, J. (2014). Investor horizon and CEO horizon incentives. *Accounting Review, 89*(4). doi: 10.2308/accr-50719.

Cerqueira, A., & Pereira, C. (2015). Accounting accruals and information asymmetry in Europe. *Prague Economic Papers, 24*(6). doi: 10.18267/j.pep.528.

Chahine, S., Arthurs, J. D., Filatotchev, I., & Hoskisson, R. E. (2012). The effects of venture capital syndicate diversity on earnings management and performance of IPOs in the US and UK: an institutional perspective. *Journal of Corporate Finance, 18*(1). doi: 10.1016/j.jcorpfin.2011.11.007.

Cherkasova, V., & Rasadi, D. (2017). Earnings quality and investment efficiency: evidence from Eastern Europe. *Review of Economic Perspectives, 17*(4). doi: 10.1515/revecp-2017-0023.

Cohen, D. A., & Langberg, N. S. (2009). Venture capital financing and the informativeness of earnings. *Asia-Pacific Journal of Accounting & Economics, 16*(2). doi: 10.1080/16081625.2009.9720836.

Cumming, D. J., & Macintosh, J. G. (2003). A cross-country comparison of full and partial venture capital exits. *Journal of Banking & Finance, 27*(3). doi: 10.1016/s0378-4266(02)00389-8.

Darrough, M., & Rangan, S. (2005). Do insiders manipulate earnings when they sell their shares in an initial public offering? *Journal of Accounting Research, 43*(1). doi: 10.1111/j.1475-679x.2004.00161.x.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review, 70*(2).

DuCharme, L. L., Malatesta, P. H., & Sefcik, S. E. (2004). Earnings management, stock issues, and shareholder lawsuits. *Journal of Financial Economics, 71*(1). doi: 10.1016/s0304-405x(03)00182-x.

Ecker, F., Francis, J., Olsson, P., & Schipper, K. (2013). Estimation sample selection for discretionary accruals models. *Journal of Accounting and Economics, 56*(2-3). doi: 10.1016/j.jacceco.2013.07.001.

Ertimur, Y., Sletten, E., Sunder, J., & Weber, J. (n.d.). When and why do IPO firms manage earnings? *SSRN Electronic Journal*. doi:10.2139/ssrn.2704621.

Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance, 51*(1). doi:10.2307/2329302.

Gioielli, S. P., Carvalho, A. G., & Sampaio, J. O. (2013). Venture capital and earnings management in IPOs. *Brazilian Business Review, 10*(4). doi: 10.15728/bbr.2013.10.4.2.

Grabiński K. (2016). Impact of Economic Crisis on Earnings Management in European Listed Companies. *Zeszyty Teoretyczne Rachunkowości, 87*(143).

Graham J. R., Harvey C. R., & Rajgopal S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics, 40*(1−3).

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4). doi: 10.2308/acch.1999.13.4.365.

Hochberg, Y. V. (2012). Venture capital and corporate governance in the newly public firm. *Review of Finance, 16*(2). doi: 10.1093/rof/rfr035.

Hu, Z., Cai, W., Han, J., & Sa, R. (2012). An empirical study of the effect of venture capital participation on the accounting information quality of IPO firms. *China Journal of Accounting Research, 5*(3). doi: 10.1016/j.cjar.2012.08.004.

Huyghebaert, N., & Hulle, C. V. (2006). Structuring the IPO: empirical evidence on the portions of primary and secondary shares. *Journal of Corporate Finance, 12*(2). doi: 10.1016/j.jcorpfin.2005.01.001.

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research, 29*(2). doi: 10.2307/2491047.

Kaplan, S. N., Martel, F., & Strömberg, P. (2007). How do legal differences and experience affect financial contracts? *Journal of Financial Intermediation, 16*(3). doi: 10.1016/j.jfi.2007.03.005.

Katz, S. P. (2009). Earnings quality and ownership structure: the role of private equity sponsors. *Accounting Review, 84*(3).

Krishnan, C. N., Ivanov, V. I., Masulis, R. W., & Singh, A. K. (2011). Venture capital reputation, post-IPO performance, and corporate governance. *Journal of Financial and Quantitative Analysis, 46*(05). doi: 10.1017/s0022109011000251.

Larcker, D. F., & Richardson, S. A. (2004). Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research*, 42(3). doi: 10.1111/j.1475-679x.2004.t01-1-00143.x.

Lindahl, F., & Schadéwitz, H. (2017). Accounting quality in Eastern Europe after communism. *Journal of East-West Business, 24*(1). doi: 10.1080/10669868.2017.1403988.

Liu, X. (2013). Venture capitalists and portfolio companies' real activities manipulation. *Review of Quantitative Finance and Accounting, 43*(1). doi: 10.1007/s11156-013-0369-5.

Masulis, R. W., & Thomas, R. S. (2009). Does private equity create wealth? The effects of private equity and derivatives on corporate governance. *University of Chicago Law Review, 76*.

Meluzín, T., Zinecker, M., Balcerzak, A. P., & Pietrzak, M. B. (2018). Why do companies stay private? Determinants for IPO candidates to consider in Poland and the Czech Republic. *Eastern European Economics, 56*(6). doi: 10.1080/00128775.2018.1496795.

Morsfield, S. G., & Tan, C. E. (2006). Do venture capitalists influence the decision to manage earnings in initial public offerings? *Accounting Review, 81*(5). doi: 10.2308/accr.2006.81.5.1119.

Nahata, R. (2008). Venture capital reputation and investment performance. *Journal of Financial Economics, 90*(2). doi: 10.1016/j.jfineco.2007.11.008.

Narzo, A. F., Freo, M., & Mattei, M. M. (2018). Estimating accruals models in Europe: industry-based approaches versus a data-driven approach. *Economic Research-Ekonomska Istraživanja, 31*(1). doi:10.1080/1331677x.2017.1421991.

Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons* (December)

Sieradzki, R, & Zasępa, P. (2016). Underpricing of private equity/venture capital backed IPOs. Do they differ from other offers? *Argument Oeconomica, 1*(36).

Sosnowski, T. (2017). Corporate governance and the time to full exit in the private equity divestment process on Warsaw Stock Exchange. *Acta Universitatis Lodziensis. Folia Oeconomica, 2*(328). doi:10.18778/0208-6018.328.02.

Subramanyam, K. (1996). The pricing of discretionary accruals. *Journal of Accounting and Economics, 22*(1-3). doi:10.1016/s0165-4101(96)00434-x.

Teoh, S. H., Welch, I., & Wong, T. (1998). Earnings management and the long-run market performance of initial public offerings. *Journal of Finance, 53*(6). doi: 10.1111/0022-1082.00079.

Wójtowicz, P. (2015). Earnings management to achieve positive earnings surprises in case of medium size companies listed in Poland. *International Journal of Accounting and Economics Studies*, *3*(2). doi: 10.14419/ijaes.v3i2.5258.

Wongsunwai, W. (2012). The effect of external monitoring on accrual-based and real earnings management: evidence from venture-backed initial public offerings. *Contemporary Accounting Research*, *30*(1). doi:10.1111/j.1911-3846.2011.01155.x.

Xie, H. (2001). The mispricing of abnormal accruals. *Accounting Review*, *6*(3). doi: 10.2308/accr.2001.76.3.357.

Zarowin, P. (2015). Estimation of discretionary accruals and the detection of earnings management. *Oxford Handbooks Online*, doi: 10.1093/oxfordhb/9780199935406.013.20.

# Annex

**Table 1.** Selection of the study sample

| | | |
|---|---|---|
| **New stock companies in 2005-2015** | | 372 |
| Foreign companies | | 58 |
| Excluded due to transfer from NewConnect or MST-CeTo | | 59 |
| Excluded due to the lack of primary or secondary sale | | 15 |
| Banks and insurance companies | | 5 |
| Lack of required information | | 14 |
| **Companies qualified for further research, in which:** | | 221 |
| Portfolio companies of PE funds: | 38 | |
| Other companies: | 183 | |

**Table 2.** Descriptive statistics of the initial market value (MV) and book-to-market ratio (BV/MV) of both samples

| **Specification** | **MV (in thousands PLN)** | | **BV/MV** | |
|---|---|---|---|---|
| | **PE sample** | **Matched sample** | **PE sample** | **Matched sample** |
| Mean | 327196.5 | 287112.8 | 0.2209 | 0.2286 |
| Std. dev. | 293972.3 | 340979.9 | 0.2201 | 0.2180 |
| Lower quartile | 85844.2 | 98427.8 | 0.0851 | 0.0912 |
| Median | 266145.5 | 211670.9 | 0.1569 | 0.1587 |
| Upper quartile | 415476.5 | 332203.5 | 0.3040 | 0.3063 |
| Number of companies | 38 | 38 | 38 | 38 |
| Kolmogorov-Smirnov Z test | p-value>0.1000 | | p-value>0.1000 | |

**Table 3.** The accruals models for each subsamples of IPOs

| **Specification** | $\beta_0$ | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ | **F statistics** | **Adj $R^2$** |
|---|---|---|---|---|---|---|---|
| | 208,08 | 0,0277 | 0,1022 | 0,7252 | -0,9094 | 6,7072 | 0,5647 |
| 1st group | (0,0069) | (0,5147) | (0,4713) | (0,3086) | (0,0000) | (0,0013) | |
| | 1164,57 | 0,0382 | 0,1650 | -0,2336 | -0,5185 | 7,4155 | 0,5932 |
| 2nd group | (0,0855) | (0,0075) | (0,1810) | (0,5135) | (0,0004) | (0,0008) | |
| | 2883,30 | 0,0769 | -0,0367 | -0,1096 | -0,6334 | 12,6030 | 0,7250 |
| 3th group | (0,0158) | (0,0682) | (0,6826) | (0,5716) | (0,0000) | (0,0000) | |
| | 944,26 | -0,0554 | 0,0631 | 0,1047 | -0,2023 | 2,7299 | 0,2822 |
| 4th group | (0,5771) | (0,1248) | (0,5064) | (0,4848) | (0,0764) | (0,0548) | |
| | 3324,21 | 0,0790 | -0,1364 | 0,3499 | -1,2001 | 9,3508 | 0,6549 |
| 5th group | (0,3732) | (0,2611) | (0,4448) | (0,0971) | (0,0000) | (0,0002) | |
| | 1544,35 | 0,0179 | -0,1508 | 0,3793 | -0,6705 | 9,4690 | 0,6581 |
| 6th group | (0,6918) | (0,6781) | (0,0145) | (0,0724) | (0,0010) | (0,0002) | |
| | 8099,97 | -0,0510 | -0,1408 | 0,1665 | -0,3201 | 1,4432 | 0,0915 |
| 7th group | (0,3902) | (0,2396) | (0,2595) | (0,2592) | (0,2516) | (0,2595) | |
| | 5157,60 | 0,0370 | -0,0406 | 0,1276 | -0,6739 | 4,8566 | 0,4671 |
| 8th group | (0,4407) | (0,2989) | (0,6361) | (0,2003) | (0,0011) | (0,0061) | |

**Table 3.** Continued

| Specification | $\beta_0$ | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ | F statistics | Adj $R^2$ |
|---|---|---|---|---|---|---|---|
| | -7334,11 | 0,1952 | -0,0735 | 0,1305 | -0,4083 | 2,3701 | 0,2375 |
| 9th group | (0,5960) | (0,0218) | (0,4341) | (0,1280) | (0,0937) | (0,0834) | |
| | 25734,55 | 0,0785 | 0,0589 | 0,0443 | 0,2392 | 4,4711 | 0,4301 |
| 10th group | (0,0836) | (0,8590) | (0,5564) | (0,7624) | (0,0093) | (0,0080) | |

Numbers in parentheses are p-value

**Table 4.** Characteristics of companies qualified to the research sample

| Specification | Mean | | t-test of difference in means | Median | | Wilcoxon rank-sum test of difference in medians |
|---|---|---|---|---|---|---|
| | PE sample | Matched sample | p-value for t-statistics | PE sample | Matched sample | p-value for z-statistics |
| **Panel A: Firm characteristics** | | | | | | |
| SALES | 209.25 | 165.06 | 0.5802 | 82.81 | 84.45 | 0.4268 |
| EAT | 17.35 | 8.17 | 0.2449 | 8.10 | 5.34 | 0.2342 |
| OCF | 11.96 | 6.40 | 0.2382 | 3.68 | 4.11 | 0.4268 |
| ASSETS | 158.41 | 156.70 | 0.9770 | 105.33 | 79.92 | 0.6217 |
| DR | 0.4973 | 0.5786 | 0.2963 | 0.5203 | 0.6186 | 0.2342 |
| ROA | 0.1447 | 0.1424 | 0.9495 | 0.1072 | 0.0872 | 0.6969 |
| AGE | 22.37 | 23.50 | 0.8295 | 15.00 | 16.00 | 0.7711 |
| **Panel B: IPO transaction characteristics** | | | | | | |
| IPO PROCEEDS | 86.55 | 60.85 | 0.1984 | 52.33 | 36.20 | 0.4030 |
| PRIMARY PROCEEDS | 21.18 | 39.98 | 0.0204 | 12.13 | 29.19 | 0.0176 |
| SECONDARY PROCEEDS | 65.37 | 20.88 | 0.0198 | 33.79 | 0.00 | 0.0005 |
| PRIMARY PORTION | 0.1646 | 0.2595 | 0.0242 | 0.1257 | 0.2608 | 0.0037 |
| SECONDARY PORTION | 0.2240 | 0.0921 | 0.0023 | 0.2176 | 0.0000 | 0.0003 |

SALE is total sales. EAT is earnings after taxes. OCF is operating cash flow. ASSETS is total assets. DR is debt to total assets. ROA is earnings after taxes to total assets. AGE is firm age at the IPO. IPO (PRIMARY, SECONDARY) PROCEEDS is the number of total (primary, secondary) shares sold in IPO times the offer price [in million PLN]. PRIMARY (SECONDARY) PORTION is the ratio of new (existing) shares sold in the IPO relative to the total number of shares pre-IPO.

**Table 5.** Summary statistics of discretionary accruals for PE-backed IPOs and matched sample

| Specification | Mean | Std. dev. | Lower quartile | Median | Upper quartile | Min | Max |
|---|---|---|---|---|---|---|---|
| PE sample | 0,0129 | 0,1177 | -0,0503 | 0,0094 | 0,0474 | -0,2871 | 0,3525 |
| Matched sample | 0,0218 | 0,1605 | -0,0976 | -0,0025 | 0,0967 | -0,2266 | 0,5974 |
| t-statistic, t-test of difference in means | | | | | | | 0,2754 |
| p-value from a t-test statistic | | | | | | | 0,7838 |
| z-statistic, Wilcoxon rank-sum test of difference in medians | | | | | | | 0,8152 |
| p-value from a Wilcoxon rank-sum test statistic | | | | | | | 0,2337 |
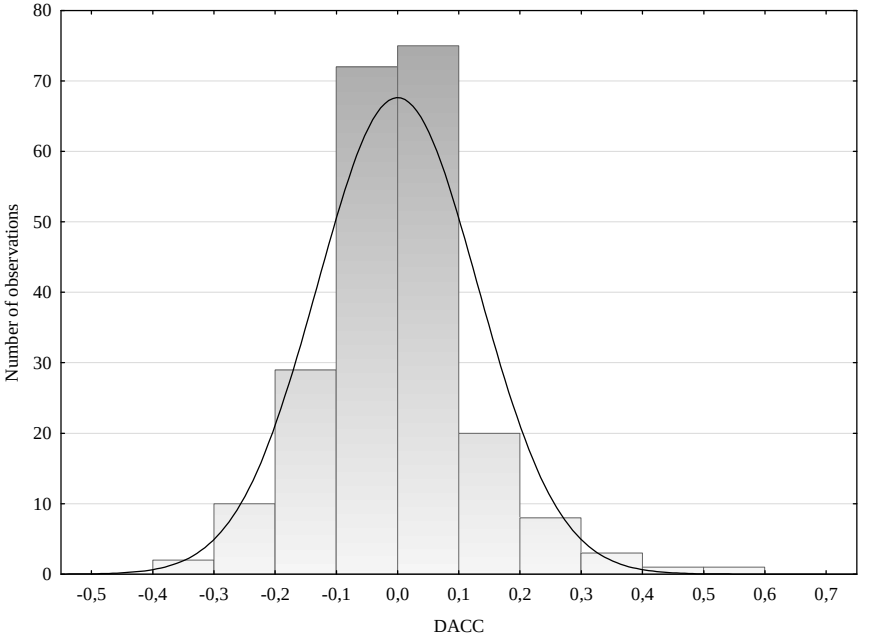
**Figure 1.** Distribution of discretionary accruals for the total sample of 221 IPOs